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# THE EFFECTIVENESS OF POLYACRYLAMIDE IN REDUCING TURBIDITY CAUSED BY HIGH CLAY SEDIMENT: A STUDY OF THE IMPACTS OF BLENDS, MIXING, AND SEDIMENT CONCENTRATIONS

**A Thesis**

**Presented for the**

**Master of Science**

**Degree**

**University of Tennessee Knoxville**

**Kenton Michael Brotherton**

**August 2007**

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# DEDICATION

This thesis is dedicated to my parents, Michael and Vona Brotherton, for always believing in me and for their understanding, support, and love.

# ACKNOWLEDGEMENTS

I would like to thank many people who have contributed to the success of this project. I would first like to thank Dr. John Buchanan for providing the opportunity to work on this project and for believing in me when most did not. He provided me with knowledge, wisdom, direction and support during this project. Thank you to Dr. Daniel Yoder and Dr. Neal Eash for serving on my committee and also providing knowledge, wisdom, direction and support for the project. Thank you to Timothy Gangaware of the Water Resources Research Center, for his wisdom, support and funding for this project. Thank you to David Smith for his electronic expertise used during this project. Thank you to the University of Tennessee Department of Biosystems Engineering and Soil Science for providing me with the opportunity to further my education; for that I am grateful. Thank you to Wesley Wright for his friendship and support. I would also like to thank fellow graduate student Brian Marsh and undergraduate David Foster. I am grateful for their support and friendship.

I would also like to thank my grandparents Geneva and the late Kent Brotherton, Wanda and Billy Jeff Burns and the late David Inscore, for showing me the ethic and rewards of hard work. Thank you to my sister Kari for always being there for me when I needed a true friend to talk to and for her support and encouragement. Thank you to my niece Madison for showing me how great and precious life is. And last but certainly not least, I would like to thank my parents Michael and Vona Brotherton for first and foremost loving me, as well as pushing and supporting me though all my life endeavors. They taught and showed me what is most important in life and were always there for me

through the hard times. To my parents I will for always be in debt for making me the person I am today.

# ABSTRACT

Polyacrylamide was studied for its efficacy in reducing turbidity. The purpose of this research was to determine optimum conditions for 10 blends of PAM to reduce turbidity from construction site runoff. The research was based on 10 different PAM blends, researching concentrations (0, 1, 5, 10 ppm), PAM forms (dry granular or solution), mixing powers (80 and 150 rpm), and mixing times (1 and 2 minutes). The research was conducted in a laboratory setting using a PB-700$^{TM}$ Standard Jar Tester (Phipps and Bird, Richmond, Virginia) with a clay texture sediment source. The clay-textured sediment source was researched under two sediment-water concentrations of 2,000 and 10,000 parts per million (ppm). For non-polymer control, each sediment concentration was mixed for five minutes to ensure complete mixing. One minute after the cessation of mixing, turbidity measurements were taken on time intervals of 0.5, 2, 5, and 10 minutes. Using these same samples, polyacrylamide was then added to the sediment-water solution. Three replicates of the various treatment conditions, and similar turbidity measurements were then taken.

The data showed the most key aspects, on the average at reducing turbidity the greatest, were the dry forms of PAM for the 2,000 ppm sediment-water concentration and the solution forms of PAM for the 10,000 ppm sediment-water concentrations. Turbidity reductions were not as dramatic with the dry from of PAM, at the lower mixing power, with the shorter mixing time, at low PAM concentrations.

The data also provided evidence that all PAM blends demonstrate different turbidity reduction under different treatment combinations. This information shows the important issue that PAM is not exactly 100% PAM and each PAM product (blend) are

very soil dependent. This key issue needs to be considered when a PAM product is applied in any form or fashion.

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# CHAPTER I

## INTRODUCTION

### Background

Soil eroded from construction activities has a detrimental effect on the receiving aquatic environment. The soil erosion process begins with raindrops impacting the soil surface, which causes soil detachment. Soil detachment can be minimized through the use of surface cover practices (erosion prevention practices) including straw, hydro seeding, erosion control blankets, wood chips, etc. Soil erosion prevention practices reduce soil detachment by reducing raindrop impact energy, but soil particles still erode. Thus, even with erosion prevention practices sedimentation practices must be implemented in order to capture the eroded soil particles. These methods for capturing eroded soil particles include rock check dams, silt fences, straw bales, and sediment detention basins.

Sediment detention basins are designed to collect sediment-laden storm water, allow particle sedimentation to occur, and then slowly release the storm water. These basins work well in settling out the coarse and silt size particles, but the fine particles are often held in suspension and are released into the adjacent streams. The release of the fine particles often causes streams to become impaired with excess sediment particles.

Polyacrylamide (PAM), a chemical flocculant, has been used for many years in wastewater treatment facilities for flocculation of suspended particles. In the 1950's PAM began being used to control soil erosion and to increase infiltration in furrow irrigation systems (Lentz and Sojka, 1994; Trout et al., 1995; Bjorneberg and Aase, 2000; Lentz and Bjorneberg, 2003). In the 1980's PAM was used for soil erosion control with success with the addition of surface cover practices such as straw and mulch. However,

this research was conducted with PAM being placed on the soil in conjunction with sedimentation basins. The research has shown that PAM reduces the concentration of fine soil particles out of a suspension through the process of flocculation (McLaughlin, 2005).

## Justification

Agricultural lands in Tennessee are being developed to meet the needs of an increasing population. Land developments such as housing, schools, shopping centers, and roadways, are replacing agriculture lands. In Knox County, Tennessee, in 2006, there were nearly 17,000 acres of urban or other land developments (Harris, 2006). These land disturbances often result in an increase in soil erosion by water (Howard, 1974). Because of the potential damage to local ecosystems, this erosion rate increase has become a great concern over the past few decades. Soil erosion resulting from construction activities can cause environmental problems such as deposition, silitation, turbidity, and loss of habit within streams (Tennessee Department of Environment and Conservation, *TDEC*, 2002). Further, chemicals and nutrients attached to the eroded soil particles can be washed into reservoirs, lakes, streams and rivers.

A specific concern is the increase in turbidity in waters adjacent to construction activities. Turbidity is the measurement of water cloudiness caused by the amount of suspended matter within a solution and is often measured in nephelometric turbidity units (NTUs). Nephelometric turbidity units are a measurement of how much light is dispersed by suspended particles within water. The greater the light dispersion, the higher the turbidity values and therefore, the lower the water clarity. Turbidity meter response to a

given suspension is governed mainly by the light source, dector, and optical geometry (Lewis, 1996). In addition to the turbidity meter design, turbidity measurements are affected by particle size distribution, particle shape, composition, and water color (Gippel, 1989). Przepiora et al. (1998) found that the turbidity of water discharged from sedimentation basins at two construction sites during a one-year period ranged from 120 to 3200 NTUs, which for this site relates to suspended solids concentrations of 90 to 2800 mg $L^{-1}$. Gippel (1989) stated that visible light turbidity meters are more sensitive to scattering from the fine soil fraction, while in terms of percent weight contributed to the suspended load, the coarser fraction is often more important. Lewis (1996) tested a nephelometric turbidity meter that measured infrared backscatter at 180° with two particle size classes, 0-63 μm and 63-125 μm, sieved from field samples. Turbidity readings were taken once per second and averaged over 60 s. The response to fines was linear ($r2$ = 0.9999) and to fine sands was nearly linear ($r2$ = 0.995, with a quadratic fit $r2$ = 0.9997). Sensitivity to the fines was much greater than to sands (Figure 1). This research demonstrates that a water sample with a high concentration of a coarse fraction of soil could have a lower turbidity measurement than that of a sample with a higher degree of a fine fraction of soil particles.

In general, sediment concentration and turbidity are two different water quality measurements. Sediment concentration is the soil mass contained per unit volume of water and is an appropriate representation of actual erosion from construction sites. This research focuses on turbidity because of the visual standard used by the state of Tennessee.

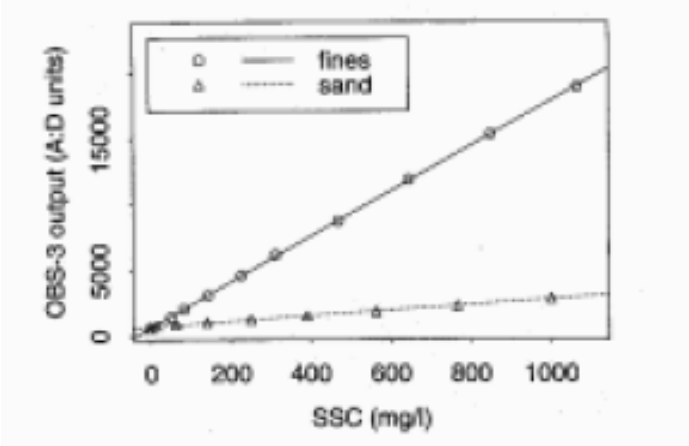



**Figure 1 Lewis (1996) Turbidity Meter Responds Function Curve.**

Deposition is a term used to describe the settling of particles or sediment in suspension. Siltation is the accumulation of fine particles onto or in the beds of streams or lakes. Siltation often alters the physical, chemical, and biological properties of these waters. Siltation affects over 4,000 stream miles and nearly 2,700 lake acres in Tennessee. This is the largest cause of impaired water quality in Tennessee streams (*TDEC*, 2002).

In the United States storm water pollution prevention plans (SWPPPs) must be developed with appropriate best management practices (BMPs) to reduce erosion from land disturbances (U.S. EPA, 2006). A SWPPP must be developed if construction activity disturbs one acre or greater of total land area. Also, a sedimentation basin is to be constructed where the total drainage area on or through the construction site at any given time is 10 acres or greater (TDEC, 2002). Sedimentation basins located on construction sites detain sediment-laden water and allow larger soil particles to settle before the water is discharged. Fine particles suspended within these basins often pass through the basins

and cause an increase in turbidity levels in the adjacent waters. Therefore, the fine sediment fraction is of most interest when designing a system to prevent increased turbidity levels downstream from a construction site.

# CHAPTER II

## REVIEW OF LITERATURE

### Polyacrylamide

Polyacrylamide (PAM) is a chemical compound made up of many acrylamide monomers bonded together to produce a larger polymer. Polyacrylamide is in a class of compounds formed by the polymerization of acrylamide and related monomers with or without further functionalizations (Barvenik, 1994). The synthesis of PAM produces several thousands of these building blocks that are linked together into a long chain. Long linear chains are the general configurations for erosion-control PAMs. There are two other configurations of PAM, which are not widely used in erosion control: branched and cross-linked. Cross-linked PAMs are produced when many linear chains bond together and are often used as a soil conditioner because of its high water holding capacity (Lentz and Sojka, 1997). The PAM molecule's size and charge determines how it will react to the soil (Lentz and Sojka, 1997).

Polyacrylamide itself has a neutral charge. When reacted with nitrogen PAM becomes positively charged (cationic), and when reacted with oxygen PAM becomes negatively charged (anionic). Cationic PAMs are very harmful and toxic to aquatic species and are not widely used for erosion or sediment control (NC State, 2005). Tests have shown that the cationic form of PAM may bind to the gills of fish (Goodrich et al., 1991) so most PAMs used in erosion control are in the anionic form. A detailed study of neutral and anionic PAMs in many aquatic species found them to be non-toxic. The doses were much greater (>100 mg $L^{-1}$) than would be used for erosion or turbidity control

(McCollister et al., 1965). They found that the anionic PAM was only toxic to fish when the concentration was high enough to make the water viscous. Tobiason et al., (2001) found that the anionic PAM used in their study was not toxic to daphnids in both acute and chronic tests. An acute test exposes organisms to PAM concentrations for relative short time intervals (24-96 hours), where chronic tests expose organisms for longer time intervals (7 days). The acute test is for lethality and immobilization, while the chronic test investigates for lethality, and impacts on growth and reproduction issues.

Water-soluble polymers such as PAM appear to have a variety of beneficial soil amendment properties: increase infiltration, minimization of water runoff, reduction of erosion and crusting, and stabilization of soil structure (Barvenik, 1994). Research investigating the use of PAM for soil conditioning began in the 1950's. During this time, a low molecular weight form of PAM was introduced as a method for erosion control in agriculture (Soupir et al., 2004). These lower molecular weight PAMs were expensive and not widely used. With the advances in chemistry, PAM was reintroduced with a higher molecular weight in the late 1980's (Soupir et al., 2004). An increase in the molecular weight increases the length of the polymer chain and the viscosity (Green et al., 2000). Linke (1962) showed that higher molecular weight PAM tends to be more effective for flocculation than lower molecular weight PAM. Therefore; higher molecular weight PAM is a better solution for erosion and sediment control practices due to the greater particle flocculations capturing more eroded sediment.

Polyacrylamide causes flocculation of suspended particles. Flocculation is the process of promoting suspended soil particles to "stick" together. Flocculation processes

are used to improve removal of solids in both drinking water and wastewater treatment, through stabilization and aggregation of suspended material.

Through flocculation, polyacrylamide can enhance the settling of the fine particles within basins. The negatively charged form of PAM binds to the negatively charged clay sites through a process called bridging (Laird, 1997). The anionic form of PAM would be expected to be repulsed from negatively charged clay particles, but through this cation-bridging phenomenon they are attracted (Green et al., 2000; Laird, 1997). Polyacrylamide reduces repulsive forces among the fine particles and creates bridges between soils aggregate particles through bonding with the particles (Ben-Hur, 1994). Soil adsorption of PAM occurs when the negative charge is screened by high electrolyte concentrations or when multivalent cations are present on the clay surfaces (McLaughlin, 2002). The multivalent cations act as bridges between the anionic groups of the polymer and the negative clay surfaces. In the presence of electrolytes, the negative charge and the thickness of the diffuse double layer at the clay and polymer surfaces are suppressed, resulting in decreased repulsion forces and greater adsorption of soil particles to the anionic polymer (Shainberg and Levy, 1994). Anionic polymers also adsorb to the broken edges of clay by attraction between the negative groups of the polymer and the positive aluminum ions exposed on broken clay edges (Ben-Hur et al., 1992). Polymers mainly interact with the clay fraction of a soil, creating clay flocculation and lowering the relative turbidity caused by suspended clays (Deng, 2001).

Polyacrylamide increases soil wettability (Janczuk et al., 1992), increases water stable aggregation in soils (Terry and Nelson, 1986), and stabilizes shrinkage cracks in clayey soils (Malik et al., 1991). Treating soil with PAM results in lower bulk densities,

reduces surface sealing, and increases in infiltration (McLaughlin, 2002). Also, after the addition of PAM, soil aggregates are more resistant to slaking during rapid wetting (Mitchell, 1986) and are better able to withstand raindrop impact (Shainberg et al., 1992).

Polyacrylamide can be purchased in three forms: dry granular, solid block, or in a liquid form. PAM can be dissolved in water and applied to a field, or the dry granulars can be spread onto a soil surface. When granular PAM is mixed with water, the substance is introduced into the water very slowly under constant agitation, causing the PAM to go into solution (McLaughlin, 2005). Granular forms of PAM can be formed into solid blocks using a binding agent. These solid blocks can be placed and secured in inlet pipes. As sediment-laden water flows across the block, PAM is released and mixed with the storm water (Shrestha et al., 2006). Another application technique is to introduce an aqueous PAM solution, through drip or pump, into a basin (Shrestha et al., 2006).

Granular PAM forms are easy to store, transport, meter, and have a longer shelf life than liquid forms. However, liquid forms require less agitation to dissolve (NC State, 2005). Liquid polyacrylamide is usually applied through the use of a hydroseeder or hydromulcher. In order to expose suspended sediment to the PAM, runoff water must have high velocities to provide the turbulence for mixing (McLaughlin, 2005). Polyacrylamide can also enhance water clarification in a storm water detention basin when applied to the influent water. Under both conditions, once PAM is introduced, additional time is required for PAM to interact with the sediment and settle out of suspension. This additional time can be provided by a detention basin (Shrestha et al., 2006; McLaughlin, 2005).

**Polyacrylamide Mixing**

Mixing Power has a direct effect on the number and efficiency of collisions between polymers and soil particles. Insufficient mixing will not promote effective contacts, and the resulting floc formation will be impaired. Likewise, too much mixing can destroy a stable floc that has already been formed (May, 2005). T.R. Camp (1955), conducted work on velocity gradients. The data collected from his study concluded:

> *"the rate of flocculation caused by the motion of a fluid is directly proportional to the absolute velocity gradient, space rate of velocity at the point, and is directly proportional to the concentration of the particles at that point. It has also been shown that the absolute velocity gradient at a point of a fluid in motion is equal to the square root of the ratio of the power loss by shear volume of a fluid to the viscosity of the fluid. The velocity gradients at any instant throughout a vessel in use for flocculation vary considerably in magnitude. The gradient is greatest at the solid boundaries of the device used to introduce the mixing motion and the least in the farthest point from the introduction of the motion. However, there is a mean velocity gradient that corresponds with the mean value of the rate of power dissipation throughout a tank or conduit".*

Camp (1955), also showed, through previous work, that the rate of power dissipation (the work of shear per unit of volume per unit of time at a point) is known as the "dissipation function or power input". The mean value of the dissipation function, herein designated as *P*, is equal to the total power dissipation divided by the volume of the chamber or conduit (Newton-meter second$^{-1}$). The root-mean-square velocity is defined by equation 1.

$$G = \sqrt{\frac{P}{\mu V}} \quad \text{.....(1)}$$

Where *G* is the root-mean-square velocity gradient in the chamber (second$^{-1}$), $\mu$ is the dynamic viscosity of the fluid (Newton-second/meter$^2$) and V is the volume (meter$^3$).

Since the rate of flocculation is directly proportional to the velocity gradient *G*, flocculation time should decrease as *G* increases, so less time should be required to cause flocculation. For Velocity Gradient curves please see Appendix A FigureA-3.

Shrestha et al. (2006) conducted research on the effectiveness of polymers and additives to reduce suspended sediment load from a silt loam soil. Their study showed a polymer concentration of 1 ppm to be most effective at reducing a suspended sediment concentration of 2000 ppm using a mixing time of one minute. The longer the flocculation time (mixing time), the more chances for particle collision and flocs to form (May, 2005), However, during the same study, at higher soil-water concentrations (10,000 and 20,000 ppm), 1 ppm of polymer had no effect on reducing suspended sediment, and 5 to 10 ppm were no more effective then 1 ppm. Gregory (1989) stated that as sediment particle surfaces approached the point of water saturation, less free particle surface was available for polymer bridging contacts to form, and/or adsorbed PAM layers may have also caused electrostatic repulsion and particle stabilization. Shrestha et al. (2006) also showed that increasing mixing speeds increased the efficiency of polymers to reduce suspended sediment for both dry and solution polymer forms. They found a mixing speed of 130 $min^{-1}$, which is equivalent to a *G* value of 100, within a 2 L beaker, to be most effective using the standardized jar tester.

**Eroded Particle Size Distribution**

How easily a soil erodes is dependent upon many forces, such as gravity, the frictional force between two particles, the cohesiveness of the particles, and the shear force of water movement (Hillel, 1998). The texture of a soil often determines how these

forces will react. Soil texture is the proportionate distribution of sand, silt, and clay in a soil (Klute, 1986). The individual grain size of the primary particles is the basis for the traditional approach of classifying soil texture and sediments (Haan et al., 1994). The size, shape, and density of a soil particle affects the settling velocity of that particle, which in turn affects the sediment transport rates and the point of particle deposition (Haan et al., 1994).

Coarse soils, such as sands, have the largest particle sizes and are the easiest to detach, but are the hardest to transport. Silts are medium size soil particles and are the second easiest particle size to detach. Fine soil particles are the hardest to detach and are the hardest to capture after erosion has taken place (Table 1). Hann et al., (1994) explained that once a particle detaches, it becomes part of a flow and has the potential to be transported a few millimeters or hundreds of kilometers. The distance an eroded particle will travel is generally based on the size of the soil particle. As deposition occurs, larger particles (coarse) will settle concurrently but at different velocities, followed by the silts and then by the fine particles.

Fine soil particles will typically erode first as aggregates rather than a single primary particle. Soil aggregates are defined as many soil particles held together in a

**Table 1 Particle Sizes using the International Society of Soil Science Standards (Klute, 1986).**

| Soil Series | Particle Size (mm) |
|---|---|
| Sand | 2.0 |
| Silt | 0.2 |
| Clay | 0.002 |

single mass or cluster. Gravity and shear forces often break down these aggregates as they travel downslope.

**Particle Settling**

The settling velocity of a particle can be estimated using Stokes' law.

$$V = \frac{2}{9}\frac{gr^2\left(d_1 - d_2\right)}{\mu}$$

*Where:*

$V$ is the velocity of the falling particle (cm/sec)
$r$ is the radius of the particle (cm),
$g$ is the acceleration due to gravity (cm/sec$^2$),
$d_1$ is the density of the particles (g/cm$^3$),
$d_2$ is the density of the medium (g/cm$^3$), and
$\mu$ is the viscosity of the medium (dyne sec/cm$^2$).

Stokes' law demonstrates that the velocity of a spherical particle settling under the influence of gravity in a fluid of a given density and viscosity is proportional to the square of the particle radius (Hillel, 1998). Through these calculations, one can determine that the finer particles (especially smaller clays) could take days, weeks, or even months to settle out. These particles generally escape the sediment basins, which then leads to an increase in turbidity levels in adjacent streams.

The particle size distribution also affects deposition performance of a sediment basin. Hann et al. (1994) stated that particle size distribution affects the trapping efficiency of a basin and is reflected primarily by settling velocities of the particles. The rate that a particle falls after being lifted by water flowing is considered the settling velocity. May (2005) presented settling velocity data, representing ideal conditions and using Stokes' Law (Table 2). In field conditions, soil particles settle slower than predicted by Stokes Law. Stokes Law assumes there are no inter-particle interactions, no

turbulence, and spherical particle shape. Each of these perimeters serves to hinder the settling velocity.

## Turbidity

Discharge of suspended solids in runoff water causes an increase in stream turbidity, which has an adverse effect on aquatic life and detrimental effects on water quality (USEPA, 1988). However, only a limited number of studies have been conducted on the effectiveness of PAM at reducing storm water turbidity as it exits sedimentation basins. The erosion prevention and sediment control handbook (TDEC, 2006) helps set guidelines for erosion control structures. These structures do a good job at capturing the larger particles. However, the clays and fine silts are usually the root of the problem for turbidity entering adjacent streams. Turbidity can be reduced in three ways: the runoff can be stored long enough for the particles to settle out (which could take weeks or months for fine particles), filter the stored runoff, or treat the runoff with chemicals. McLaughlin (2002) conducted research on three construction sites in North Carolina. The first part of the experiment was to identify the PAM that provided the largest decrease in turbidity. The experiment used the "Jar Test" method to select the PAM products that were effective in reducing turbidity. Each jar had 5 g of soil added to 100 ml of water that contained several different molecular weights and charge

**Table 2 Particle Settling Times under perfect condition using Stokes' Law**

| Typical | Size (mm) | 1 m Fall Time |
|---|---|---|
| Gravel | 10.0 | 1 sec |
| Coarse Sand | 1.0 | 10 sec |
| Fine Sand | 0.1 | 125 sec |
| Silt | 0.01 | 108 min |
| Clay | 0.0001 | 755 days |

*(May, 2005)*

densities of PAM. A PAM blend from Soilfix® from Ciba Specialty Chemicals® and Siltstop 705® from Applied Polymer Systems® was most effective. The Soilfix PAM blend was 95% PAM with a molecular weight of 16 g $mol^{-1}$ and a charge density of 30%. The Siltstop PAM blend was a combination of two PAMs, each with a different molecular weight and charge density. The molecular weight and charge density for the Siltstop blend is proprietary. Siltstop 705 is widely used across the Southeastern United States. For the second part of McLaughlin's research, each PAM product was applied at two applications rates and with and without grass seed/straw mulch on a 2:1 fill slope, a 4:1 cut slope, and a 4:1 fill slope. The results showed that PAM application rates up to 10.5 kg $ha^{-1}$ were not found to be effective in significantly reducing runoff volume, turbidity, or sediment losses without grass seed and straw mulch.

**Sedimentation Basins**

One of the most effective on-site sediment controls is a sediment retention basin (Haan et al., 1994). Sedimentation basins are useful for minimizing the effects of construction activities that produce large volumes of runoff. Sedimentation basins should be designed so the length is four times greater than the width, which enhances settling efficiency. The 4:1 L: W ratio increases the flow length, which decreases short-circuiting and minimizes turbulence with the basin. Increasing the detention storage time of the water in the basin allows smaller particles more time to settle. Detention storage time is defined as the average time that a given flow resides in a basin (Haan, et al., 1994). Particle characteristics, flow-through velocities, surface loading rates, sediment concentrations, and other lesser factors can have an effect on the sediment basin's

trapping efficiency. The slower the flow-through velocity and the longer the detention storage time in a basin, the greater the sediment removal efficiency. These basins are often used in conjunction with other sediment-control practices or BMPs (TDEC, 2002).

The major factors that control sediment transport through a sediment basin include the physical characteristics of the sediment, distribution of suspended particle sizes, basin size, hydraulic characteristics of the basin, basin geometry, and the chemistry of the water and sediment (Haan et al. 1994, Pope and Hess, 1988; Martin, 1998; Bhaduri et al., 1995; Millen et al., 1997). Sediment basins are very effective for capturing particles with higher settling velocities. Fine silt and clays have very low settling velocities; therefore, sedimentation basins are largely ineffective at reducing turbidity due to these particles (Schueler and Lugbill, 1990). TDEC (2002) reported sedimentation basins have trapping efficiencies of 50 to 70% due to the smaller particles passing through the basins.

Fall velocities within a basin can be increased with the addition of chemical flocculants. Flocculants cause agglomeration, or the building up of smaller particles into larger size aggregates, and are able to settle out of the suspending liquid more rapidly. Polyacrylamide (PAM) is a well known flocculant that has the potential to address the increased turbidity levels leaving the basins. However, little is known about the efficacy of using PAM to reduce the turbidity of storm water discharge from a sediment basin.

Under normal construction conditions, sediment basins are only 50 to 70% effective in trapping sediment (TDEC, 2002). Trapping efficiency is a function of de-watering time, particle size, and fall velocity. Basins can be modified to increase retention times. For detention time to increase a basin must be constructed larger. Baffles

are used to lengthen the flow path and distribute the flow more widely, causing the storm water to be re-routed to a longer flow path. Baffles significantly increase the amount of sediment captured and also trap much smaller particles than open basins.

Flocculants have a long history for treatment of municipal water supplies. However, chemical flocculants have only been used for a short time to reduce turbidity levels in sedimentation basins. Results from a field test performed by Przepiora et al. (1998) showed that gypsum ($CaSO_4$*0.5 $H_20$), when used as a chemical flocculant on a construction site, reduced turbidity from a range of 100 to 1650 (NTUs) down to levels as low as 15 to 70 NTUs. This research was conducted in North Carolina on both a silt loam in Carrboro County and a sandy loam in Chapel Hill, under field conditions. Three sedimentation basins served as the experimental units, two in Carrboro County and one in Chapel Hill, with eight tests conducted on each basin. Gypsum was applied at different time intervals and at concentrations ranging from 420 to 600 mg $L^{-1}$ to sedimentation basins and was based on the volume of impounded water determined at the beginning of the experiment. Their study showed that turbidity levels dropped to less than 70 NTUs, which complies with North Carolina state regulations for discharging runoff into a stream (Przepiora et al., 1998). *It is very important to note there are no regulations regarding NTUs for the state of Tennessee*. However, in the state of Tennessee, turbidity standard is to not cause an objectionable color contrast in the receiving stream, the Tennessee Department of Transportation (TDOT) shall evaluate the BMPs employed (TDEC, 2006) if an objectionable color contrast is noticed.

# Objectives

The goal of this study is to determine optimum conditions for 10 blends of PAM to reduce turbidity in construction site runoff. The specific objective of this research is to determine the most effective form, concentration, mixing power, and mixing time for each PAM blend.

# CHAPTER III

## MATERIALS AND METHODS

### Overview

A laboratory procedure was developed to evaluate the optimal mixing conditions for dry granular PAMs and a solution form of PAM. Due to research from Deng (2001) stating that polymers mainly interact with the clay fraction of a soil, a clay-textured sediment source was tested at sediment-water concentrations of 2,000 and 10,000 ppm. With this soil, sediment-water concentrations of 2,000 and 10,000 ppm cause turbidity levels to range between 150 and 1,000 NTUs. These NTU values are within the range that Przeporia et al. (1989) found from a construction site, which ranged between 100 to 1650 NTUs. Both sediment-water solutions were used to determine the most effective combination of PAM form (dry granular or solution), PAM concentration (0, 1, 5, and 10 ppm), mixing powers (80 and 150 rpm), and mixing times (1 and 2 minutes) for each PAM blend (10 blends). As described in the background section, the rate of mixing (rpm) provides a measure of mixing power. Mixing power (rpm) times units of time (minutes) would therefore provide a specific measurement of mixing energy, which would be expressed in units of revolutions. A certain mixing power represents a velocity gradient ($G$) that generates a mixing energy through mixing power per unit of time based on the absolute viscosity of solution and volume. The PAM concentrations, mixing powers, and mixing times where based on previous work by Shrestha et al., (2006). Their research showed 1 ppm PAM concentrations to be more effective than 5 and 10 ppm with a velocity gradient of approximately 120 $sec^{-1}$ and a mixing time of one minute to be optimal over a longer mixing time.

A soil sample was collected from Knox County. Particle-size analysis was performed to determine the sand, silt and clay fraction of the soil. A wet sieving technique was used to determine the sand fraction and the hydrometer method was used to determine the percent clay and silt fraction within each soil (Klute, 1986). Through these procedures, having three replications, the soil was classified using the USDA textural triangle as a clay having a textural content of 20.8% sand, 18.4% silt, and 60.8% clay. An outline of the research procedure follows.

## Procedure

Each PAM blend was researched using a laboratory grade jar test device PB-700$^{TM}$ (Phipps and Bird, Richmond, Virginia) (Figure A-4). Jar tests were used to determine how each PAM blend reacted to various treatments. Samples were rapidly stirred to simulate rapid mixing, and then gentle stirred to simulate flocculation (Camp, 1955).

Each jar test consisted of adding 2g of soil into a jar with 1 L of water, representing a sediment concentration of 2,000 parts per million (ppm). Likewise, adding 10g of soil into a jar with 1 L of water represented a sediment concentration of 10,000 ppm (Table 3).

Both sediment-water solutions were then mixed for five minutes, to ensure complete mixture of the solution. All mixing and stirring was conducted through the use of a PB-700$^{TM}$. Six separate two-liter beakers were used in order to allow the soil-water solution to be mixed continuously at appropriate speeds. Each jar contains a sample port

**Table 3 Sediment-Water Concentration Rates**

| Sediment Concentration (ppm) | Amount of Soil (g) | Amount of water (L) |
|---|---|---|
| 2,000 | 2 | 1 |
| 10,000 | 10 | 1 |

1.75 inches above the base of the beaker that facilitates sampling at required times without disturbing the settling process (Figure 2).

For each sediment-water solution, PAM concentrations of 0 (control), 1, 5, and 10 ppm were added, in either dry granular or solution form, and mixed for either one or two minutes at different mixing powers, depending on the treatment. The dry granular PAM was mixed under constant agitation causing it to go into solution. Each procedure was replicated three times for each treatment combination. Table 4 shows each dry granular PAM concentration while Table 5 shows each solution PAM concentrations.

The mixing powers were provided by the standardized jar tester. Two rotational velocities were studied. The 80 rpm corresponds to a velocity gradient of 70 $sec^{-1}$ and the 150 rpm has a velocity gradient of 150 $sec^{-1}$.

Different companies, including Applied Polymer Systems (APS), Ciba Specialty Chemicals, and Cytec, provided PAM blends for this study. *Note: Polyacrylamide blends are proprietary and are not 100% PAM product.*

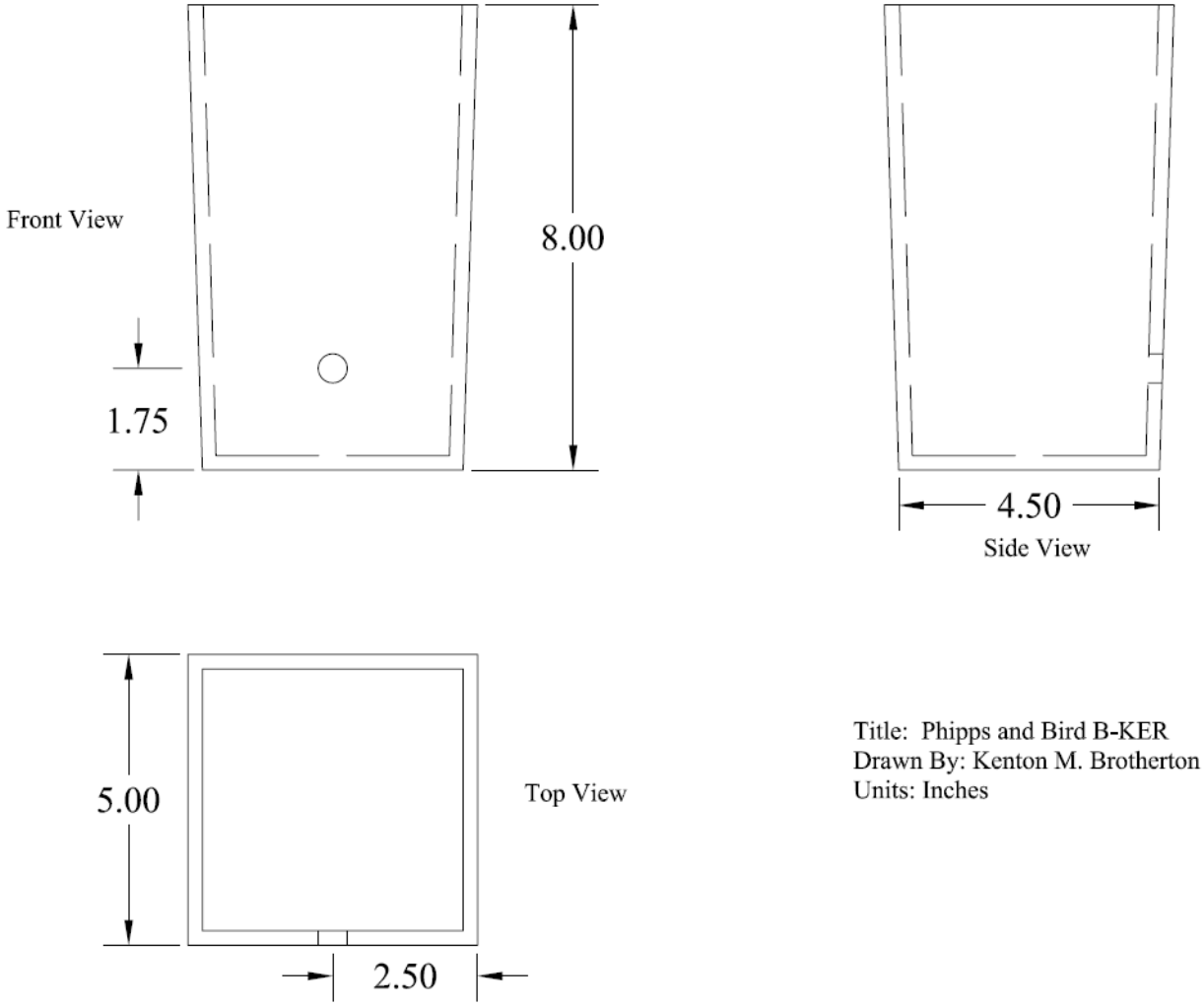



**Figure 2 Phipps and Bird B-KER**

## Turbidity Measurements

For the non-polymer control, each sediment concentration was mixed for five minutes to ensure complete mixing. One minute after the cessation of mixing, turbidity measurements were taken on time intervals of 0.5, 2, 5, and 10 minutes. Using these same samples, polyacrylamide was then added to the sediment-water solution. Turbidity samples were then taken through the sample port. Turbidity of the sample was measured by scattered light at 90 degrees from the light source from a LaMotte 2020® turbidity meter (LaMotte Company, Charlestown MD). A reference beam then passed through the sample and was measured at 180 degrees. The ratio of these two readings is electronically converted to a turbidity measurement in NTU by the turbidity meter.

Turbidity measurements were recorded at time intervals of 0.5, 2, 5, and 10 minutes, for each batch, through a sampling port before and after the addition of PAM. These time intervals illustrated how PAM reduces turbidity initially and over a time period. The appropriate PAM concentrations and forms were then added and mixed for

**Table 4 Dry PAM Concentrations**

| PAM Concentration (ppm) | Amount of PAM (g) | Amount of Water (L) |
|---|---|---|
| 0 | 0 | 1 |
| 1 | 0.001 | 1 |
| 5 | 0.005 | 1 |
| 10 | 0.01 | 1 |

either one or two minutes, depending on the treatment, at the appropriate mixing power. After the sediment-water-PAM solution had mixed, the solution was then allowed to settle for one minute and likewise, turbidity measurements were then taken. From the analysis of this data, the most effective PAM concentration, PAM form, PAM mixing power, and mixing times for each PAM blend was determined for each sediment-water concentration.

## Soil Type

The location selected for soil sample collection was in the southwestern part of Knox County. Knox County is located within the ridges and valleys of East Tennessee (see FigureA-4). The soil sample had a clay texture make-up and was classified as a Decatur-Dewey-Waynesboro (USDA, 1942).

**Table 5 PAM Concentrations in Solution**

| **Stock Solution: 1g PAM into 1L Water** | |
|---|---|
| PAM Concentration (ppm) | Amount of PAM (mL) |
| 0 | 0 |
| 1 | 1 |
| 5 | 5 |
| 10 | 10 |

# CHAPTER IV

## RESULTS AND DISCUSSION

Each PAM blend (Table 6) was researched under four treatments. APPENDIX C through APPENDIX J show the total turbidity reductions for each blend and how the different treatments affected turbidity reduction.

Analysis of the data was performed through a factorial CRD design with repeated measures, replicates, and a covariate. Repeated measures were based on the settling times of 0.5, 2, 5, and 10 minutes, with three replications and a covariate was based on the initial turbidity values. Analysis of variance (ANOVA) was performed by using a mixed model procedure (Proc Mixed, SAS 2000). The ANOVA f-test calculated the treatment means that were significantly different from each other, under a four-way interaction, with an alpha level of 0.05. If the ANOVA f-test showed that a four-way interaction was not significant, a three-way interaction test was conducted with an alpha level of 0.05 (Saxton, 2006). Mean separations were conducted using Fisher's LSD with an alpha level of 0.05 (Saxton, 2006). Normality was checked through Shapiro-Wilk with a W statistic of 0.9 (Saxton, 2006). Levene P was used to ensure quality of variance with an alpha level of 0.05. When variance problems existed within the data, a rank transformation was conducted. *Note: once a rank transformation has been performed, the measure of the Shapiro-Wilk (W) normality is of no interest, because normality is no longer needed* (Saxton, 2006).

**Table 6 PAM blends used in the research**

| Flocculants | Molecular Weight ($g\ mol^{-1}$) |
|---|---|
| APS 702 | Mixture |
| APS 705 | Mixture |
| APS 712 | Mixture |
| APS 730 | Mixture |
| APS 740 | Mixture |
| Ciba | 16 |
| Cytec-A-100 | 4 |
| Cytec-A-100-HWM | 16 |
| Cytec-A-120 | 2 |
| Cytec-A-120-HMW | 16 |

The data shows the potential for PAM to reduce turbidity, if treatment variables are optimized. In selecting PAM as a sediment control, one needs to look at the selection process of which combinations of treatments works best for their situation. The treatment, which seems the easiest for a given situation is the process that should be utilized. In doing so, one needs to take into consideration the advantages and disadvantages of the application of a PAM product. One needs to understand the more mixing power that is required for the flocculation process to take place that more power and work will be required, which leads to an increase in fuel. Likewise, the more PAM product is applied the higher the cost of using the PAM.

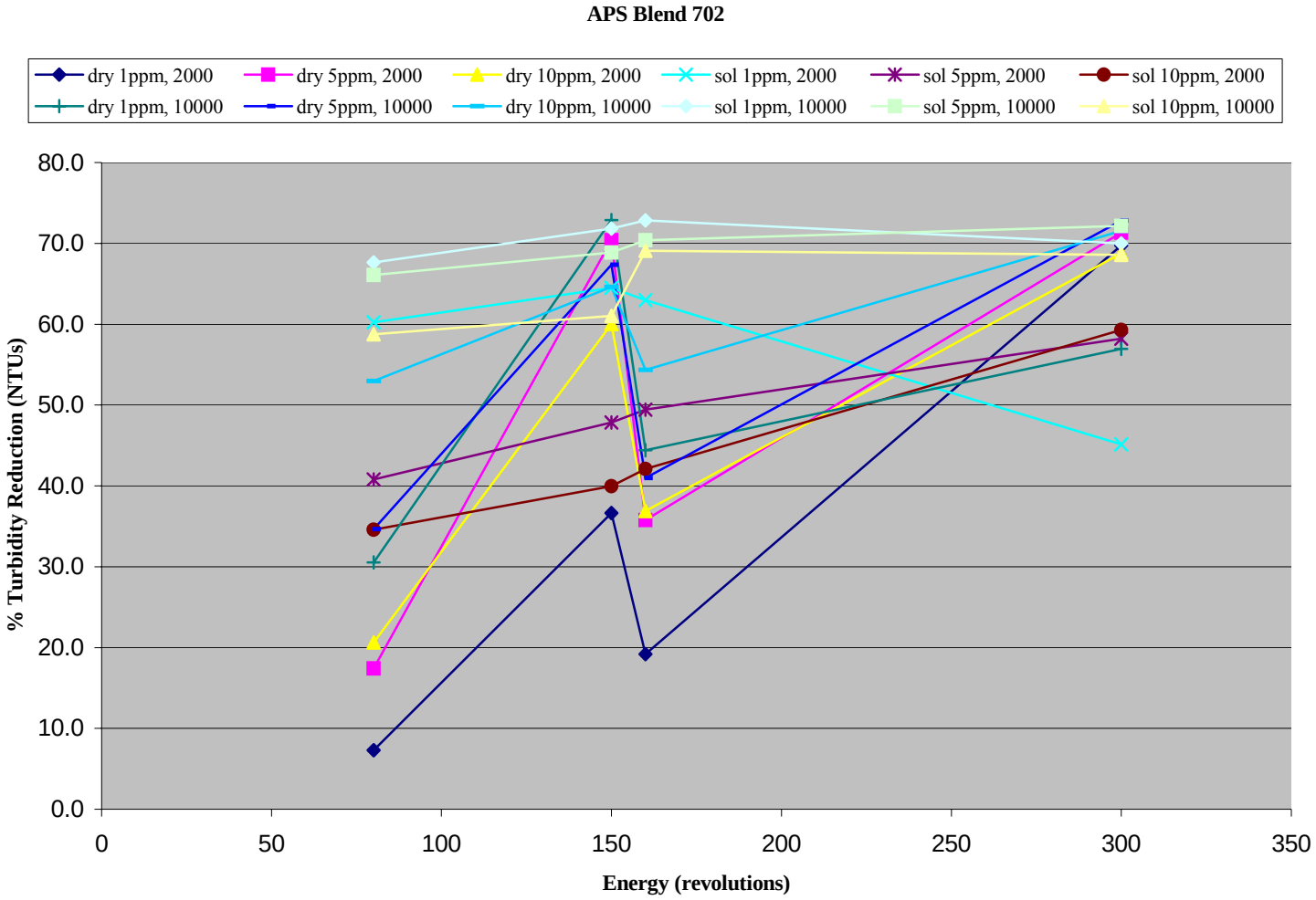
Three polymer blends where chosen randomly to demonstrate the impacts of mixing energies on the percent turbidity reductions based on initial turbidity values (Graphs 1, 2, and 3). Each graphic illustration demonstrates the same trends. For both sediment-water concentrations, the dry forms of PAM were more effective at both higher energies and mixing powers. However, for both sediment-water concentrations, the

solution forms of PAM demonstrated much less response to both mixing energies and mixing powers, probably due to the polymer already being available. For both PAM forms, and each blend, the illustration shows turbidity reductions for both high mixing powers or high mixing energies to be nearly the same.

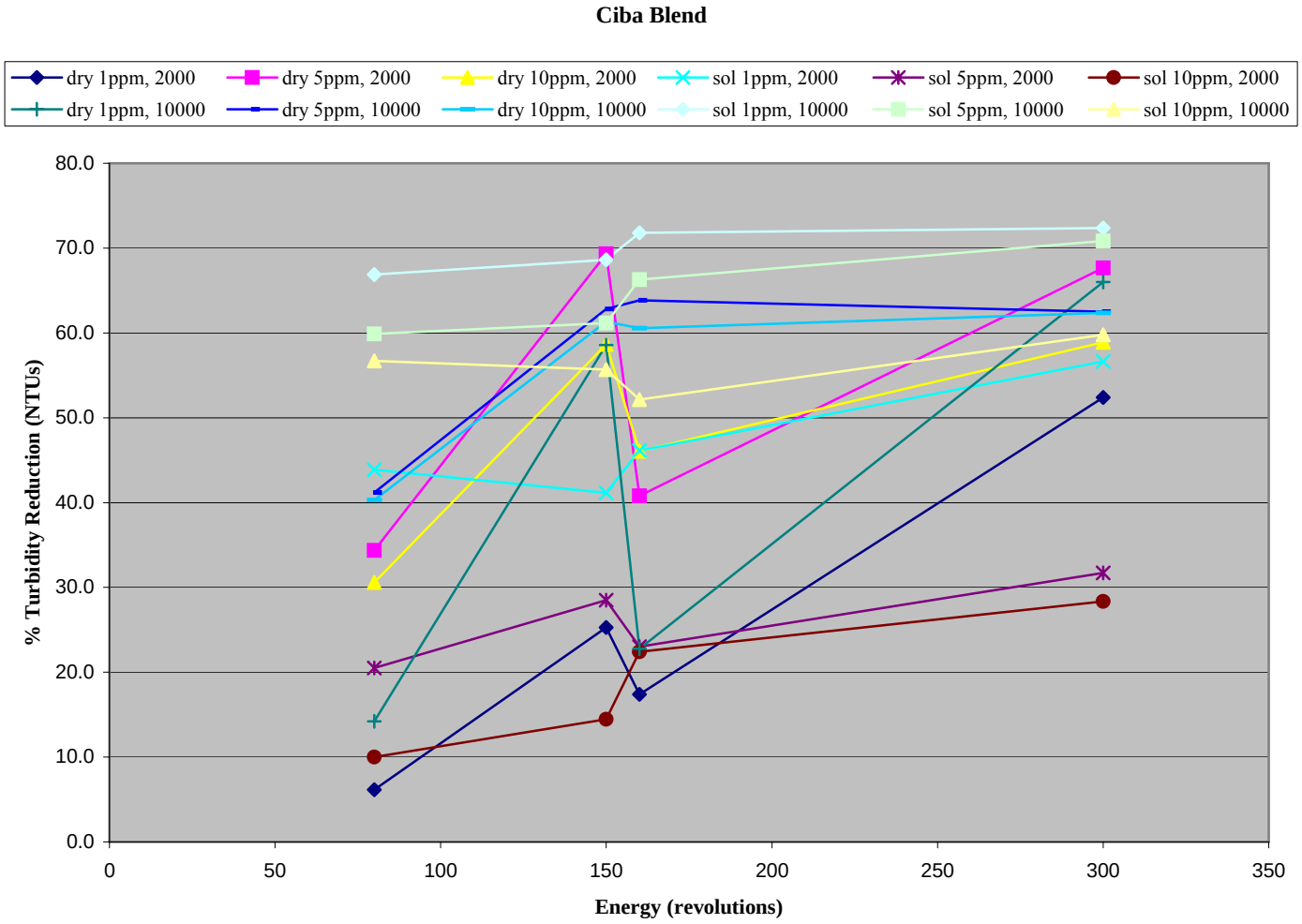
**Important PAM Issues**

- The dry form of PAM, with a sediment-water concentration of 2,000 ppm, reduced turbidity the best for all blends except the blend APS 705 under higher mixing powers.
- The solution form of PAM, with a sediment-water concentration of 10,000 ppm, reduced turbidity the best for all blends except the blend APS 702 where the dry form reduced turbidity the best.
- All PAM blends demonstrated different turbidity reduction under different treatment combinations. This information shows the important issue that PAM is not exactly 100% PAM and each PAM product (blend) are very soil dependent. This key issue needs to be considered when a PAM product is applied in any form or fashion.

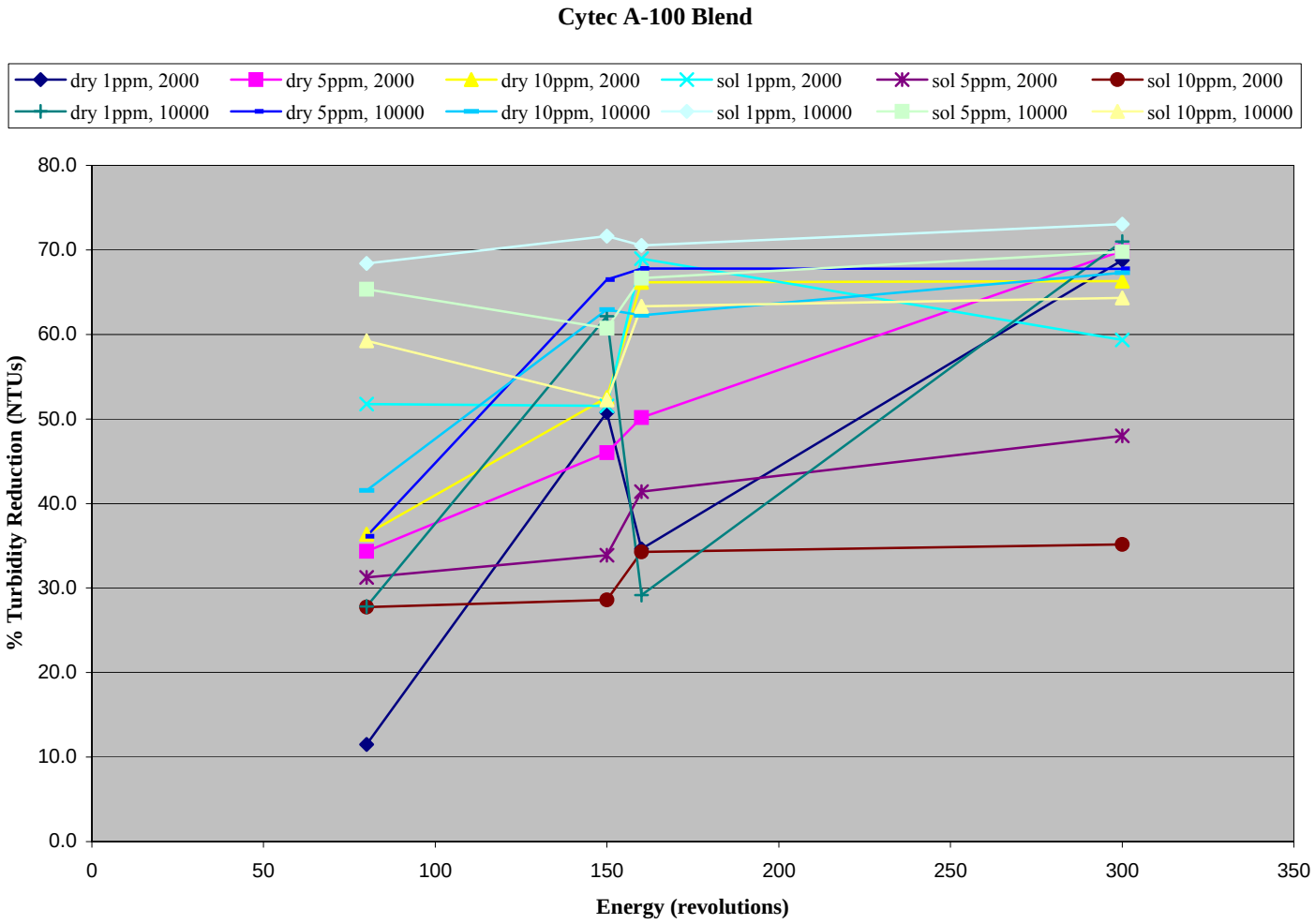
Specific analysis of the performance of each of the blends is shown after the three example figures (Graphs 1, 2, and 3).




**Graph 1 APS Blend 702: %Turbidity Reduction vs. Energy**




**Graph 2 Ciba Blend: %Turbidity Reduction vs. Energy**




**Graph 3 Cytec A-100 Blend: %Turbidity Reduction vs. Energy**

**APS 702, 2000 ppm Soil-Water Concentration**

The ANOVA f-test provided information that the treatment means were significantly different from one another. For the blend APS 702, with a sediment-water concentration of 2,000 ppm, there were differences ($F_{23, 264}$=42.07, P<0.0001) between treatments (Table 7). The treatment means ranged from 134.12 to 13.7417 NTUs of total turbidity reduction. A rank transformation was performed on the data in order to correct variance issues. Through the letter groupings, all dry forms of APS 702 under the higher mixing power, with a two minute mixing time and for both APS 702 concentrations, significantly reduced turbidity the greatest, along with dry form of APS 702 with a one minute mixing time and a concentration of 5 ppm. The solution form of APS 702, significantly reduced turbidity the same as the dry form of APS 702, with the higher mixing power with a one minute mixing time and a concentration of 1 ppm and also at the lower mixing power with a two minute mixing time with a 1 ppm concentration. Significantly the least reduction in turbidity came from the dry form of APS 702 with the lower mixing power and a one-minute mixing time for all concentrations and for the two minute mixing time with an APS 702 concentration of 1 ppm.

**APS 702, 10,000 ppm Soil-Water Concentration**

The ANOVA f-test provided information that the treatment means were significantly different from one another. For the blend APS 702, with a sediment-water concentration of 10,000 ppm, there were differences ($F_{23, 264}$=6.09, P<0.0001) between treatments (Table 8). The treatment means ranged from 685.88 to 287.25 NTUs of total turbidity reduction. A rank transformation was performed on the data in order to correct

**Table 7 Mean absolute differences of total turbidity reduction from APS 702, 2000 ppm soil-water concentration**

| Mean* | PAM Concentration (ppm) | Mixing Time (minutes) | Mixing Power (rpms) | Mixing Energy (revolutions) | PAM Form | Letter Grouping** |
|---|---|---|---|---|---|---|
| 134.12 | 5 | 2 | 150 | 300 | dry | A |
| 132.35 | 5 | 1 | 150 | 150 | dry | A |
| 131.08 | 1 | 2 | 150 | 300 | dry | AB |
| 129.3 | 10 | 2 | 150 | 300 | dry | ABC |
| 121.42 | 1 | 1 | 150 | 150 | solution | ABCD |
| 118.43 | 1 | 2 | 80 | 160 | solution | ABCD |
| 113.27 | 1 | 1 | 80 | 80 | solution | D |
| 112.82 | 10 | 1 | 150 | 150 | dry | BCD |
| 111.45 | 10 | 2 | 150 | 300 | solution | CD |
| 109.42 | 5 | 2 | 150 | 300 | solution | D |
| 92.9417 | 5 | 2 | 80 | 160 | solution | E |
| 89.9583 | 5 | 1 | 150 | 150 | solution | EF |
| 84.8333 | 1 | 2 | 150 | 300 | solution | EFG |
| 79.1333 | 10 | 2 | 80 | 160 | solution | FGH |
| 76.6917 | 5 | 1 | 80 | 80 | solution | GH |
| 75.1417 | 10 | 1 | 150 | 150 | solution | GHI |
| 69.5167 | 10 | 2 | 80 | 160 | dry | HI |
| 68.9083 | 1 | 1 | 150 | 150 | dry | HI |
| 67.2583 | 5 | 2 | 80 | 160 | dry | HI |
| 65 | 10 | 1 | 80 | 80 | solution | I |
| 38.8167 | 10 | 1 | 80 | 80 | dry | J |
| 36.1 | 1 | 2 | 80 | 160 | dry | J |
| 32.7667 | 5 | 1 | 80 | 80 | dry | J |
| 13.7417 | 1 | 1 | 80 | 80 | dry | J |

* Mean absolute differences are total turbidity reductions, and are in units of NTUs.

** Letter groupings with the same letter are not significantly different at the 95% confidence level.

**Table 8 Mean absolute differences of total turbidity reduction from APS 702, 10,000-ppm soil-water concentration**

| Mean* | PAM Concentration (ppm) | Mixing Time (minutes) | Mixing Power (rpms) | Mixing Energy (revolutions) | PAM Form | Letter Grouping** |
|---|---|---|---|---|---|---|
| 685.88 | 1 | 1 | 150 | 150 | dry | A |
| 685.62 | 1 | 2 | 80 | 160 | solution | AB |
| 685.01 | 5 | 2 | 150 | 300 | dry | AB |
| 678.92 | 5 | 2 | 150 | 300 | solution | AB |
| 675.95 | 1 | 1 | 150 | 150 | solution | ABC |
| 673.39 | 10 | 2 | 150 | 300 | dry | AB |
| 662.35 | 5 | 2 | 80 | 160 | solution | ABCD |
| 658.58 | 1 | 2 | 150 | 300 | solution | ABCD |
| 650.03 | 10 | 2 | 80 | 160 | solution | ABCDE |
| 648.14 | 5 | 1 | 150 | 150 | solution | ABCDE |
| 645.42 | 10 | 2 | 150 | 300 | solution | ABCDE |
| 636.71 | 1 | 1 | 80 | 80 | solution | ABCDE |
| 633.75 | 5 | 1 | 150 | 150 | dry | ABCDE |
| 621.96 | 5 | 1 | 80 | 80 | solution | ABCDE |
| 608.03 | 10 | 1 | 150 | 150 | dry | ABCDE |
| 574.37 | 10 | 1 | 150 | 150 | solution | ABCDE |
| 552.98 | 10 | 1 | 80 | 80 | solution | BCDE |
| 535.87 | 1 | 2 | 150 | 300 | dry | CDEF |
| 511.21 | 10 | 2 | 80 | 160 | dry | DEF |
| 498.42 | 10 | 1 | 80 | 80 | dry | EFG |
| 417.83 | 1 | 2 | 80 | 160 | dry | FGH |
| 385.5 | 5 | 2 | 80 | 160 | dry | GHI |
| 326.25 | 5 | 1 | 80 | 80 | dry | HI |
| 287.25 | 1 | 1 | 80 | 80 | dry | I |

* Mean absolute differences are total turbidity reductions, and are in units of NTUs.

** Letter groupings with the same letter are not significantly different at the 95% confidence level.

variance issues. Through the letter groupings, all dry forms of APS 702 with the higher mixing power and a concentration greater then 1 ppm reduced turbidity significantly the greatest. Along with all solution forms of APS 702, except that which had the lower mixing power mixed for a one minute mixing time and a concentration of 10 ppm. The least reduction in turbidity, significantly, came from all dry forms of APS 702 with the lower mixing power for any mixing time and for all APS 702 concentration. Also, the solution form of APS 702 with the lower mixing power and a one minute mixing time and a concentration of 10 ppm was shown to reduce turbidity the least significantly.

**APS 705, 2000 ppm Soil-Water Concentration**

The ANOVA f-test provided information that the treatment means were significantly different from one another. For the blend APS 705, with a sediment-water concentration of 2,000 ppm, there were differences ($F_{23, 264}$=89.67, P<0.0001) between treatments (Table 9). The treatment means ranged from 138.85 to 5.175 NTUs of total turbidity reduction. A rank transformation was performed on the data in order to correct variance issues. Through the letter groupings, all solution forms of APS 705, with the higher mixing power with any combination of mixing time and concentrations significantly reduced turbidity the greatest. In causing the least reduction in turbidity significantly were all dry forms of APS 705, for both mixing powers, mixing time, and concentrations.

**APS 705, 10,000 ppm Soil-Water Concentration**

The ANOVA f-test provided information that the treatment means were significantly different from one another. For the blend APS 705, with a sediment-water

**Table 9 Mean absolute differences of total turbidity reduction from APS 705, 2000 ppm soil-water concentration**

| Mean* | PAM Concentration (ppm) | Mixing Time (minutes) | Mixing Power (rpms) | Mixing Energy (revolutions) | PAM Form | Letter Grouping** |
|---|---|---|---|---|---|---|
| 138.85 | 1 | 2 | 150 | 300 | solution | A |
| 136.21 | 5 | 2 | 150 | 300 | solution | A |
| 133.42 | 10 | 2 | 150 | 300 | solution | A |
| 128.26 | 10 | 1 | 150 | 150 | solution | AB |
| 125.02 | 1 | 1 | 150 | 150 | solution | AB |
| 123.69 | 5 | 1 | 150 | 150 | solution | AB |
| 111.91 | 10 | 2 | 80 | 160 | solution | BC |
| 108.98 | 5 | 2 | 80 | 160 | solution | C |
| 91.2833 | 5 | 2 | 150 | 300 | dry | D |
| 85.4167 | 5 | 1 | 80 | 80 | solution | D |
| 83.9917 | 10 | 1 | 80 | 80 | solution | D |
| 83.5417 | 1 | 2 | 80 | 160 | solution | D |
| 81.3583 | 10 | 2 | 150 | 300 | dry | DE |
| 63.8583 | 1 | 1 | 80 | 80 | solution | E |
| 46.5167 | 10 | 1 | 150 | 150 | dry | F |
| 32.7583 | 10 | 2 | 80 | 160 | dry | FG |
| 32.6333 | 5 | 1 | 150 | 150 | dry | G |
| 30.1917 | 1 | 2 | 150 | 300 | dry | FG |
| 19.5 | 1 | 1 | 150 | 150 | dry | H |
| 18.75 | 10 | 1 | 80 | 80 | dry | H |
| 17.3333 | 1 | 1 | 80 | 80 | dry | H |
| 17.25 | 5 | 1 | 80 | 80 | dry | H |
| 14.3833 | 1 | 2 | 80 | 160 | dry | H |
| 5.175 | 5 | 2 | 80 | 160 | dry | I |

* Mean absolute differences are total turbidity reductions, and are in units of NTUs.

** Letter groupings with the same letter are not significantly different at the 95% confidence level.

concentration of 10,000 ppm, there were differences ($F_{23, 264}$=23.10, P<0.0001) between treatments (Table 10). The treatment means ranged from 660.62 to 92.75 NTUs of total turbidity reduction. A rank transformation was performed on the data in order to correct variance issues. Through the letter groupings, all solution forms of APS 705 reduced turbidity significantly the greatest for all treatments, except in having the lower mixing power with a one minute mixing time and a concentration of 5 ppm. Also, in reducing turbidity, significantly the same, was the dry form of APS 705 having a two-minute mixing time with a concentration of 10 ppm. Significantly in reducing turbidity the least, were all dry forms of APS 705, not having a two-minute mixing time or a concentration of 10 ppm.

**APS 712, 2000 ppm Soil-Water Concentration**

The ANOVA f-test provided information that the treatment means were significantly different from one another. For the blend APS 712, with a sediment-water concentration of 2,000 ppm, there were differences ($F_{23, 264}$=78.25, P<0.0001) between treatments (Table 11). The treatment means ranged from 126.18 to 15.9167 NTUs of total turbidity reduction. A rank transformation was performed on the data in order to correct variance issues. Through the letter groupings, the dry form of APS 712, for any combination of mixing power with a two minute mixing time and a concentration of 10 ppm significantly reduced turbidity the greatest. Also, all solution forms of APS 712 with the higher mixing power mixed for a two minute mixing time for any APS 712 concentration reduced turbidity the same. Significantly in reducing turbidity the least were all dry forms of APS 712 with the lower mixing power with a concentration below

**Table 10 Mean absolute differences of total turbidity reduction from APS 705, 10,000 ppm soil-water concentration**

| Mean* | PAM Concentration (ppm) | Mixing Time (minutes) | Mixing Power (rpms) | Mixing Energy (revolutions) | PAM Form | Letter Grouping** |
|---|---|---|---|---|---|---|
| 660.62 | 1 | 1 | 150 | 150 | solution | A |
| 634.29 | 1 | 2 | 80 | 160 | solution | AB |
| 619.29 | 10 | 1 | 80 | 80 | solution | AB |
| 615.37 | 5 | 2 | 80 | 160 | solution | ABC |
| 613.31 | 10 | 2 | 150 | 300 | solution | ABC |
| 608.44 | 10 | 2 | 80 | 160 | solution | ABCD |
| 605.48 | 1 | 2 | 150 | 300 | solution | ABC |
| 593.56 | 10 | 2 | 80 | 160 | dry | ABC |
| 589.06 | 5 | 1 | 150 | 150 | solution | ABCD |
| 583.73 | 10 | 1 | 150 | 150 | solution | ABCD |
| 583.67 | 10 | 2 | 150 | 300 | dry | ABCD |
| 574.05 | 1 | 1 | 80 | 80 | solution | ABCD |
| 564.16 | 5 | 2 | 150 | 300 | solution | ABCD |
| 519.14 | 5 | 1 | 80 | 80 | solution | BCD |
| 482.01 | 5 | 2 | 80 | 160 | dry | CDE |
| 461.81 | 5 | 2 | 150 | 300 | dry | DE |
| 355.67 | 1 | 2 | 150 | 300 | dry | EF |
| 252.09 | 10 | 1 | 150 | 150 | dry | FG |
| 178.33 | 1 | 2 | 80 | 160 | dry | GH |
| 165.75 | 10 | 1 | 80 | 80 | dry | GHI |
| 146.5 | 5 | 1 | 80 | 80 | dry | GHI |
| 135.25 | 1 | 1 | 80 | 80 | dry | HI |
| 112.5 | 5 | 1 | 150 | 150 | dry | HI |
| 92.75 | 1 | 1 | 150 | 150 | dry | I |

* Mean absolute differences are total turbidity reductions, and are in units of NTUs.

** Letter groupings with the same letter are not significantly different at the 95% confidence level.

**Table 11 Mean absolute differences of total turbidity reduction from APS 712, 2000 ppm soil-water concentration**

| Mean* | PAM Concentration (ppm) | Mixing Time (minutes) | Mixing Power (rpms) | Mixing Energy (revolutions) | PAM Form | Letter Grouping** |
|---|---|---|---|---|---|---|
| 126.18 | 10 | 1 | 80 | 80 | dry | A |
| 125.13 | 10 | 1 | 150 | 150 | dry | A |
| 119.24 | 10 | 2 | 150 | 300 | solution | AB |
| 118.5 | 1 | 2 | 150 | 300 | solution | AB |
| 109.91 | 5 | 2 | 150 | 300 | solution | ABC |
| 104.84 | 10 | 1 | 150 | 150 | solution | BC |
| 98.7583 | 1 | 1 | 150 | 150 | solution | C |
| 96.7 | 5 | 1 | 150 | 150 | solution | C |
| 84.1583 | 10 | 2 | 150 | 300 | dry | D |
| 78.3 | 5 | 2 | 80 | 160 | solution | DE |
| 73.1167 | 1 | 2 | 80 | 160 | solution | EF |
| 71.1667 | 10 | 2 | 80 | 160 | solution | EF |
| 66.7083 | 10 | 1 | 80 | 80 | solution | FG |
| 65.525 | 5 | 1 | 150 | 150 | dry | FG |
| 62.5917 | 5 | 2 | 150 | 300 | dry | FGH |
| 57.7667 | 5 | 1 | 80 | 80 | solution | GH |
| 52.4167 | 1 | 2 | 150 | 300 | dry | H |
| 34.475 | 10 | 2 | 80 | 160 | dry | I |
| 32.7667 | 1 | 1 | 80 | 80 | solution | I |
| 27.3083 | 1 | 1 | 150 | 150 | dry | IJ |
| 22.2167 | 1 | 1 | 80 | 80 | dry | JK |
| 20.4667 | 5 | 1 | 80 | 80 | dry | JK |
| 17.5 | 5 | 2 | 80 | 160 | dry | JK |
| 15.9167 | 1 | 2 | 80 | 160 | dry | K |

* Mean absolute differences are total turbidity reductions, and are in units of NTUs.

** Letter groupings with the same letter are not significantly different at the 95% confidence level.

10 ppm. Also, the solution form of APS 712 with the lower mixing power, a one minute mixing time and a concentration of 1 ppm reduced turbidity the least.

**APS 712, 10,000 ppm Soil-Water Concentration**

The ANOVA f-test provided information that the treatment means were significantly different from one another. For the blend APS 712, with a sediment-water concentration of 10,000 ppm, there were differences ($F_{23, 264}$=13.81, P<0.0001) between treatments (Table 12). The treatment means ranged from 655.39 to 159.63 NTUs of total turbidity reduction. A rank transformation was performed on the data in order to correct variance issues. Through the letter groupings, all solution forms of APS 712, significantly reduced turbidity the greatest, with the higher mixing power, for any mixing time, and also for the lower mixing power with a two minute mixing time. Also, the dry form of APS 712 reduced turbidity significantly the same for both mixing powers, but with a two minute mixing time, and with concentrations over 1 ppm. Significantly in reducing the least were the dry forms of APS 712 having the lower mixing power with a one minute mixing time for any APS 712 concentration and for having a two minute mixing time with a APS 712 concentration of 1 ppm. Also, the dry form of APS 712, with the higher mixing power with a one minute mixing time and a concentration of 1 ppm significantly reduced turbidity the least.

**APS 730, 2000 ppm Soil-Water Concentration**

The ANOVA f-test provided information that the treatment means were significantly different from one another. For the blend APS 730, with a sediment-water

**Table 12 Mean absolute differences of total turbidity reduction from APS 712, 10,000 ppm soil-water concentration**

| Mean* | PAM Concentration (ppm) | Mixing Time (minutes) | Mixing Power (rpms) | Mixing Energy (revolutions) | PAM Form | Letter Grouping** |
|---|---|---|---|---|---|---|
| 655.39 | 10 | 1 | 150 | 150 | solution | A |
| 638.44 | 10 | 2 | 80 | 160 | solution | AB |
| 631.47 | 5 | 1 | 150 | 150 | solution | AB |
| 626.15 | 5 | 2 | 150 | 300 | solution | AB |
| 625.42 | 1 | 1 | 150 | 150 | solution | AB |
| 621.73 | 10 | 2 | 150 | 300 | solution | AB |
| 619.72 | 1 | 2 | 150 | 300 | solution | AB |
| 617.15 | 5 | 2 | 80 | 160 | solution | ABC |
| 586.68 | 5 | 2 | 80 | 160 | dry | ABCD |
| 581.91 | 1 | 2 | 80 | 160 | solution | ABCD |
| 576.8 | 5 | 2 | 150 | 300 | dry | ABCD |
| 568.36 | 10 | 2 | 150 | 300 | dry | ABCD |
| 541.11 | 10 | 2 | 80 | 160 | dry | ABCD |
| 528.27 | 1 | 2 | 150 | 300 | dry | BCD |
| 525.02 | 1 | 1 | 80 | 80 | solution | BCD |
| 498.01 | 5 | 1 | 150 | 150 | dry | CD |
| 483.18 | 10 | 1 | 150 | 150 | dry | CD |
| 477.51 | 5 | 1 | 80 | 80 | solution | D |
| 470.9 | 10 | 1 | 80 | 80 | solution | D |
| 294.5 | 1 | 2 | 80 | 160 | dry | E |
| 192.58 | 1 | 1 | 80 | 80 | dry | E |
| 180.67 | 5 | 1 | 80 | 80 | dry | E |
| 180.5 | 10 | 1 | 80 | 80 | dry | E |
| 159.63 | 1 | 1 | 150 | 150 | dry | E |

* Mean absolute differences are total turbidity reductions, and are in units of NTUs.

** Letter groupings with the same letter are not significantly different at the 95% confidence level.

concentration of 2,000 ppm, there were differences ($F_{23, 264}$=31.91, P<0.0001) between treatments (Table 13).The treatment means ranged from 133.83 to 19.7083 NTUs of total turbidity reduction. A rank transformation was performed on the data in order to correct variance issues. Through the letter groupings, all dry forms of APS 730 significantly reduced turbidity the greatest for any combination of mixing power, mixing time, and concentrations, except that of the higher mixing power with a one minute mixing time with a concentration of 10 ppm. Significantly in reducing turbidity the least, there was not a distinct break point within the letter groupings. However, in looking at the absolute mean differences, the dry form of APS 730 with the lower mixing power with a one minute mixing time and a APS 730 concentration of 1 ppm provided the least turbidity reduction.

**APS 730, 10,000 ppm Soil-Water Concentration**

The ANOVA f-test provided information that the treatment means were significantly different from one another. For the blend APS 730, with a sediment-water concentration of 10,000 ppm, there were differences ($F_{23, 264}$=7.02, P<0.0001) between treatments (Table 14). The treatment means ranged from 720.82 to 218.92 NTUs of total turbidity reduction. A rank transformation was performed on the data in order to correct variance issues. Through the letter groupings, all solution forms of APS 730 with any mixing power and mixing time with a APS 730 concentration of 1 ppm significantly reduced turbidity the greatest. Also, the solution form of APS 730 with the higher mixing power and a two minute mixing time and a concentration of 5 ppm significantly reduced turbidity the same. All dry forms of APS 730 with the higher mixing power with any

**Table 13 Mean absolute differences of total turbidity reduction from APS 730, 2000 ppm soil-water concentration**

| Mean* | PAM Concentration (ppm) | Mixing Time (minutes) | Mixing Power (rpms) | Mixing Energy (revolutions) | PAM Form | Letter Grouping** |
|---|---|---|---|---|---|---|
| 133.83 | 5 | 2 | 150 | 300 | dry | A |
| 127.83 | 1 | 1 | 150 | 150 | dry | AB |
| 123.55 | 1 | 2 | 150 | 300 | dry | AB |
| 123.04 | 10 | 2 | 150 | 300 | dry | AB |
| 120.4 | 5 | 1 | 150 | 150 | dry | ABC |
| 116.39 | 1 | 2 | 150 | 300 | solution | BC |
| 112.07 | 10 | 1 | 150 | 150 | dry | BC |
| 111.34 | 5 | 2 | 80 | 160 | dry | BC |
| 111.03 | 10 | 2 | 80 | 160 | dry | BC |
| 105.73 | 1 | 1 | 150 | 150 | solution | CD |
| 89.725 | 1 | 2 | 80 | 160 | solution | DE |
| 87.5333 | 1 | 1 | 80 | 80 | solution | EF |
| 83.2917 | 10 | 1 | 80 | 80 | dry | EFG |
| 79.2083 | 1 | 2 | 80 | 160 | dry | EFGH |
| 72.9167 | 5 | 1 | 80 | 80 | dry | GH |
| 72.6917 | 5 | 1 | 80 | 80 | solution | FGH |
| 71.8583 | 5 | 2 | 80 | 160 | solution | FGH |
| 61.7 | 10 | 1 | 80 | 80 | solution | HI |
| 53.8917 | 5 | 1 | 150 | 150 | solution | IJ |
| 49.7167 | 5 | 2 | 150 | 300 | solution | IJK |
| 34.625 | 10 | 2 | 150 | 300 | solution | JKL |
| 34.2333 | 10 | 1 | 150 | 150 | solution | JKL |
| 32.3 | 10 | 2 | 80 | 160 | solution | KL |
| 19.7083 | 1 | 1 | 80 | 80 | dry | L |

* Mean absolute differences are total turbidity reductions, and are in units of NTUs.

** Letter groupings with the same letter are not significantly different at the 95% confidence level.

**Table 14 Mean absolute differences of total turbidity reduction from APS 730, 10,000 ppm soil-water concentration**

| Mean* | PAM Concentration (ppm) | Mixing Time (minutes) | Mixing Power (rpms) | Mixing Energy (revolutions) | PAM Form | Letter Grouping** |
|---|---|---|---|---|---|---|
| 720.82 | 1 | 2 | 150 | 300 | solution | A |
| 706.29 | 1 | 2 | 80 | 160 | solution | AB |
| 702.16 | 1 | 2 | 150 | 300 | dry | AB |
| 679.62 | 5 | 2 | 150 | 300 | dry | AB |
| 667.88 | 1 | 1 | 150 | 150 | solution | AB |
| 655.62 | 10 | 2 | 80 | 160 | dry | AB |
| 652.48 | 5 | 1 | 150 | 150 | dry | AB |
| 643.15 | 10 | 2 | 150 | 300 | dry | AB |
| 633.31 | 5 | 2 | 150 | 300 | solution | ABC |
| 624.06 | 5 | 2 | 80 | 160 | dry | ABC |
| 611.56 | 1 | 1 | 80 | 80 | solution | ABCD |
| 593.75 | 10 | 1 | 150 | 150 | dry | ABCD |
| 593.2 | 1 | 1 | 150 | 150 | dry | ABCDE |
| 580.46 | 5 | 2 | 80 | 160 | solution | BCDE |
| 512.37 | 10 | 1 | 80 | 80 | dry | CDEF |
| 509.98 | 10 | 2 | 80 | 160 | solution | CDEF |
| 502.33 | 1 | 2 | 80 | 160 | dry | CDEF |
| 479.13 | 5 | 1 | 150 | 150 | solution | DEF |
| 469.17 | 5 | 1 | 80 | 80 | dry | EFG |
| 462.04 | 10 | 2 | 150 | 300 | solution | EFG |
| 434.83 | 5 | 1 | 80 | 80 | solution | FGH |
| 345.5 | 10 | 1 | 150 | 150 | solution | GHI |
| 324.08 | 10 | 1 | 80 | 80 | solution | HI |
| 218.92 | 1 | 1 | 80 | 80 | dry | I |

* Mean absolute differences are total turbidity reductions, and are in units of NTUs.

** Letter groupings with the same letter are not significantly different at the 95% confidence level.

combination of mixing time and concentration along with a lower mixing power with a two minute mixing time and concentrations over 1 ppm significantly reduced turbidity the same. Significantly in reducing turbidity the least, there was not a distinct break point within the letter groupings. However, in looking at the absolute mean differences, the dry form of APS 730 with the lower mixing power with a one minute mixing time and a APS 730 concentration of 1 ppm provided the least turbidity reduction.

**APS 740, 2000 ppm Soil-Water Concentration**

The ANOVA f-test provided information that the treatment means were significantly different from one another. For the blend APS 740, with a sediment-water concentration of 2,000 ppm, there were differences ($F_{23, 264}$=38.31, P<0.0001) between treatments (Table 15). The treatment means ranged from 134.98 to 20.2917 NTUs of total turbidity reduction. A rank transformation was performed on the data in order to correct variance issues. Through the letter groupings, the dry form of APS 740 with the higher mixing power, for both mixing time and a concentration of 1 ppm significantly reduced turbidity the greatest. Significantly in reducing turbidity the least, there was not a distinct break point within the letter groupings. However, in looking at the absolute mean differences, the solution form of APS 740 with higher mixing powers with higher APS 740 concentrations provided the least turbidity reduction.

**Table 15 Mean absolute differences of total turbidity reduction from APS 740, 2000 ppm soil-water concentration**

| Mean* | PAM Concentration (ppm) | Mixing Time (minutes) | Mixing Power (rpms) | Mixing Energy (revolutions) | PAM Form | Letter Grouping** |
|---|---|---|---|---|---|---|
| 134.98 | 1 | 2 | 150 | 300 | dry | A |
| 120.03 | 1 | 1 | 150 | 150 | dry | AB |
| 116.73 | 5 | 2 | 150 | 300 | dry | B |
| 116.73 | 10 | 2 | 150 | 300 | dry | B |
| 116.68 | 10 | 1 | 150 | 150 | dry | B |
| 112.83 | 5 | 2 | 80 | 160 | dry | BC |
| 111.34 | 5 | 1 | 150 | 150 | dry | BC |
| 105.09 | 10 | 2 | 80 | 160 | dry | BCD |
| 98.15 | 1 | 2 | 80 | 160 | dry | CD |
| 95.3583 | 1 | 2 | 80 | 160 | solution | D |
| 93.9 | 1 | 2 | 150 | 300 | solution | D |
| 93.6333 | 5 | 1 | 80 | 80 | dry | D |
| 91.7417 | 1 | 1 | 80 | 80 | solution | D |
| 90.4167 | 1 | 1 | 150 | 150 | solution | DE |
| 78.8083 | 10 | 1 | 80 | 80 | dry | EF |
| 62.4667 | 5 | 1 | 80 | 80 | solution | FG |
| 58.65 | 5 | 2 | 150 | 300 | solution | G |
| 51.7167 | 5 | 1 | 150 | 150 | solution | G |
| 50.7583 | 1 | 1 | 80 | 80 | dry | GH |
| 33.0333 | 10 | 2 | 150 | 300 | solution | HI |
| 31.9167 | 10 | 2 | 80 | 160 | solution | I |
| 31.2917 | 5 | 2 | 80 | 160 | solution | I |
| 29.1417 | 10 | 1 | 150 | 150 | solution | I |
| 20.2917 | 10 | 1 | 80 | 80 | solution | I |

* Mean absolute differences are total turbidity reductions, and are in units of NTUs.

** Letter groupings with the same letter are not significantly different at the 95% confidence level.

**APS 740, 10,000 ppm Soil-Water Concentration**

The ANOVA f-test provided information that the treatment means were significantly different from one another. For the blend APS 740, with a sediment-water concentration of 10,000 ppm, there were no differences between treatments for a 4-way interaction ($F_{23, 264}$=1.27, P<0.1842) (Table 16). Therefore, a 3-way interaction was analyzed, which also showed no differences between treatments: concentration*mix_time*energy ($F_{2, 266}$=0.09, P<0.9138), concentration*mix_time*PAM_form ($F_{2, 266}$=1.37, P<0.2562), concentration*energy*PAM_form ($F_{2, 266}$=0.07, P<0.9307), mix_time*energy*PAM_form ($F_{2, 266}$=0.07, P<0.7922). However, in looking at the absolute mean differences, all treatments for both the dry and solution form of APS 740 reduced turbidity greatly.

**Ciba, 2000 ppm Soil-Water Concentration**

The ANOVA f-test provided information that the treatment means were significantly different from one another. For the blend Ciba, with a sediment-water concentration of 2,000 ppm, there were differences ($F_{23, 264}$=57.84, P<0.0001) between treatments (Table 17). The treatment means ranged from 135.89 to 12.0833 NTUs of total turbidity reduction. A rank transformation was performed on the data in order to correct variance issues. Through the letter groupings, all dry forms of Ciba with the higher mixing power and a Ciba concentration over 1 ppm significantly reduced turbidity the

**Table 16 Mean absolute differences of total turbidity reduction from APS 740, 10,000 ppm soil-water concentration (4-way Interaction)**

| Mean* | PAM Concentration (ppm) | Mixing Time (minutes) | Mixing Power (rpms) | Mixing Energy (revolutions) | PAM Form | Letter Grouping** |
|---|---|---|---|---|---|---|
| 702.16 | 1 | 1 | 150 | 150 | solution | A |
| 702.03 | 10 | 1 | 150 | 150 | dry | A |
| 695.43 | 5 | 1 | 150 | 150 | dry | AB |
| 689.14 | 1 | 2 | 150 | 300 | solution | ABC |
| 678.06 | 10 | 1 | 80 | 80 | dry | ABCD |
| 673.03 | 1 | 1 | 80 | 80 | solution | ABCD |
| 670.21 | 5 | 1 | 80 | 80 | dry | ABCD |
| 665.33 | 5 | 2 | 80 | 160 | solution | ABCD |
| 663.87 | 1 | 2 | 80 | 160 | solution | ABCD |
| 659.63 | 1 | 1 | 150 | 150 | dry | ABCD |
| 654.63 | 1 | 2 | 150 | 300 | dry | ABCD |
| 645.48 | 5 | 2 | 150 | 300 | dry | ABCDE |
| 627.71 | 5 | 2 | 150 | 300 | solution | ABCDE |
| 616.93 | 5 | 2 | 80 | 160 | dry | ABCDE |
| 604.49 | 10 | 2 | 80 | 160 | dry | ABCDE |
| 595.44 | 10 | 2 | 150 | 300 | dry | ABCDE |
| 593.94 | 5 | 1 | 150 | 150 | solution | ABCDE |
| 590.13 | 1 | 2 | 80 | 160 | dry | ABCDE |
| 568.76 | 5 | 1 | 80 | 80 | solution | ABCDE |
| 553.76 | 10 | 2 | 150 | 300 | solution | BCDE |
| 548.08 | 10 | 1 | 80 | 80 | solution | CDE |
| 547.73 | 10 | 2 | 80 | 160 | solution | CDE |
| 542.37 | 1 | 1 | 80 | 80 | dry | DE |
| 502.92 | 10 | 1 | 150 | 150 | solution | E |

* Mean absolute differences are total turbidity reductions, and are in units of NTUs.

** Letter groupings with the same letter are not significantly different at the 95% confidence level.

**Table 17 Mean absolute differences of total turbidity reduction from Ciba, 2000 ppm soil-water concentration**

| Mean* | PAM Concentration (ppm) | Mixing Time (minutes) | Mixing Power (rpms) | Mixing Energy (revolutions) | PAM Form | Letter Grouping** |
|---|---|---|---|---|---|---|
| 135.89 | 5 | 1 | 150 | 150 | dry | A |
| 132.64 | 5 | 2 | 150 | 300 | dry | A |
| 115.46 | 10 | 2 | 150 | 300 | dry | AB |
| 114.96 | 10 | 1 | 150 | 150 | dry | AB |
| 111.04 | 1 | 2 | 150 | 300 | solution | B |
| 102.68 | 1 | 2 | 150 | 300 | dry | BC |
| 90.4 | 1 | 2 | 80 | 160 | solution | CD |
| 90.25 | 10 | 2 | 80 | 160 | dry | CD |
| 85.9917 | 1 | 1 | 80 | 80 | solution | DE |
| 80.65 | 1 | 1 | 150 | 150 | solution | DEF |
| 79.9667 | 5 | 2 | 80 | 160 | dry | EF |
| 67.3167 | 5 | 1 | 80 | 80 | dry | FG |
| 62.125 | 5 | 2 | 150 | 300 | solution | GH |
| 59.9333 | 10 | 1 | 80 | 80 | dry | GHI |
| 55.825 | 5 | 1 | 150 | 150 | solution | HIJ |
| 55.5417 | 10 | 2 | 150 | 300 | solution | HIJ |
| 49.5667 | 1 | 1 | 150 | 150 | dry | IJK |
| 45.1333 | 5 | 2 | 80 | 160 | solution | KL |
| 43.9333 | 10 | 2 | 80 | 160 | solution | JKL |
| 40.1583 | 5 | 1 | 80 | 80 | solution | KL |
| 34.1167 | 1 | 2 | 80 | 160 | dry | LM |
| 28.3417 | 10 | 1 | 150 | 150 | solution | MN |
| 19.6 | 10 | 1 | 80 | 80 | solution | NO |
| 12.0833 | 1 | 1 | 80 | 80 | dry | O |

* Mean absolute differences are total turbidity reductions, and are in units of NTUs.

** Letter groupings with the same letter are not significantly different at the 95% confidence level.

greatest. Significantly in reducing turbidity the least, there was not a distinct break point within the letter groupings. However, in looking at the absolute mean differences, the dry form of Ciba with the lower mixing power with a one minute mixing time and a Ciba concentration of 1 ppm provided the least turbidity reduction.

**Ciba, 10,000 ppm Soil-Water Concentration**

The ANOVA f-test provided information that the treatment means were significantly different from one another. For the blend Ciba, with a sediment-water concentration of 10,000 ppm, there were differences ($F_{23, 264}$=6.34, P<0.0001) between treatments (Table 18). The treatment means ranged from 679.51 to 133.48 NTUs of total turbidity reduction. A rank transformation was performed on the data in order to correct variance issues. Through the letter groupings, the solution form of Ciba with both mixing powers with two minute mixing times and concentrations of 1 ppm significantly reduced turbidity the greatest. Significantly in reducing the least were the dry forms of Ciba having the lower mixing power for both mixing times with Ciba concentrations of 1 ppm.

**Cytec A-100, 2000 ppm Soil-Water Concentration**

The ANOVA f-test provided information that the treatment means were significantly different from one another. For the blend Cytec A-100, with a sediment-water concentration of 2,000 ppm, there were differences ($F_{23, 264}$=26.27, P<0.0001) between treatments (Table 19). The treatment means ranged from 139.06 to 22.8917 NTUs of total turbidity reduction. A rank transformation was performed on the data in

**Table 18 Mean absolute differences of total turbidity reduction from Ciba, 10,000 ppm soil-water concentration**

| Mean* | PAM Concentration (ppm) | Mixing Time (minutes) | Mixing Power (rpms) | Mixing Energy (revolutions) | PAM Form | Letter Grouping** |
|---|---|---|---|---|---|---|
| 679.51 | 1 | 2 | 150 | 300 | solution | A |
| 674.15 | 1 | 2 | 80 | 160 | solution | A |
| 665.18 | 5 | 2 | 150 | 300 | solution | AB |
| 644.29 | 1 | 1 | 150 | 150 | solution | ABC |
| 627.89 | 1 | 1 | 80 | 80 | solution | ABCD |
| 622.28 | 5 | 2 | 80 | 160 | solution | ABCD |
| 619.76 | 1 | 2 | 150 | 300 | dry | ABCD |
| 599.32 | 5 | 2 | 80 | 160 | dry | ABCD |
| 589.88 | 5 | 1 | 150 | 150 | dry | ABCD |
| 586.94 | 5 | 2 | 150 | 300 | dry | ABCD |
| 585.57 | 10 | 2 | 150 | 300 | dry | ABCD |
| 576.05 | 10 | 1 | 150 | 150 | dry | ABCD |
| 574.35 | 5 | 1 | 150 | 150 | solution | ABCD |
| 568.73 | 10 | 2 | 80 | 160 | dry | ABCD |
| 562.35 | 5 | 1 | 80 | 80 | solution | ABCD |
| 561.47 | 10 | 2 | 150 | 300 | solution | ABCD |
| 550.13 | 1 | 1 | 150 | 150 | dry | ABCD |
| 532.64 | 10 | 1 | 80 | 80 | solution | BCD |
| 522.7 | 10 | 1 | 150 | 150 | solution | CDE |
| 489.63 | 10 | 2 | 80 | 160 | solution | DEF |
| 386.75 | 5 | 1 | 80 | 80 | dry | EF |
| 378.55 | 10 | 1 | 80 | 80 | dry | F |
| 213.86 | 1 | 2 | 80 | 160 | dry | G |
| 133.48 | 1 | 1 | 80 | 80 | dry | G |

* Mean absolute differences are total turbidity reductions, and are in units of NTUs.

** Letter groupings with the same letter are not significantly different at the 95% confidence level.

**Table 19 Mean absolute differences of total turbidity reduction from Cytec A-100, 2000 ppm soil-water concentration**

| Mean* | PAM Concentration (ppm) | Mixing Time (minutes) | Mixing Power (rpms) | Mixing Energy (revolutions) | PAM Form | Letter Grouping** |
|---|---|---|---|---|---|---|
| 139.06 | 5 | 2 | 150 | 300 | dry | A |
| 137.21 | 1 | 2 | 80 | 160 | solution | AB |
| 136.89 | 1 | 2 | 150 | 300 | dry | AB |
| 131.91 | 10 | 2 | 150 | 300 | dry | AB |
| 131.66 | 10 | 2 | 80 | 160 | dry | AB |
| 118.13 | 1 | 2 | 150 | 300 | solution | BC |
| 104.53 | 10 | 1 | 150 | 150 | dry | CD |
| 103 | 1 | 1 | 80 | 80 | solution | CD |
| 102.58 | 1 | 1 | 150 | 150 | solution | CD |
| 101 | 1 | 1 | 150 | 150 | dry | CD |
| 99.8 | 5 | 2 | 80 | 160 | dry | D |
| 95.5333 | 5 | 2 | 150 | 300 | solution | DE |
| 91.6083 | 5 | 1 | 150 | 150 | dry | DE |
| 82.3667 | 5 | 2 | 80 | 160 | solution | EF |
| 72.3833 | 10 | 1 | 80 | 80 | dry | FG |
| 69.9583 | 10 | 2 | 150 | 300 | solution | FGH |
| 68.925 | 1 | 2 | 80 | 160 | dry | FGH |
| 68.3583 | 5 | 1 | 80 | 80 | dry | GHI |
| 68.1917 | 10 | 2 | 80 | 160 | solution | GHI |
| 67.425 | 5 | 1 | 150 | 150 | solution | GHI |
| 62.175 | 5 | 1 | 80 | 80 | solution | GHI |
| 56.8833 | 10 | 1 | 150 | 150 | solution | HI |
| 55.1917 | 10 | 1 | 80 | 80 | solution | I |
| 22.8917 | 1 | 1 | 80 | 80 | dry | J |

* Mean absolute differences are total turbidity reductions, and are in units of NTUs.

** Letter groupings with the same letter are not significantly different at the 95% confidence level.

order to correct variance issues. Through the letter groupings, all dry forms of Cytec A-100 with the higher mixing power and a two minute mixing time for all Cytec A-100 concentration significantly reduced turbidity the greatest. Also, the dry form of Cytec A-100 with the lower mixing power and a two minute mixing time with a Cytec A-100 concentration of 10 ppm significantly reduced turbidity the same. The solution form of Cytec A-100 also, significantly reduced turbidity the same, with the lower mixing power and a two minute mixing time with a concentration of 1 ppm. Significantly in reducing the least was the dry form of Cytec A-100 having the lower mixing power with a one minute mixing time and a Cytec A-100 concentrations of 1 ppm.

**Cytec A-100, 10,000 ppm Soil-Water Concentration**

The ANOVA f-test provided information that the treatment means were significantly different from one another. For the blend Cytec A-100, with a sediment-water concentration of 10,000 ppm, there were differences ($F_{23,264}$=5.85, P<0.0001) between treatments (Table 20). The treatment means ranged from 703.32 to 268.04 NTUs of total turbidity reduction. Through letter groupings, all solution forms of Cytec A-100 with the higher mixing power for both mixing times at concentration of 1 and 5 ppm significantly reduced turbidity the greatest. Also, significantly reduced turbidity the same, the solution form of Cytec A-100 with the lower mixing powers for both mixing times at concentration of 1 ppm significantly reduced turbidity the same. The dry form of Cytec A-100, significantly reduced turbidity the same, with the higher mixing power for a two minute mixing time for Cytec A-100 concentrations of 1 and 5 ppm, as well as having the lower mixing power with a two minute mixing time and a concentration of 5

**Table 20 Mean absolute differences of total turbidity reduction from Cytec A-100, 10,000 ppm soil-water concentration**

| Mean* | PAM Concentration (ppm) | Mixing Time (minutes) | Mixing Power (rpms) | Mixing Energy (revolutions) | PAM Form | Letter Grouping** |
|---|---|---|---|---|---|---|
| 703.32 | 1 | 2 | 150 | 300 | solution | A |
| 689.64 | 1 | 1 | 150 | 150 | solution | A |
| 683.58 | 1 | 2 | 150 | 300 | dry | A |
| 679.05 | 1 | 2 | 80 | 160 | solution | A |
| 671.87 | 5 | 2 | 150 | 300 | solution | A |
| 658.81 | 1 | 1 | 80 | 80 | solution | A |
| 653 | 5 | 2 | 80 | 160 | dry | A |
| 652.48 | 5 | 2 | 150 | 300 | dry | A |
| 648.2 | 10 | 2 | 150 | 300 | dry | AB |
| 641.87 | 5 | 2 | 80 | 160 | solution | AB |
| 640.4 | 5 | 1 | 150 | 150 | dry | AB |
| 629.37 | 5 | 1 | 80 | 80 | solution | AB |
| 619.27 | 10 | 2 | 150 | 300 | solution | AB |
| 609.73 | 10 | 2 | 80 | 160 | solution | AB |
| 606.09 | 10 | 1 | 150 | 150 | dry | AB |
| 599.56 | 10 | 2 | 80 | 160 | dry | AB |
| 598.71 | 1 | 1 | 150 | 150 | dry | AB |
| 584.92 | 5 | 1 | 150 | 150 | solution | AB |
| 570.67 | 10 | 1 | 80 | 80 | solution | AB |
| 503.17 | 10 | 1 | 150 | 150 | solution | BC |
| 399.93 | 10 | 1 | 80 | 80 | dry | CD |
| 347.77 | 5 | 1 | 80 | 80 | dry | D |
| 280.92 | 1 | 2 | 80 | 160 | dry | D |
| 268.04 | 1 | 1 | 80 | 80 | dry | D |

* Mean absolute differences are total turbidity reductions, and are in units of NTUs.

** Letter groupings with the same letter are not significantly different at the 95% confidence level.

ppm. Significantly in reducing turbidity the least, there was not a distinct break point within the letter groupings. However, in looking at the absolute mean differences, the dry forms of Cytec A-100 with the lower mixing powers with a one minute mixing time for Cytec A-100 concentrations of 1 and 5 ppm provided the least turbidity reduction. The dry form of Cytec A-100 with the lower mixing power and a two minute mixing time at a Cytec A-100 concentration of 1 ppm also provided the least turbidity reduction.

**Cytec A-100-HMW, 2000 ppm Soil-Water Concentration**

The ANOVA f-test provided information that the treatment means were significantly different from one another. For the blend Cytec A-100-HMW, with a sediment-water concentration of 2,000 ppm, there were differences ($F_{23, 264}$=20.76, P<0.0001) between treatments (Table 21). The treatment means ranged from 142.97 to 51.7667 NTUs of total turbidity reduction. A rank transformation was performed on the data in order to correct variance issues. Through the letter groupings, the dry forms of Cytec A-100-HMW with the higher mixing power and a two minute mixing time with a Cytec A-100-HMW concentration of 1 ppm significantly reduced turbidity the greatest. Also, the dry form of Cytec A-100-HMW, significantly reduced turbidity the same, with the higher mixing power and a one minute mixing time with Cytec A-100-HMW concentration over 1 ppm. The dry form of Cytec A-100-HMW also significantly reduced turbidity the same with the lower mixing power and a two minute mixing time with a Cytec A-100-HMW concentration of 5 ppm. A solution form of Cytec A-100-HMW also, significantly reduced turbidity the same, with the higher mixing power with a two minute mixing time and a Cytec A-100-HMW concentration of 1 ppm. Significantly in

**Table 21 Mean absolute differences of total turbidity reduction from Cytec A-100-HMW, 2000 ppm soil-water concentration**

| Mean* | PAM Concentration (ppm) | Mixing Time (minutes) | Mixing Power (rpms) | Mixing Energy (revolutions) | PAM Form | Letter Grouping** |
|---|---|---|---|---|---|---|
| 142.97 | 1 | 2 | 150 | 300 | dry | A |
| 126.91 | 5 | 1 | 150 | 150 | dry | AB |
| 124.34 | 1 | 2 | 150 | 300 | solution | ABC |
| 122.76 | 10 | 1 | 150 | 150 | dry | ABC |
| 121.68 | 5 | 2 | 150 | 300 | dry | ABC |
| 120.33 | 5 | 2 | 80 | 160 | dry | ABC |
| 118.45 | 10 | 2 | 150 | 300 | dry | BC |
| 114.24 | 10 | 2 | 80 | 160 | dry | BCD |
| 113.78 | 5 | 1 | 80 | 80 | dry | BCD |
| 107.99 | 10 | 1 | 80 | 80 | dry | CDE |
| 106.55 | 1 | 2 | 80 | 160 | solution | CDE |
| 98.5417 | 1 | 1 | 80 | 80 | solution | DEF |
| 97.675 | 1 | 2 | 80 | 160 | dry | EFG |
| 90.8917 | 1 | 1 | 150 | 150 | dry | FGH |
| 89.5 | 1 | 1 | 150 | 150 | solution | FGH |
| 79.6667 | 5 | 2 | 150 | 300 | solution | GHI |
| 79.1667 | 5 | 1 | 150 | 150 | solution | HIJ |
| 76.4667 | 1 | 1 | 80 | 80 | dry | HIJ |
| 69.9083 | 10 | 2 | 80 | 160 | solution | IJK |
| 68.4833 | 5 | 2 | 80 | 160 | solution | IJK |
| 66.6917 | 10 | 2 | 150 | 300 | solution | JK |
| 64.45 | 5 | 1 | 80 | 80 | solution | JK |
| 51.7667 | 10 | 1 | 150 | 150 | solution | KL |
| 39.45 | 10 | 1 | 80 | 80 | solution | L |

* Mean absolute differences are total turbidity reductions, and are in units of NTUs.

** Letter groupings with the same letter are not significantly different at the 95% confidence level.

reducing turbidity the least, there was not a distinct break point within the letter groupings. However, in looking at the absolute mean differences, the solution form of Cytec A-100- HMW with the lower mixing power with a one minute mixing time and a Cytec A-100-HMW concentration of 10 ppm provided the least turbidity reduction.

**Cytec A-100-HMW, 10,000 ppm Soil-Water Concentration**

The ANOVA f-test provided information that the treatment means were significantly different from one another. For the blend Cytec A-100-HMW, with a sediment-water concentration of 10,000 ppm, there were differences ($F_{23,264}$=2.76, P<0.0001) between treatments (Table 22). The treatment means ranged from 695.07 to 262.92 NTUs of total turbidity reduction. Through letter groupings, all treatments where significantly equal based on total turbidity reductions except for the dry form of Cytec A-100-HMW with the lower mixing power and a one minute mixing time with concentrations of 1 and 10 ppm. And also the solution form of Cytec A-100-HMW with a one minute mixing time with a Cytec A-100-HMW concentration of 10 ppm. These treatments significantly in reducing turbidity the least.

**Cytec A-120, 2000 ppm Soil-Water Concentration**

The ANOVA f-test provided information that the treatment means were significantly different from one another. For the blend Cytec A-120, with a sediment-water concentration of 2,000 ppm, there were differences ($F_{23, 264}$=32.84, P<0.0001) between treatments (Table 23). The treatment means ranged from 130.71 to 36.5917 NTUs of total turbidity reduction. A rank transformation was performed on the data in order to correct variance issues. Through the letter groupings, all dry forms of Cytec A-

**Table 22 Mean absolute differences of total turbidity reduction from Cytec A-100-HMW, 10,000 ppm soil-water concentration**

| Mean* | PAM Concentration (ppm) | Mixing Time (minutes) | Mixing Power (rpms) | Mixing Energy (revolutions) | PAM Form | Letter Grouping** |
|---|---|---|---|---|---|---|
| 695.07 | 1 | 2 | 80 | 160 | solution | A |
| 686.7 | 1 | 1 | 150 | 150 | solution | A |
| 686.43 | 1 | 2 | 150 | 300 | solution | A |
| 665.9 | 1 | 2 | 150 | 300 | dry | AB |
| 653.01 | 5 | 2 | 80 | 160 | dry | AB |
| 647.63 | 5 | 2 | 150 | 300 | dry | ABC |
| 646.98 | 10 | 2 | 80 | 160 | dry | ABC |
| 628.94 | 5 | 2 | 150 | 300 | solution | ABCD |
| 626.08 | 5 | 2 | 80 | 160 | solution | ABCD |
| 608.45 | 1 | 1 | 80 | 80 | solution | ABCD |
| 606.85 | 10 | 1 | 150 | 150 | dry | ABCD |
| 600.66 | 1 | 1 | 150 | 150 | dry | ABCD |
| 600.65 | 1 | 2 | 80 | 160 | dry | ABCD |
| 598.5 | 5 | 1 | 80 | 80 | dry | ABCD |
| 592.54 | 10 | 2 | 150 | 300 | dry | ABCD |
| 592.09 | 5 | 1 | 150 | 150 | solution | ABCD |
| 576.59 | 10 | 2 | 80 | 160 | solution | ABCD |
| 554.52 | 5 | 1 | 150 | 150 | dry | ABCD |
| 553.12 | 5 | 1 | 80 | 80 | solution | ABCD |
| 551.15 | 10 | 2 | 150 | 300 | solution | ABCD |
| 523.66 | 10 | 1 | 80 | 80 | dry | BCD |
| 499.19 | 10 | 1 | 80 | 80 | solution | CD |
| 495.79 | 10 | 1 | 150 | 150 | solution | D |
| 262.92 | 1 | 1 | 80 | 80 | dry | E |

* Mean absolute differences are total turbidity reductions, and are in units of NTUs.

** Letter groupings with the same letter are not significantly different at the 95% confidence level.

**Table 23 Mean absolute differences of total turbidity reduction from Cytec A-120, 2000 ppm soil-water concentration**

| Mean* | PAM Concentration (ppm) | Mixing Time (minutes) | Mixing Power (rpms) | Mixing Energy (revolutions) | PAM Form | Letter Grouping** |
|---|---|---|---|---|---|---|
| 130.71 | 5 | 2 | 150 | 300 | dry | A |
| 128.73 | 1 | 2 | 150 | 300 | dry | A |
| 128.06 | 1 | 2 | 80 | 160 | dry | A |
| 122.33 | 1 | 1 | 150 | 150 | dry | ABC |
| 121.8 | 10 | 1 | 150 | 150 | dry | AB |
| 120.53 | 10 | 2 | 80 | 160 | dry | AB |
| 119.23 | 10 | 2 | 150 | 300 | dry | ABC |
| 114.73 | 5 | 2 | 80 | 160 | dry | ABC |
| 111.91 | 5 | 1 | 80 | 80 | dry | BC |
| 106.24 | 5 | 1 | 150 | 150 | dry | CD |
| 105.34 | 1 | 2 | 150 | 300 | solution | CD |
| 97.325 | 1 | 2 | 80 | 160 | solution | DE |
| 96.5667 | 10 | 1 | 80 | 80 | dry | DE |
| 89.075 | 1 | 1 | 80 | 80 | solution | EF |
| 86.6583 | 5 | 1 | 80 | 80 | solution | EF |
| 82.2417 | 1 | 1 | 150 | 150 | solution | F |
| 72.8333 | 10 | 1 | 80 | 80 | solution | F |
| 57.9 | 5 | 1 | 150 | 150 | solution | G |
| 56.2583 | 5 | 2 | 80 | 160 | solution | G |
| 46.375 | 5 | 2 | 150 | 300 | solution | G |
| 43.225 | 10 | 1 | 150 | 150 | solution | G |
| 43.2167 | 10 | 2 | 80 | 160 | solution | G |
| 40.875 | 10 | 2 | 150 | 300 | solution | G |
| 36.5917 | 1 | 1 | 80 | 80 | dry | G |

* Mean absolute differences are total turbidity reductions, and are in units of NTUs.

** Letter groupings with the same letter are not significantly different at the 95% confidence level.

120, except with a lower mixing power and a one minute mixing time significantly reduced turbidity the greatest. Significantly in reducing turbidity the least was the dry form of Cytec A-120 having the lower mixing power with a one minute mixing time and a Cytec A-120 concentrations of 1 ppm.

**Cytec A-120, 10,000 ppm Soil-Water Concentration**

The ANOVA f-test provided information that the treatment means were significantly different from one another. For the blend Cytec A-120, with a sediment-water concentration of 10,000 ppm, there were differences ($F_{23, 264}$=4.67, P<0.0001) between treatments (Table 24). The treatment means ranged from 692.27 to 271.25 NTUs of total turbidity reduction. A rank transformation was performed on the data in order to correct variance issues. Through the letter groupings, all dry forms of Cytec A-120 with the higher mixing power for both mixing times and Cytec A-120 concentration over 1 ppm significantly reduced turbidity the greatest. Also, all solution forms of Cytec A-120 with both mixing powers for both mixing times and having concentrations less the 10 ppm significantly reduced turbidity the same, except the treatment of the lower mixing power with a one minute mixing time and a PAM concentration of 5 ppm. Significantly in reducing turbidity the least there was not a distinct break point within the letter groupings. However, in looking at the absolute mean differences, the dry forms of Cytec A-120 with the lower mixing powers for both mixing times and having a Cytec A-120 concentration of 1 ppm provided the least turbidity reduction.

**Table 24 Mean absolute differences of total turbidity reduction from Cytec A-120, 10,000 ppm soil-water concentration**

| Mean* | PAM Concentration (ppm) | Mixing Time (minutes) | Mixing Power (rpms) | Mixing Energy (revolutions) | PAM Form | Letter Grouping** |
|---|---|---|---|---|---|---|
| 692.27 | 1 | 2 | 80 | 160 | solution | A |
| 680.63 | 1 | 2 | 150 | 300 | solution | AB |
| 665.25 | 1 | 1 | 150 | 150 | dry | AB |
| 661.37 | 10 | 2 | 150 | 300 | dry | ABC |
| 640.4 | 5 | 1 | 80 | 80 | dry | ABCD |
| 635.72 | 10 | 1 | 150 | 150 | dry | ABCD |
| 635.16 | 5 | 2 | 80 | 160 | solution | ABCD |
| 632.11 | 1 | 1 | 150 | 150 | solution | ABCD |
| 630.62 | 5 | 1 | 150 | 150 | dry | ABCD |
| 623.48 | 1 | 1 | 80 | 80 | solution | ABCD |
| 622.45 | 5 | 2 | 150 | 300 | solution | ABCD |
| 621.58 | 10 | 2 | 80 | 160 | dry | ABCD |
| 619.14 | 1 | 2 | 150 | 300 | dry | ABCD |
| 606.1 | 5 | 2 | 150 | 300 | dry | ABCD |
| 582.82 | 5 | 2 | 80 | 160 | dry | ABCDE |
| 560.96 | 5 | 1 | 150 | 150 | solution | ABCDEF |
| 550.73 | 10 | 1 | 80 | 80 | dry | ABCDEF |
| 541.72 | 10 | 2 | 80 | 160 | solution | BCDEF |
| 528.5 | 10 | 2 | 150 | 300 | solution | CDEF |
| 522.78 | 5 | 1 | 80 | 80 | solution | DEF |
| 433.17 | 10 | 1 | 150 | 150 | solution | FG |
| 432.83 | 10 | 1 | 80 | 80 | solution | EFG |
| 329.25 | 1 | 1 | 80 | 80 | dry | GH |
| 271.25 | 1 | 2 | 80 | 160 | dry | H |

* Mean absolute differences are total turbidity reductions, and are in units of NTUs.

** Letter groupings with the same letter are not significantly different at the 95% confidence level.

**Cytec A-120-HMW, 2000 ppm Soil-Water Concentration**

The ANOVA f-test provided information that the treatment means were significantly different from one another. For the blend Cytec A-120-HMW, with a sediment-water concentration of 2,000 ppm, there were differences ($F_{23, 264}$=72.11, P<0.0001) between treatments (Table 25). The treatment means ranged from 129.92 to 14.3667 NTUs of total turbidity reduction. A rank transformation was performed on the data in order to correct variance issues. Through the letter groupings, all dry forms of Cytec A-120-HMW under all treatment condition with the higher mixing power, significantly reduced turbidity the greatest, except that having a higher mixing power with a one minute mixing time at a concentration of 1 ppm. Also, the dry form of Cytec A-120-HMW, significantly reduced turbidity the same with the lower mixing power with a two minute mixing time at a Cytec A-120-HMW concentration of 10 ppm. significantly in reducing the least were the dry forms of Cytec A-120-HMW having the lower mixing power for both mixing times and a Cytec A-120-HMW concentration of 1 ppm. Also, in significantly in reducing the least, was the solution form of Cytec A-120-HMW with the lower mixing power and a two minute mixing time at a Cytec A-120-HMW concentration of 10 ppm.

**Cytec A-120-HMW, 10,000 ppm Soil-Water Concentration**

The ANOVA f-test provided information that the treatment means were significantly different from one another. For the blend Cytec A-120-HMW, with a sediment-water concentration of 10,000 ppm, there were differences ($F_{23, 264}$=12.49, P<0.0001) between treatments (Table 26). The treatment means ranged from 673.59 to

**Table 25 Mean absolute differences of total turbidity reduction from Cytec A-120-HMW, 2000 ppm soil-water concentration**

| Mean* | PAM Concentration (ppm) | Mixing Time (minutes) | Mixing Power (rpms) | Mixing Energy (revolutions) | PAM Form | Letter Grouping** |
|---|---|---|---|---|---|---|
| 129.92 | 10 | 2 | 150 | 300 | dry | A |
| 126.21 | 10 | 1 | 150 | 150 | dry | A |
| 126.05 | 5 | 2 | 150 | 300 | dry | A |
| 121.9 | 1 | 2 | 150 | 300 | dry | A |
| 119.03 | 5 | 1 | 150 | 150 | dry | A |
| 112.72 | 10 | 2 | 80 | 160 | dry | A |
| 90.1167 | 5 | 2 | 80 | 160 | dry | B |
| 87.8583 | 1 | 2 | 150 | 300 | solution | BC |
| 85.9167 | 1 | 1 | 150 | 150 | solution | BC |
| 73.4083 | 1 | 2 | 80 | 160 | solution | C |
| 58.3833 | 1 | 1 | 80 | 80 | solution | D |
| 50.275 | 5 | 1 | 80 | 80 | dry | D |
| 48.45 | 10 | 1 | 80 | 80 | dry | DE |
| 40.0417 | 5 | 1 | 80 | 80 | solution | EF |
| 38.3083 | 5 | 1 | 150 | 150 | solution | FG |
| 35.4333 | 1 | 1 | 150 | 150 | dry | FGH |
| 35.3167 | 10 | 1 | 80 | 80 | solution | FGH |
| 34.1833 | 5 | 2 | 80 | 160 | solution | FGH |
| 33.7667 | 10 | 1 | 150 | 150 | solution | FGH |
| 30.1417 | 10 | 2 | 150 | 300 | solution | GH |
| 28.4167 | 5 | 2 | 150 | 300 | solution | H |
| 17.5667 | 1 | 1 | 80 | 80 | dry | I |
| 16.2333 | 10 | 2 | 80 | 160 | solution | I |
| 14.3667 | 1 | 2 | 80 | 160 | dry | I |

* Mean absolute differences are total turbidity reductions, and are in units of NTUs.

** Letter groupings with the same letter are not significantly different at the 95% confidence level.

**Table 26 Mean absolute differences of total turbidity reduction from Cytec A-120-HMW, 10,000 ppm soil-water concentration**

| Mean* | PAM Concentration (ppm) | Mixing Time (minutes) | Mixing Power (rpms) | Mixing Energy (revolutions) | PAM Form | Letter Grouping** |
|---|---|---|---|---|---|---|
| 673.59 | 1 | 2 | 150 | 300 | solution | A |
| 661.12 | 1 | 1 | 150 | 150 | solution | AB |
| 643.2 | 1 | 2 | 80 | 160 | solution | ABC |
| 637.92 | 5 | 2 | 150 | 300 | dry | AB |
| 618.41 | 1 | 1 | 80 | 80 | solution | ABCD |
| 612.08 | 5 | 2 | 80 | 160 | dry | ABC |
| 589.89 | 1 | 2 | 150 | 300 | dry | ABCDE |
| 589.23 | 10 | 2 | 80 | 160 | dry | ABCD |
| 584.2 | 10 | 2 | 150 | 300 | dry | ABCD |
| 562.78 | 10 | 1 | 150 | 150 | dry | ABCDE |
| 532 | 5 | 2 | 150 | 300 | solution | BCDE |
| 527.75 | 5 | 1 | 150 | 150 | solution | BCDE |
| 518.64 | 5 | 1 | 150 | 150 | dry | CDEF |
| 487.88 | 5 | 1 | 80 | 80 | solution | DEFG |
| 486.25 | 10 | 2 | 150 | 300 | solution | DEFG |
| 481.44 | 5 | 2 | 80 | 160 | solution | DEFG |
| 463.53 | 10 | 2 | 80 | 160 | solution | EFG |
| 407.5 | 5 | 1 | 80 | 80 | dry | FGH |
| 402.42 | 10 | 1 | 150 | 150 | solution | GH |
| 398.33 | 10 | 1 | 80 | 80 | solution | GH |
| 309.17 | 1 | 2 | 80 | 160 | dry | HI |
| 235.83 | 10 | 1 | 80 | 80 | dry | IJ |
| 165.33 | 1 | 1 | 80 | 80 | dry | IJ |
| 102.5 | 1 | 1 | 150 | 150 | dry | J |

* Mean absolute differences are total turbidity reductions, and are in units of NTUs.

** Letter groupings with the same letter are not significantly different at the 95% confidence level.

102.5 NTUs of total turbidity reduction. A rank transformation was performed on the data in order to correct variance issues. Through the letter groupings, all solution forms of Cytec A-120-HMW with both mixing powers and for both mixing times with a Cytec A-120-HMW concentration of 1 ppm significantly in reducing turbidity the greatest. In significantly in reducing turbidity the same were the dry forms of Cytec A-120-HMW with the higher mixing power and a two minute mixing time for all Cytec A-120-HMW concentration, the dry form with the higher mixing power and a one minute mixing time and a Cytec A-120-HMW concentration of 10 ppm and also, and the dry form have the lower mixing power with a two minute mixing time and a Cytec A-120-HMW concentration of 10 ppm. Significantly in reducing turbidity the least, there was not a distinct break point within the letter groupings. However, in looking at the absolute mean differences, the dry form of Cytec A-120-HMW with the higher mixing power with a one minute mixing time and a Cytec A-120-HMW concentration of 1 ppm provided the least turbidity reduction.

# CHAPTER V

# CONCLUSIONS AND RECOMMENDATIONS

## Polyacrylamide in Reducing Turbidity

The data showed conclusive results regarding the effectiveness of PAM at reducing turbidity. Within the ten different PAM blends, each was demonstrated to provide some reduction in turbidity. In reducing turbidity, the data showed the most key aspects at reducing turbidity to be different for each sediment-water concentration. For the 2,000 ppm sediment-water concentration the dry form of PAM with a higher mixing power, except for the treatment of the APS 705 blend, reduced turbidity the greatest. For the 10,000-ppm sediment-water concentrations the solution forms of PAM reduced turbidity the greatest except for the treatment of the APS 702 blend, under various mixing powers and mixing times. Turbidity reductions were not as dramatic for either sediment-water concentration using the dry from of PAM, at the lower mixing power, with the one minute mixing time, and at low concentrations.

Through this data, conclusion can and should be more on how to apply PAM and what application works best for their situation. However, all treatments (form, mixing power, mixing time, concentrations, and blends) of PAM reduced turbidity greater then applying no PAM.

## Recommendations

It is recommended that PAM be considered for the use of turbidity reduction within sedimentation basins. It has been found that under optimal condition PAM can reduce turbidity dramatically. However, PAM in a solution form seemed to have a more

positive impact on reducing turbidity and should be taken into consideration while applying PAM.

## Future Research Needs

The soil used for this project was a clay-textured soil that is representative of the type of soils that are commonly found in East Tennessee's subsoils. More research is needed to examine the potential of PAM in reducing turbidity on soils with less clay content. This will help demonstrate the effectiveness of PAM on different soil and will to better help make conclusions on the optimal to apply PAM on different soil sources.

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# APPENDICES

# APPENDIX A

Procedure Information

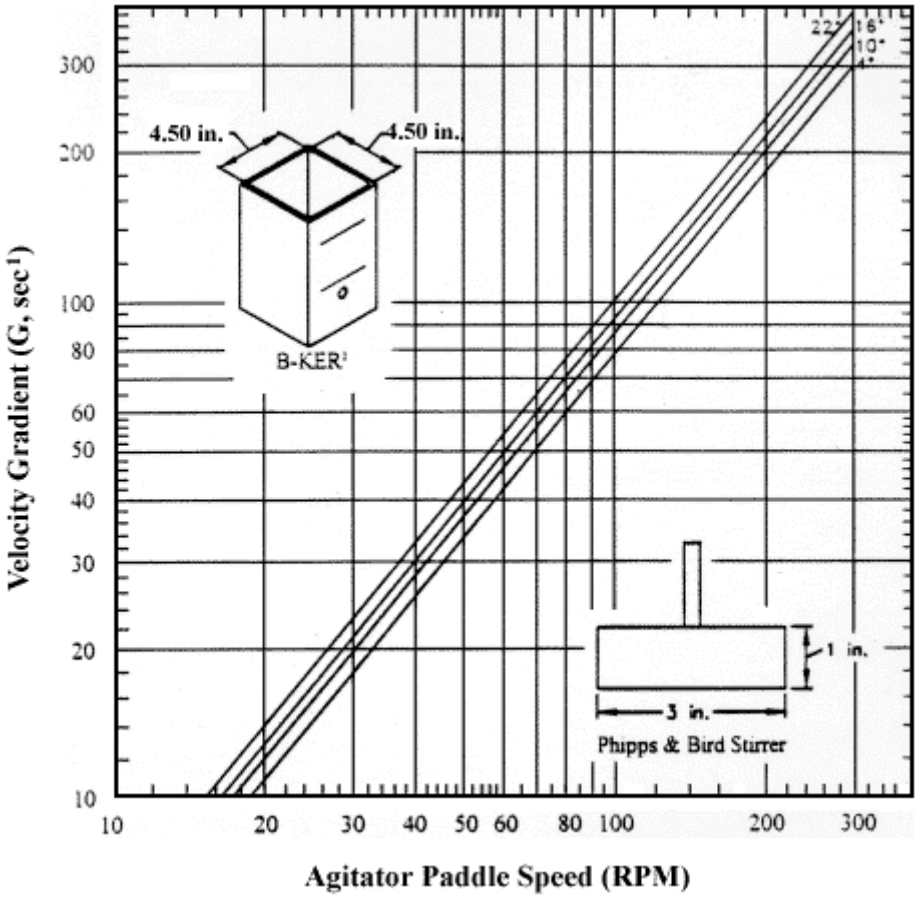


**Figure 3 Phipps and Bird Illustration of Velocity Gradient**

**Figure 4 Phipps and Bird PB-700 Standard Jar Tester**

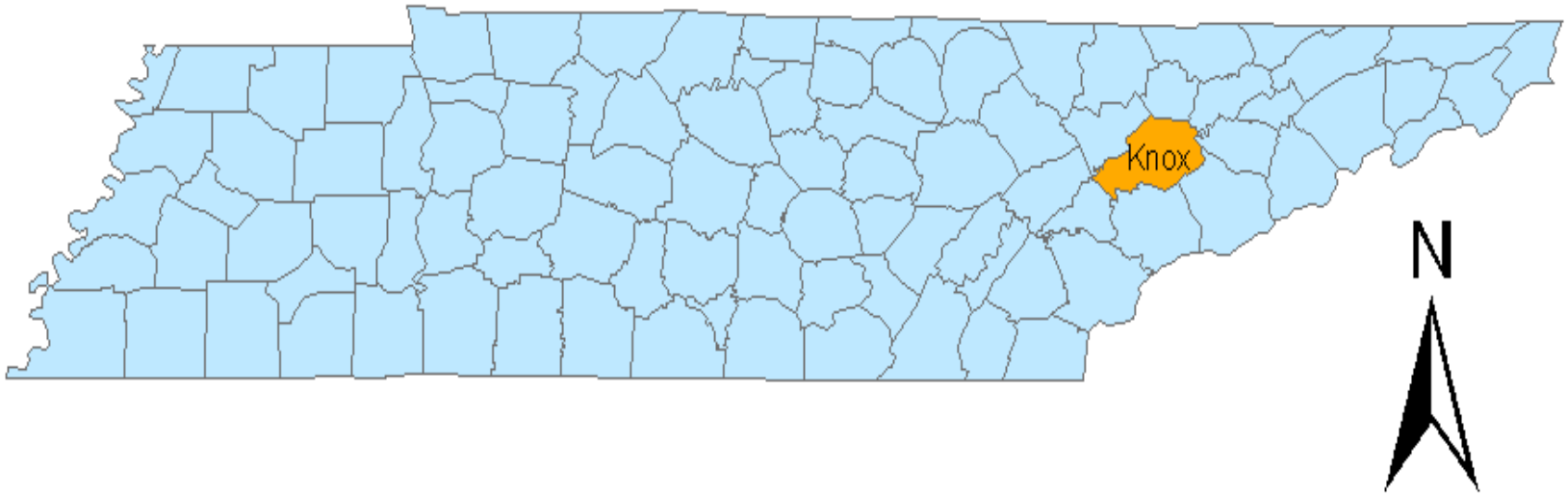


**Figure 5 The State of Tennessee where soil was collected**

The state of Tennessee with Knox County, where soil was collected, indicated in orange

# APPENDIX B

Results of Particle Size Analysis

# Particle Size Analysis

**Table B-1 Hydrometer Analysis**

| Sample | Time (min) | Hydrometer Reading (g/L) | Temperature (C) |
|---|---|---|---|
| One | 1 | 40 | 30 |
| | 2 | 38 | 30 |
| | 3 | 37 | 30 |
| | 4 | 37 | 30 |
| | 8 | 36.5 | 30 |
| | 15 | 35.5 | 30 |
| | 30 | 34.5 | 30 |
| | 60 | 33 | 30 |
| | 240 | 32 | 31 |
| | 900 | 30 | 28 |
| Two | 1 | 39.5 | 30 |
| | 2 | 39 | 30 |
| | 3 | 38.5 | 30 |
| | 4 | 38 | 30 |
| | 8 | 38 | 30 |
| | 15 | 37 | 30 |
| | 30 | 35.5 | 30 |
| | 60 | 35 | 30 |
| | 240 | 33 | 28 |
| | 900 | 31 | 28 |
| Three | 1 | 39 | 30 |
| | 2 | 38.5 | 30 |
| | 3 | 38 | 30 |
| | 4 | 37.5 | 30 |
| | 8 | 37 | 30 |
| | 15 | 36 | 30 |
| | 30 | 35 | 30 |
| | 60 | 34 | 30 |
| | 240 | 32.5 | 31 |
| | 900 | 30 | 28 |

**Results: Sand 20.8%, Silt 18.4%, and Clay 60.8%**

**Table B-2 Sieve Analysis**

| | Sample 1 | Sample 2 | Sample 3 |
|---|---|---|---|
| #40 Sieve | 13.8 % | 13.4 % | 13.7 % |
| #140 Sieve | 4.78 % | 5.5 % | 5.8 % |
| #270 Sieve | 1.5 % | 1.9 % | 2.0 % |
| % Sand | 20.2 | 20.8 | 21.6 |

**Table B-3 Soil Make-Up**

| Study Site | Material | Sand (%) | Silt (%) | Clay (%) | Soil Texture |
|---|---|---|---|---|---|
| Knox County | Cut | 20.8 | 18.4 | 60.8 | Clay |

# APPENDIX C

Jar Test Results for Dry Granular PAM, with a mixing time of 1 minute, from a soil-water concentration of 2000 ppm

***All numeric values are measured in NTUs***

**Applied Polymer Blend 702, PAM mixing time 1 minute at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 176 | 162 | 14 | 193 | 161 | 32 | 190 | 149 | 41 |
| | 2 | 151 | 144 | 7 | 171 | 134 | 37 | 171 | 132 | 39 |
| | 5 | 115 | 110 | 5 | 145 | 111 | 34 | 140 | 113 | 27 |
| | 10 | 103 | 83.1 | 19.9 | 130 | 100.1 | 29.9 | 120 | 92.6 | 27.4 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 211 | 192 | 19 | 193 | 153 | 40 | 192 | 139 | 53 |
| | 2 | 185 | 172 | 13 | 180 | 144 | 36 | 174 | 122 | 52 |
| | 5 | 125 | 111 | 14 | 154 | 118 | 36 | 150 | 103 | 47 |
| | 10 | 107 | 87 | 20 | 125 | 107.5 | 17.5 | 123 | 93.6 | 29.4 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 197 | 182 | 15 | 190 | 160 | 30 | 190 | 142 | 48 |
| | 2 | 162 | 153 | 9 | 175 | 136 | 39 | 172 | 129 | 43 |
| | 5 | 122 | 117 | 5 | 151 | 115.2 | 35.8 | 143 | 112 | 31 |
| | 10 | 110 | 86 | 24 | 127 | 101 | 26 | 121 | 93 | 28 |

**Applied Polymer Blend 702, PAM mixing time 1 minute at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 192 | 104.4 | 87.6 | 189 | 30.6 | 158.4 | 174 | 39.4 | 134.6 |
| | 2 | 165 | 82.2 | 82.8 | 170 | 24.3 | 145.7 | 160 | 33.9 | 126.1 |
| | 5 | 131 | 53.7 | 77.3 | 149 | 19.8 | 129.2 | 145 | 24.1 | 120.9 |
| | 10 | 113 | 42.8 | 70.2 | 126 | 17.8 | 108.2 | 115 | 22.1 | 92.9 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 170 | 100 | 70 | 183 | 29.1 | 153.9 | 157 | 22.6 | 134.4 |
| | 2 | 144 | 76 | 68 | 167 | 20.9 | 146.1 | 142 | 17.1 | 124.9 |
| | 5 | 116 | 65.6 | 50.4 | 140 | 17.5 | 122.5 | 117 | 16.9 | 100.1 |
| | 10 | 96 | 52.7 | 43.3 | 122 | 16.8 | 105.2 | 102 | 12 | 90 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 181 | 102 | 79 | 182 | 30.1 | 151.9 | 157 | 23 | 134 |
| | 2 | 152 | 78 | 74 | 163 | 22.3 | 140.7 | 132 | 19.2 | 112.8 |
| | 5 | 123 | 61.2 | 61.8 | 138 | 19.1 | 118.9 | 117 | 17.9 | 99.1 |
| | 10 | 107 | 44.5 | 62.5 | 125 | 17.5 | 107.5 | 97 | 13 | 84 |

**Applied Polymer Blend 705, PAM mixing time 1 minute at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 232 | 205 | 27 | 214 | 204 | 10 | 200 | 185 | 15 |
| | 2 | 185 | 161 | 24 | 194 | 170 | 24 | 181 | 155 | 26 |
| | 5 | 151 | 141 | 10 | 163 | 140 | 23 | 150 | 131 | 19 |
| | 10 | 131 | 127 | 4 | 130 | 120 | 10 | 120 | 109.7 | 10.3 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 241 | 210 | 31 | 224 | 215 | 9 | 210 | 192 | 18 |
| | 2 | 192 | 172 | 20 | 207 | 183 | 24 | 187 | 158 | 29 |
| | 5 | 160 | 147 | 13 | 172 | 151 | 21 | 161 | 142 | 19 |
| | 10 | 137 | 132 | 5 | 141 | 132 | 9 | 138 | 119.3 | 18.7 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 237 | 209 | 28 | 215 | 206 | 9 | 211 | 192 | 19 |
| | 2 | 184 | 160 | 24 | 196 | 172 | 24 | 182 | 162 | 20 |
| | 5 | 152 | 137 | 15 | 168 | 140 | 28 | 153 | 136 | 17 |
| | 10 | 138 | 131 | 7 | 135 | 119 | 16 | 124 | 110 | 14 |

**Applied Polymer Blend 705, PAM mixing time 1 minute at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 218 | 197 | 21 | 240 | 221 | 19 | 209 | 160 | 49 |
| | 2 | 196 | 176 | 20 | 216 | 180 | 36 | 190 | 131 | 59 |
| | 5 | 160 | 148 | 12 | 167 | 140 | 27 | 148 | 103.5 | 44.5 |
| | 10 | 149 | 120 | 29 | 159 | 107.4 | 51.6 | 124 | 92.5 | 31.5 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 222 | 201 | 21 | 242 | 215 | 27 | 219 | 172 | 47 |
| | 2 | 197 | 178 | 19 | 221 | 187 | 34 | 201 | 141 | 60 |
| | 5 | 163 | 152 | 11 | 172 | 151 | 21 | 157 | 107.8 | 49.2 |
| | 10 | 142 | 119 | 23 | 163 | 110 | 53 | 123 | 94 | 29 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 209 | 187 | 22 | 245 | 225 | 20 | 212 | 158 | 54 |
| | 2 | 182 | 162 | 20 | 232 | 192 | 40 | 193 | 129 | 64 |
| | 5 | 155 | 141 | 14 | 181 | 162 | 19 | 149 | 105 | 44 |
| | 10 | 138 | 116 | 22 | 169 | 125 | 44 | 128 | 101 | 27 |

**Applied Polymer Blend 712, PAM mixing time 1 minute at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 189 | 170 | 19 | 170 | 156 | 14 | 175 | 21.9 | 153.1 |
| | 2 | 176 | 144 | 32 | 162 | 129 | 33 | 164 | 17.1 | 146.9 |
| | 5 | 141 | 115 | 26 | 125 | 100 | 25 | 132 | 16 | 116 |
| | 10 | 112 | 99.1 | 12.9 | 100 | 83.2 | 16.8 | 109 | 10.6 | 98.4 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 197 | 182 | 15 | 172 | 158 | 14 | 182 | 37.2 | 144.8 |
| | 2 | 182 | 153 | 29 | 161 | 132 | 29 | 168 | 29.2 | 138.8 |
| | 5 | 157 | 123 | 34 | 128 | 107 | 21 | 141 | 25.6 | 115.4 |
| | 10 | 119 | 97.3 | 21.7 | 107 | 93.3 | 13.7 | 115 | 15.2 | 99.8 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 189 | 171 | 18 | 175 | 159 | 16 | 185 | 42.1 | 142.9 |
| | 2 | 172 | 143 | 29 | 163 | 132 | 31 | 172 | 31.2 | 140.8 |
| | 5 | 134 | 120 | 14 | 122 | 107.7 | 14.3 | 145 | 29.5 | 115.5 |
| | 10 | 117 | 101 | 16 | 107 | 89.2 | 17.8 | 119 | 17.2 | 101.8 |

**Applied Polymer Blend 712, PAM mixing time 1 minute at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 181 | 161 | 20 | 180 | 111 | 69 | 182 | 30.7 | 151.3 |
| | 2 | 155 | 125 | 30 | 170 | 86.3 | 83.7 | 164 | 22.8 | 141.2 |
| | 5 | 132 | 96 | 36 | 143 | 75.3 | 67.7 | 138 | 19.1 | 118.9 |
| | 10 | 112 | 80.1 | 31.9 | 110 | 60.3 | 49.7 | 107 | 18 | 89 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 185 | 165 | 20 | 182 | 115 | 67 | 185 | 35.9 | 149.1 |
| | 2 | 158 | 132 | 26 | 173 | 92.1 | 80.9 | 169 | 32.1 | 136.9 |
| | 5 | 137 | 98 | 39 | 151 | 81.3 | 69.7 | 132 | 25.2 | 106.8 |
| | 10 | 118 | 84.2 | 33.8 | 107 | 62.1 | 44.9 | 117 | 22 | 95 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 189 | 175 | 14 | 185 | 119 | 66 | 192 | 41.2 | 150.8 |
| | 2 | 173 | 147 | 26 | 176 | 99 | 77 | 175 | 31.2 | 143.8 |
| | 5 | 141 | 122 | 19 | 153 | 85.3 | 67.7 | 139 | 25.6 | 113.4 |
| | 10 | 121 | 89 | 32 | 118 | 75 | 43 | 128 | 22.6 | 105.4 |

**Applied Polymer Blend 730, PAM mixing time 1 minute at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 194 | 178 | 16 | 182 | 102 | 80 | 170 | 82.4 | 87.6 |
| | 2 | 178 | 141 | 37 | 169 | 89.3 | 79.7 | 152 | 59.7 | 92.3 |
| | 5 | 148 | 125 | 23 | 134 | 72.1 | 61.9 | 130 | 56.6 | 73.4 |
| | 10 | 120 | 119 | 1 | 129 | 52.6 | 76.4 | 122 | 53.2 | 68.8 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 201 | 182 | 19 | 175 | 97 | 78 | 172 | 81.3 | 90.7 |
| | 2 | 183 | 151 | 32 | 153 | 72.3 | 80.7 | 158 | 61.7 | 96.3 |
| | 5 | 154 | 129.3 | 24.7 | 137 | 71.6 | 65.4 | 129 | 55.3 | 73.7 |
| | 10 | 127 | 120.2 | 6.8 | 128 | 51.6 | 76.4 | 124 | 51.7 | 72.3 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 205 | 186 | 19 | 182 | 101 | 81 | 185 | 89.2 | 95.8 |
| | 2 | 186 | 161 | 25 | 162 | 87.3 | 74.7 | 179 | 76.2 | 102.8 |
| | 5 | 159 | 132 | 27 | 137 | 75.2 | 61.8 | 146 | 65.6 | 80.4 |
| | 10 | 132 | 126 | 6 | 121 | 62 | 59 | 125 | 59.6 | 65.4 |

**Applied Polymer Blend 730, PAM mixing time 1 minute at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 227 | 59.2 | 167.8 | 175 | 38.7 | 136.3 | 155 | 27.4 | 127.6 |
| | 2 | 173 | 39.9 | 133.1 | 158 | 24.1 | 133.9 | 141 | 18.6 | 122.4 |
| | 5 | 149 | 31.2 | 117.8 | 131 | 22.3 | 108.7 | 120 | 18.2 | 101.8 |
| | 10 | 135 | 28 | 107 | 120 | 12.9 | 107.1 | 94 | 15.4 | 78.6 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 234 | 62.3 | 171.7 | 176 | 39.2 | 136.8 | 165 | 34.3 | 130.7 |
| | 2 | 182 | 42.1 | 139.9 | 162 | 27.3 | 134.7 | 152 | 21.2 | 130.8 |
| | 5 | 153 | 36.4 | 116.6 | 129 | 24.2 | 104.8 | 129 | 19 | 110 |
| | 10 | 137 | 29 | 108 | 114 | 11.2 | 102.8 | 107 | 12.3 | 94.7 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 201 | 51 | 150 | 182 | 45.9 | 136.1 | 176 | 51.2 | 124.8 |
| | 2 | 162 | 39.1 | 122.9 | 161 | 35.2 | 125.8 | 159 | 42.9 | 116.1 |
| | 5 | 137 | 31.5 | 105.5 | 139 | 29.2 | 109.8 | 139 | 31.2 | 107.8 |
| | 10 | 109 | 15.3 | 93.7 | 125 | 17 | 108 | 129 | 29.5 | 99.5 |

**Applied Polymer Blend 740, PAM mixing time 1 minute at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 212 | 143 | 69 | 180 | 76 | 104 | 173 | 87 | 86 |
| | 2 | 188 | 124 | 64 | 160 | 54.3 | 105.7 | 161 | 65.8 | 95.2 |
| | 5 | 150 | 103.6 | 46.4 | 130 | 43.6 | 86.4 | 133 | 59.1 | 73.9 |
| | 10 | 123 | 94.1 | 28.9 | 117 | 42 | 75 | 111 | 51.8 | 59.2 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 215 | 145 | 70 | 182 | 79.3 | 102.7 | 178 | 92 | 86 |
| | 2 | 193 | 132 | 61 | 165 | 59.1 | 105.9 | 165 | 71.3 | 93.7 |
| | 5 | 157 | 112.4 | 44.6 | 137 | 47.3 | 89.7 | 138 | 62.3 | 75.7 |
| | 10 | 128 | 97.2 | 30.8 | 123 | 44.7 | 78.3 | 117 | 57.3 | 59.7 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 202 | 132 | 70 | 190 | 83 | 107 | 183 | 93 | 90 |
| | 2 | 182 | 121 | 61 | 172 | 63.9 | 108.1 | 165 | 72.6 | 92.4 |
| | 5 | 149 | 105 | 44 | 141 | 55.2 | 85.8 | 142 | 65.9 | 76.1 |
| | 10 | 112 | 92.6 | 19.4 | 126 | 51 | 75 | 117 | 59.2 | 57.8 |

**Applied Polymer Blend 740, PAM mixing time 1 minute at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 190 | 47.7 | 142.3 | 170 | 52.1 | 117.9 | 177 | 37.8 | 139.2 |
| | 2 | 170 | 33.2 | 136.8 | 151 | 27.7 | 123.3 | 160 | 28.9 | 131.1 |
| | 5 | 130 | 31.5 | 98.5 | 120 | 26.2 | 93.8 | 130 | 26.9 | 103.1 |
| | 10 | 121 | 29.2 | 91.8 | 102 | 24.9 | 77.1 | 109 | 21.5 | 87.5 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 192 | 49.2 | 142.8 | 178 | 55 | 123 | 182 | 42.3 | 139.7 |
| | 2 | 175 | 38.1 | 136.9 | 162 | 33.4 | 128.6 | 168 | 33.1 | 134.9 |
| | 5 | 138 | 33.7 | 104.3 | 137 | 28.9 | 108.1 | 139 | 28.7 | 110.3 |
| | 10 | 127 | 31.2 | 95.8 | 121 | 26.3 | 94.7 | 117 | 24.2 | 92.8 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 201 | 56.3 | 144.7 | 182 | 59 | 123 | 185 | 45 | 140 |
| | 2 | 179 | 42.3 | 136.7 | 169 | 39.2 | 129.8 | 165 | 39 | 126 |
| | 5 | 142 | 39 | 103 | 146 | 31.2 | 114.8 | 139 | 29.2 | 109.8 |
| | 10 | 138 | 31.2 | 106.8 | 131 | 29 | 102 | 112 | 26.2 | 85.8 |

**Ciba, PAM mixing time 1 minute at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 206 | 188 | 18 | 192 | 118 | 74 | 180 | 116 | 64 |
| | 2 | 184 | 162 | 22 | 166 | 86 | 80 | 170 | 107.3 | 62.7 |
| | 5 | 143 | 130 | 13 | 143 | 81 | 62 | 145 | 87.2 | 57.8 |
| | 10 | 125 | 124 | 1 | 120 | 70 | 50 | 130 | 80.1 | 49.9 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 201 | 181 | 20 | 190 | 115 | 75 | 182 | 118 | 64 |
| | 2 | 187 | 163 | 24 | 162 | 82.3 | 79.7 | 175 | 105.3 | 69.7 |
| | 5 | 142 | 133 | 9 | 137 | 78.4 | 58.6 | 148 | 92.9 | 55.1 |
| | 10 | 127 | 127 | 0 | 123 | 72.4 | 50.6 | 137 | 87.3 | 49.7 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 201 | 186 | 15 | 201 | 121 | 80 | 190 | 119 | 71 |
| | 2 | 182 | 172 | 10 | 169 | 89 | 80 | 181 | 109 | 72 |
| | 5 | 139 | 132 | 7 | 152 | 83.6 | 68.4 | 137 | 82.1 | 54.9 |
| | 10 | 119 | 113 | 6 | 126 | 76.5 | 49.5 | 121 | 72.6 | 48.4 |

**Ciba, PAM mixing time 1 minute at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 220 | 148 | 72 | 193 | 31.6 | 161.4 | 170 | 32.3 | 137.7 |
| | 2 | 190 | 124 | 66 | 180 | 27 | 153 | 145 | 22.5 | 122.5 |
| | 5 | 153 | 107.2 | 45.8 | 149 | 26.8 | 122.2 | 125 | 21.9 | 103.1 |
| | 10 | 120 | 107 | 13 | 131 | 21 | 110 | 115 | 19.3 | 95.7 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 215 | 142 | 73 | 195 | 33.7 | 161.3 | 172 | 35.3 | 136.7 |
| | 2 | 187 | 121 | 66 | 182 | 28.3 | 153.7 | 146 | 27.2 | 118.8 |
| | 5 | 148 | 104.9 | 43.1 | 139 | 24.2 | 114.8 | 128 | 22.3 | 105.7 |
| | 10 | 125 | 102.7 | 22.3 | 123 | 20.1 | 102.9 | 112 | 17.4 | 94.6 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 201 | 131 | 70 | 201 | 42 | 159 | 185 | 42 | 143 |
| | 2 | 172 | 119 | 53 | 185 | 29 | 156 | 150 | 32.6 | 117.4 |
| | 5 | 139 | 99.2 | 39.8 | 149 | 25.6 | 123.4 | 134 | 27.9 | 106.1 |
| | 10 | 126 | 95.2 | 30.8 | 135 | 22 | 113 | 121 | 22.8 | 98.2 |

**A-100, PAM mixing time 1 minute at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 193 | 183 | 10 | 185 | 82 | 103 | 180 | 73.4 | 106.6 |
| | 2 | 179 | 150 | 29 | 127 | 64.7 | 62.3 | 125 | 62.2 | 62.8 |
| | 5 | 153 | 124 | 29 | 117 | 56.2 | 60.8 | 115 | 58.4 | 56.6 |
| | 10 | 124 | 102 | 22 | 102 | 53.7 | 48.3 | 97 | 51.6 | 45.4 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 185 | 172 | 13 | 187 | 85.7 | 101.3 | 182 | 75.9 | 106.1 |
| | 2 | 172 | 140.3 | 31.7 | 132 | 68.9 | 63.1 | 135 | 68.7 | 66.3 |
| | 5 | 143 | 114 | 29 | 119 | 59.9 | 59.1 | 117 | 59.2 | 57.8 |
| | 10 | 121 | 107 | 14 | 107 | 55.9 | 51.1 | 102 | 57.3 | 44.7 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 186 | 173 | 13 | 201 | 97 | 104 | 203 | 92 | 111 |
| | 2 | 175 | 149 | 26 | 140 | 82.3 | 57.7 | 178 | 87.2 | 90.8 |
| | 5 | 151 | 113 | 38 | 126 | 69.2 | 56.8 | 150 | 76.2 | 73.8 |
| | 10 | 129 | 109 | 20 | 112 | 59.2 | 52.8 | 109 | 62.3 | 46.7 |

**A-100, PAM mixing time 1 minute at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 210 | 85.4 | 124.6 | 180 | 72.3 | 107.7 | 171 | 68.8 | 102.2 |
| | 2 | 180 | 66 | 114 | 140 | 42.7 | 97.3 | 154 | 31.1 | 122.9 |
| | 5 | 153 | 60.5 | 92.5 | 122 | 39.3 | 82.7 | 133 | 23.2 | 109.8 |
| | 10 | 143 | 55.9 | 87.1 | 112 | 37.9 | 74.1 | 110 | 22.8 | 87.2 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 190 | 75.4 | 114.6 | 180 | 73.2 | 106.8 | 172 | 69 | 103 |
| | 2 | 172 | 58.2 | 113.8 | 145 | 47.9 | 97.1 | 157 | 32.3 | 124.7 |
| | 5 | 143 | 51.1 | 91.9 | 125 | 39.9 | 85.1 | 132 | 24.7 | 107.3 |
| | 10 | 121 | 39.9 | 81.1 | 117 | 38.2 | 78.8 | 115 | 23.1 | 91.9 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 195 | 79.2 | 115.8 | 191 | 85 | 106 | 182 | 72 | 110 |
| | 2 | 178 | 68.2 | 109.8 | 173 | 72 | 101 | 149 | 41.2 | 107.8 |
| | 5 | 145 | 56.2 | 88.8 | 143 | 59 | 84 | 129 | 29.5 | 99.5 |
| | 10 | 120 | 42 | 78 | 121 | 42.3 | 78.7 | 112 | 24 | 88 |

**A-100-HMW, PAM mixing time 1 minute at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 200 | 98 | 102 | 192 | 63.2 | 128.8 | 186 | 60.6 | 125.4 |
| | 2 | 170 | 78.3 | 91.7 | 180 | 46.2 | 133.8 | 161 | 41.1 | 119.9 |
| | 5 | 127 | 61.9 | 65.1 | 147 | 40 | 107 | 131 | 34.8 | 96.2 |
| | 10 | 102 | 57.5 | 44.5 | 126 | 35.6 | 90.4 | 120 | 33.2 | 86.8 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 197 | 97.3 | 99.7 | 195 | 65.3 | 129.7 | 191 | 63.2 | 127.8 |
| | 2 | 173 | 78.7 | 94.3 | 182 | 46.3 | 135.7 | 165 | 43.2 | 121.8 |
| | 5 | 122 | 58.2 | 63.8 | 149 | 42 | 107 | 140 | 39.3 | 100.7 |
| | 10 | 107 | 56 | 51 | 122 | 39.2 | 82.8 | 122 | 35.2 | 86.8 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 205 | 102 | 103 | 201 | 72 | 129 | 195 | 65 | 130 |
| | 2 | 172 | 82 | 90 | 182 | 49.2 | 132.8 | 172 | 52.3 | 119.7 |
| | 5 | 132 | 69.2 | 62.8 | 149 | 42.6 | 106.4 | 142 | 46.2 | 95.8 |
| | 10 | 112 | 62.3 | 49.7 | 112 | 30.1 | 81.9 | 117 | 32 | 85 |

**A-100-HMW, PAM mixing time 1 minute at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 187 | 94.7 | 92.3 | 182 | 50.6 | 131.4 | 182 | 32.3 | 149.7 |
| | 2 | 170 | 64.1 | 105.9 | 170 | 21.3 | 148.7 | 153 | 28.3 | 124.7 |
| | 5 | 145 | 55.1 | 89.9 | 142 | 18.6 | 123.4 | 112 | 23.9 | 88.1 |
| | 10 | 125 | 48.8 | 76.2 | 115 | 17.6 | 97.4 | 97.3 | 17.6 | 79.7 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 180 | 87.2 | 92.8 | 192 | 62.3 | 129.7 | 182 | 31.4 | 150.6 |
| | 2 | 165 | 60.3 | 104.7 | 178 | 31 | 147 | 161 | 26.5 | 134.5 |
| | 5 | 142 | 51.7 | 90.3 | 151 | 23.7 | 127.3 | 137 | 20.3 | 116.7 |
| | 10 | 123 | 45 | 78 | 118 | 19.2 | 98.8 | 112 | 18.2 | 93.8 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 187 | 95.6 | 91.4 | 201 | 62 | 139 | 205 | 55 | 150 |
| | 2 | 172 | 69.2 | 102.8 | 179 | 35.3 | 143.7 | 182 | 39.2 | 142.8 |
| | 5 | 151 | 62.3 | 88.7 | 155 | 21 | 134 | 161 | 27.5 | 133.5 |
| | 10 | 129 | 51.3 | 77.7 | 121 | 18.5 | 102.5 | 131 | 22 | 109 |

**A-120, PAM mixing time 1 minute at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 211 | 161 | 50 | 213 | 74.2 | 138.8 | 170 | 72.2 | 97.8 |
| | 2 | 191 | 131 | 60 | 177 | 58.1 | 118.9 | 150 | 53.7 | 96.3 |
| | 5 | 145 | 111 | 34 | 153 | 50 | 103 | 130 | 46.6 | 83.4 |
| | 10 | 110 | 98.9 | 11.1 | 130 | 45.3 | 84.7 | 118 | 38 | 80 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 201 | 150 | 51 | 203 | 68.7 | 134.3 | 185 | 73.7 | 111.3 |
| | 2 | 182 | 120 | 62 | 169 | 51.2 | 117.8 | 163 | 55.2 | 107.8 |
| | 5 | 137 | 107 | 30 | 151 | 47.3 | 103.7 | 141 | 46.3 | 94.7 |
| | 10 | 112 | 101 | 11 | 132 | 46.2 | 85.8 | 123 | 39.3 | 83.7 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 192 | 149 | 43 | 195 | 55 | 140 | 192 | 82 | 110 |
| | 2 | 172 | 120 | 52 | 175 | 49.9 | 125.1 | 173 | 62.3 | 110.7 |
| | 5 | 132 | 105 | 27 | 146 | 42 | 104 | 151 | 52 | 99 |
| | 10 | 107 | 99 | 8 | 122 | 35.2 | 86.8 | 126 | 41.9 | 84.1 |

**A-120, PAM mixing time 1 minute at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 201 | 39.3 | 161.7 | 190 | 55.9 | 134.1 | 192 | 46.2 | 145.8 |
| | 2 | 171 | 37.3 | 133.7 | 160 | 47.7 | 112.3 | 167 | 29.3 | 137.7 |
| | 5 | 135 | 28.6 | 106.4 | 130 | 36.8 | 93.2 | 132 | 24.4 | 107.6 |
| | 10 | 113 | 22.6 | 90.4 | 110 | 39.8 | 70.2 | 115 | 19.2 | 95.8 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 197 | 37.2 | 159.8 | 192 | 57.3 | 134.7 | 197 | 48.2 | 148.8 |
| | 2 | 175 | 35.3 | 139.7 | 165 | 49.2 | 115.8 | 172 | 32.7 | 139.3 |
| | 5 | 132 | 26.1 | 105.9 | 141 | 43.2 | 97.8 | 138 | 28.6 | 109.4 |
| | 10 | 107 | 24.7 | 82.3 | 117 | 33.1 | 83.9 | 121 | 22.3 | 98.7 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 195 | 37.1 | 157.9 | 202 | 65 | 137 | 190 | 47.2 | 142.8 |
| | 2 | 172 | 34.6 | 137.4 | 172 | 52.6 | 119.4 | 165 | 32.9 | 132.1 |
| | 5 | 129 | 25.2 | 103.8 | 142 | 42.6 | 99.4 | 142 | 28.4 | 113.6 |
| | 10 | 112 | 23 | 89 | 117 | 39.9 | 77.1 | 112 | 22 | 90 |

**A-120-HMW, PAM mixing time 1 minute at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 230 | 191 | 39 | 217 | 153 | 64 | 201 | 149 | 52 |
| | 2 | 181 | 171 | 10 | 193 | 127 | 66 | 182 | 125 | 57 |
| | 5 | 142 | 131 | 11 | 162 | 116.5 | 45.5 | 153 | 97.4 | 55.6 |
| | 10 | 121 | 112.2 | 8.8 | 132 | 106.4 | 25.6 | 120 | 93.9 | 26.1 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 241 | 207 | 34 | 225 | 165 | 60 | 210 | 151 | 59 |
| | 2 | 193 | 183 | 10 | 210 | 138 | 72 | 187 | 132 | 55 |
| | 5 | 164 | 148 | 16 | 175 | 127.2 | 47.8 | 162 | 107.3 | 54.7 |
| | 10 | 131 | 121 | 10 | 142 | 113.3 | 28.7 | 141 | 102 | 39 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 201 | 172 | 29 | 195 | 142 | 53 | 211 | 152 | 59 |
| | 2 | 185 | 162 | 23 | 182 | 116 | 66 | 192 | 142 | 50 |
| | 5 | 135 | 122 | 13 | 132 | 97 | 35 | 156 | 109 | 47 |
| | 10 | 119 | 112 | 7 | 112 | 72.3 | 39.7 | 132 | 105 | 27 |

**A-120-HMW, PAM mixing time 1 minute at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 188 | 158 | 30 | 182 | 44 | 138 | 192 | 45.6 | 146.4 |
| | 2 | 162 | 121 | 41 | 163 | 31 | 132 | 165 | 23.9 | 141.1 |
| | 5 | 143 | 92.4 | 50.6 | 142 | 26.3 | 115.7 | 141 | 22.9 | 118.1 |
| | 10 | 123 | 83.1 | 39.9 | 127 | 24.9 | 102.1 | 128 | 20.4 | 107.6 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 193 | 165 | 28 | 176 | 47 | 129 | 184 | 43.2 | 140.8 |
| | 2 | 181 | 141 | 40 | 155 | 34.3 | 120.7 | 165 | 27.4 | 137.6 |
| | 5 | 163 | 117.3 | 45.7 | 121 | 31.2 | 89.8 | 141 | 23.7 | 117.3 |
| | 10 | 124 | 101 | 23 | 112 | 22.1 | 89.9 | 117 | 22.3 | 94.7 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 195 | 168 | 27 | 201 | 59 | 142 | 195 | 46.2 | 148.8 |
| | 2 | 182 | 140 | 42 | 185 | 46.2 | 138.8 | 172 | 29.5 | 142.5 |
| | 5 | 165 | 120 | 45 | 168 | 34.6 | 133.4 | 140 | 25.2 | 114.8 |
| | 10 | 122 | 109 | 13 | 129 | 32 | 97 | 126 | 21.2 | 104.8 |

# APPENDIX D

Jar Test Results for Dry Granular PAM, with a mixing time of 2 minute, from a soil-water concentration of 2000 ppm

***All numeric values are measured in NTUs***

**Applied Polymer Blend 702, PAM mixing time 2 minutes at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 196 | 163 | 33 | 178 | 100 | 78 | 171 | 86.3 | 84.7 |
| | 2 | 149 | 123 | 26 | 158 | 60.7 | 97.3 | 168 | 73.2 | 94.8 |
| | 5 | 134 | 103.8 | 30.2 | 132 | 55.2 | 76.8 | 137 | 66.7 | 70.3 |
| | 10 | 106.5 | 79.3 | 27.2 | 118 | 49.8 | 68.2 | 121 | 52.4 | 68.6 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 188 | 151 | 37 | 171 | 135 | 36 | 163 | 92 | 71 |
| | 2 | 164 | 114 | 50 | 163 | 111 | 52 | 148 | 80 | 68 |
| | 5 | 143 | 97 | 46 | 141 | 90.8 | 50.2 | 125 | 70.2 | 54.8 |
| | 10 | 118 | 83.1 | 34.9 | 118 | 79.5 | 38.5 | 104 | 58.2 | 45.8 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 185 | 151 | 34 | 181 | 110 | 71 | 175 | 92.9 | 82.1 |
| | 2 | 151 | 112 | 39 | 161 | 71 | 90 | 162 | 83.5 | 78.5 |
| | 5 | 140 | 95.1 | 44.9 | 137 | 51.2 | 85.8 | 135 | 72.4 | 62.6 |
| | 10 | 112 | 81 | 31 | 112 | 48.7 | 63.3 | 114 | 61 | 53 |

**Applied Polymer Blend 702, PAM mixing time 2 minutes at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 187 | 32 | 155 | 185 | 35 | 150 | 171 | 12.6 | 158.4 |
| | 2 | 171 | 21.5 | 149.5 | 173 | 19 | 154 | 150 | 8.7 | 141.3 |
| | 5 | 138 | 17.5 | 120.5 | 141 | 6.2 | 134.8 | 135 | 7.71 | 127.29 |
| | 10 | 115 | 15.1 | 99.9 | 120 | 5.25 | 114.75 | 102 | 7.6 | 94.4 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 190 | 22 | 168 | 176 | 25.7 | 150.3 | 174 | 20 | 154 |
| | 2 | 161 | 17.3 | 143.7 | 156 | 19.7 | 136.3 | 153 | 13.1 | 139.9 |
| | 5 | 133 | 12 | 121 | 131 | 9.4 | 121.6 | 127 | 10.6 | 116.4 |
| | 10 | 114 | 11.1 | 102.9 | 116 | 8.54 | 107.46 | 111 | 6.85 | 104.15 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 187 | 31 | 156 | 183 | 32 | 151 | 172 | 21 | 151 |
| | 2 | 169 | 25.9 | 143.1 | 165 | 17 | 148 | 151 | 14.2 | 136.8 |
| | 5 | 132 | 19.5 | 112.5 | 137 | 9.56 | 127.44 | 132 | 8.1 | 123.9 |
| | 10 | 117 | 16.1 | 100.9 | 121 | 7.2 | 113.8 | 112 | 7.92 | 104.08 |

**Applied Polymer Blend 705, PAM mixing time 2 minutes at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 200 | 197 | 3 | 170 | 162 | 8 | 181 | 154 | 27 |
| | 2 | 165 | 153 | 12 | 153 | 153 | 0 | 162 | 115 | 47 |
| | 5 | 142 | 121 | 21 | 125 | 117 | 8 | 125 | 93.3 | 31.7 |
| | 10 | 104 | 86.1 | 17.9 | 107 | 106.9 | 0.1 | 107 | 78 | 29 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 205 | 201 | 4 | 172 | 162 | 10 | 182 | 150 | 32 |
| | 2 | 168 | 152 | 16 | 152 | 152 | 0 | 165 | 117 | 48 |
| | 5 | 147 | 125 | 22 | 128 | 119 | 9 | 127 | 97.3 | 29.7 |
| | 10 | 114 | 92.3 | 21.7 | 110 | 107 | 3 | 104 | 81 | 23 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 191 | 182 | 9 | 185 | 182 | 3 | 201 | 172 | 29 |
| | 2 | 152 | 142 | 10 | 162 | 159 | 3 | 171 | 129 | 42 |
| | 5 | 139 | 120 | 19 | 137 | 122 | 15 | 129 | 107 | 22 |
| | 10 | 109 | 92 | 17 | 115 | 112 | 3 | 115 | 82.3 | 32.7 |

**Applied Polymer Blend 705, PAM mixing time 2 minutes at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 200 | 169 | 31 | 180 | 77 | 103 | 170 | 81.4 | 88.6 |
| | 2 | 170 | 132 | 38 | 161 | 51.5 | 109.5 | 150 | 56.3 | 93.7 |
| | 5 | 140 | 115 | 25 | 132 | 47.2 | 84.8 | 120 | 48 | 72 |
| | 10 | 104.2 | 78.3 | 25.9 | 110 | 42.2 | 67.8 | 108.7 | 41.9 | 66.8 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 207 | 173 | 34 | 182 | 82 | 100 | 182 | 92.3 | 89.7 |
| | 2 | 173 | 141 | 32 | 165 | 57.3 | 107.7 | 161 | 64.1 | 96.9 |
| | 5 | 151 | 123 | 28 | 137 | 49.2 | 87.8 | 129 | 53 | 76 |
| | 10 | 115.3 | 87.4 | 27.9 | 112 | 41 | 71 | 117 | 43 | 74 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 191 | 159 | 32 | 201 | 86 | 115 | 185 | 97.3 | 87.7 |
| | 2 | 162 | 128 | 34 | 170 | 72.3 | 97.7 | 162 | 71 | 91 |
| | 5 | 135 | 113 | 22 | 143 | 56.7 | 86.3 | 134 | 62.1 | 71.9 |
| | 10 | 109 | 76.5 | 32.5 | 114 | 49.2 | 64.8 | 119 | 51 | 68 |

**Applied Polymer Blend 712, PAM mixing time 2 minutes at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 184 | 171 | 13 | 170 | 140 | 30 | 178 | 130 | 48 |
| | 2 | 169 | 159 | 10 | 145 | 129 | 16 | 151 | 107 | 44 |
| | 5 | 145 | 122 | 23 | 120 | 109 | 11 | 127 | 96.3 | 30.7 |
| | 10 | 115 | 99.8 | 15.2 | 90 | 81.5 | 8.5 | 112.3 | 92.1 | 20.2 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 186 | 174 | 12 | 175 | 142 | 33 | 182 | 137 | 45 |
| | 2 | 172 | 161 | 11 | 148 | 127 | 21 | 165 | 127 | 38 |
| | 5 | 147 | 126 | 21 | 123 | 112 | 11 | 135 | 109 | 26 |
| | 10 | 121 | 102 | 19 | 107 | 102 | 5 | 119 | 95.2 | 23.8 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 201 | 183 | 18 | 185 | 151 | 34 | 186 | 142 | 44 |
| | 2 | 176 | 162 | 14 | 161 | 139 | 22 | 170 | 132 | 38 |
| | 5 | 149 | 130.2 | 18.8 | 142 | 129.5 | 12.5 | 142 | 112 | 30 |
| | 10 | 117 | 101 | 16 | 119 | 113 | 6 | 117 | 91 | 26 |

**Applied Polymer Blend 712, PAM mixing time 2 minutes at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 182 | 127 | 55 | 175 | 109.3 | 65.7 | 160 | 63.3 | 96.7 |
| | 2 | 159 | 98.2 | 60.8 | 157 | 86.1 | 70.9 | 140 | 46.5 | 93.5 |
| | 5 | 140 | 76 | 64 | 128 | 64 | 64 | 120 | 42.4 | 77.6 |
| | 10 | 122 | 72.6 | 49.4 | 116 | 58 | 58 | 96 | 37.6 | 58.4 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 185 | 131 | 54 | 182 | 117.2 | 64.8 | 172 | 72.1 | 99.9 |
| | 2 | 162 | 107 | 55 | 165 | 93.1 | 71.9 | 151 | 54.7 | 96.3 |
| | 5 | 141 | 81 | 60 | 132 | 74 | 58 | 128 | 49.8 | 78.2 |
| | 10 | 127 | 74.9 | 52.1 | 121 | 64 | 57 | 107 | 42.3 | 64.7 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 187 | 135 | 52 | 185 | 121 | 64 | 183 | 87.2 | 95.8 |
| | 2 | 159 | 112 | 47 | 162 | 95.2 | 66.8 | 169 | 68.2 | 100.8 |
| | 5 | 134 | 91 | 43 | 138 | 79 | 59 | 135 | 56.4 | 78.6 |
| | 10 | 119 | 82.3 | 36.7 | 119 | 68 | 51 | 122 | 52.6 | 69.4 |

**Applied Polymer Blend 730, PAM mixing time 2 minutes at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 193 | 90.6 | 102.4 | 192 | 54.1 | 137.9 | 176 | 41.8 | 134.2 |
| | 2 | 162 | 86.3 | 75.7 | 170 | 42.3 | 127.7 | 150 | 29.9 | 120.1 |
| | 5 | 146 | 64.5 | 81.5 | 130 | 37.8 | 92.2 | 130 | 28.5 | 101.5 |
| | 10 | 120 | 63.5 | 56.5 | 122 | 33.5 | 88.5 | 107 | 25.9 | 81.1 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 185 | 83.2 | 101.8 | 193 | 55 | 138 | 172 | 42.9 | 129.1 |
| | 2 | 157 | 72.1 | 84.9 | 168 | 46.7 | 121.3 | 141 | 24.7 | 116.3 |
| | 5 | 136 | 61.7 | 74.3 | 137 | 41.2 | 95.8 | 133.3 | 22.3 | 111 |
| | 10 | 117 | 59 | 58 | 128 | 34.3 | 93.7 | 112 | 26.7 | 85.3 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 186 | 85 | 101 | 201 | 62 | 139 | 185 | 56 | 129 |
| | 2 | 162 | 75.2 | 86.8 | 176 | 54.2 | 121.8 | 159 | 35.2 | 123.8 |
| | 5 | 141 | 68.2 | 72.8 | 142 | 47.6 | 94.4 | 141 | 32 | 109 |
| | 10 | 121 | 66.2 | 54.8 | 125 | 39.2 | 85.8 | 116 | 24 | 92 |

**Applied Polymer Blend 730, PAM mixing time 2 minutes at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 187 | 43.3 | 143.7 | 184 | 25.9 | 158.1 | 170 | 25.5 | 144.5 |
| | 2 | 170 | 30.3 | 139.7 | 165 | 14.1 | 150.9 | 151 | 17 | 134 |
| | 5 | 142 | 25.8 | 116.2 | 142 | 12.6 | 129.4 | 130 | 15.8 | 114.2 |
| | 10 | 122 | 22.5 | 99.5 | 121 | 11.1 | 109.9 | 102 | 13.3 | 88.7 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 182 | 39.7 | 142.3 | 172 | 22.3 | 149.7 | 175 | 26.3 | 148.7 |
| | 2 | 168 | 31.2 | 136.8 | 155 | 13.2 | 141.8 | 158 | 19.2 | 138.8 |
| | 5 | 141 | 23.3 | 117.7 | 137 | 11.1 | 125.9 | 136.6 | 17.3 | 119.3 |
| | 10 | 125 | 23.2 | 101.8 | 120 | 10.9 | 109.1 | 107 | 14.2 | 92.8 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 201 | 52 | 149 | 186 | 29.6 | 156.4 | 185 | 37.9 | 147.1 |
| | 2 | 171 | 41.2 | 129.8 | 166 | 19.5 | 146.5 | 165 | 32.1 | 132.9 |
| | 5 | 146 | 32 | 114 | 139 | 13.5 | 125.5 | 137 | 21.5 | 115.5 |
| | 10 | 119 | 26.9 | 92.1 | 115 | 12.2 | 102.8 | 116 | 16 | 100 |

**Applied Polymer Blend 740, PAM mixing time 2 minutes at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 182 | 57 | 125 | 187 | 47.2 | 139.8 | 170 | 43.4 | 126.6 |
| | 2 | 165 | 52.8 | 112.2 | 160 | 34.8 | 125.2 | 150 | 33.4 | 116.6 |
| | 5 | 130 | 45 | 85 | 137 | 32.8 | 104.2 | 125 | 30.5 | 94.5 |
| | 10 | 107 | 41.5 | 65.5 | 110 | 28.1 | 81.9 | 105 | 27.4 | 77.6 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 185 | 58 | 127 | 185 | 44.7 | 140.3 | 172 | 44.5 | 127.5 |
| | 2 | 168 | 53.2 | 114.8 | 162 | 32.1 | 129.9 | 157 | 36.4 | 120.6 |
| | 5 | 135 | 47 | 88 | 133 | 31.8 | 101.2 | 128 | 31.3 | 96.7 |
| | 10 | 114 | 43.7 | 70.3 | 112 | 29.7 | 82.3 | 110 | 28.3 | 81.7 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 201 | 75.2 | 125.8 | 205 | 63.2 | 141.8 | 178 | 51.2 | 126.8 |
| | 2 | 172 | 65.3 | 106.7 | 171 | 49.5 | 121.5 | 161 | 42.3 | 118.7 |
| | 5 | 142 | 52 | 90 | 142 | 42.3 | 99.7 | 129 | 36 | 93 |
| | 10 | 117 | 49.5 | 67.5 | 119 | 32.9 | 86.1 | 112 | 31.2 | 80.8 |

**Applied Polymer Blend 740, PAM mixing time 2 minutes at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 183 | 39 | 144 | 170 | 33.7 | 136.3 | 170 | 28.5 | 141.5 |
| | 2 | 170 | 18.7 | 151.3 | 150 | 21.6 | 128.4 | 154 | 24.7 | 129.3 |
| | 5 | 144 | 14.4 | 129.6 | 125 | 17.2 | 107.8 | 126 | 23.3 | 102.7 |
| | 10 | 123 | 12.2 | 110.8 | 106 | 16.3 | 89.7 | 105 | 21.7 | 83.3 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 187 | 42 | 145 | 181 | 42.3 | 138.7 | 175 | 32.3 | 142.7 |
| | 2 | 173 | 19.3 | 153.7 | 165 | 34.7 | 130.3 | 158 | 27 | 131 |
| | 5 | 149.2 | 15.7 | 133.5 | 132 | 25.6 | 106.4 | 132 | 24.7 | 107.3 |
| | 10 | 125 | 13.4 | 111.6 | 114.2 | 21.3 | 92.9 | 115.3 | 20.3 | 95 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 201 | 52 | 149 | 185 | 45 | 140 | 182 | 54.3 | 127.7 |
| | 2 | 175 | 22.3 | 152.7 | 166 | 39.2 | 126.8 | 168 | 36.5 | 131.5 |
| | 5 | 145 | 17.9 | 127.1 | 135 | 26 | 109 | 143 | 32.1 | 110.9 |
| | 10 | 125 | 13.5 | 111.5 | 117 | 22.6 | 94.4 | 122 | 24.1 | 97.9 |

**Ciba, PAM mixing time 2 minutes at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 185 | 147 | 38 | 175 | 71.7 | 103.3 | 182 | 72.3 | 109.7 |
| | 2 | 173 | 121 | 52 | 151 | 54.5 | 96.5 | 165 | 57.2 | 107.8 |
| | 5 | 133 | 102 | 31 | 120 | 50 | 70 | 133 | 50.3 | 82.7 |
| | 10 | 103 | 77.3 | 25.7 | 97 | 47 | 50 | 107 | 49.7 | 57.3 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 187 | 142 | 45 | 180 | 77.7 | 102.3 | 185 | 75.3 | 109.7 |
| | 2 | 175 | 120 | 55 | 159 | 62.3 | 96.7 | 172 | 63.7 | 108.3 |
| | 5 | 132 | 107 | 25 | 127 | 57.9 | 69.1 | 135 | 52 | 83 |
| | 10 | 107 | 82.3 | 24.7 | 107 | 53.4 | 53.6 | 112 | 51.2 | 60.8 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 201 | 167 | 34 | 182 | 82.3 | 99.7 | 201 | 82.9 | 118.1 |
| | 2 | 171 | 135 | 36 | 162 | 65.2 | 96.8 | 171 | 71.2 | 99.8 |
| | 5 | 135 | 112 | 23 | 129 | 61.2 | 67.8 | 141 | 59.2 | 81.8 |
| | 10 | 112 | 92 | 20 | 112 | 58.2 | 53.8 | 119 | 55 | 64 |

**Ciba, PAM mixing time 2 minutes at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 191 | 89 | 102 | 186 | 31.6 | 154.4 | 160 | 24.2 | 135.8 |
| | 2 | 176 | 48 | 128 | 160 | 18 | 142 | 145 | 20.3 | 124.7 |
| | 5 | 150 | 46 | 104 | 141 | 14.2 | 126.8 | 120 | 19.3 | 100.7 |
| | 10 | 120 | 37.2 | 82.8 | 120 | 11.3 | 108.7 | 100 | 12.7 | 87.3 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 192 | 92 | 100 | 190 | 35.7 | 154.3 | 175 | 32.3 | 142.7 |
| | 2 | 178 | 49.3 | 128.7 | 167 | 22.3 | 144.7 | 152 | 29.7 | 122.3 |
| | 5 | 157 | 47.9 | 109.1 | 145 | 14.7 | 130.3 | 132 | 27.2 | 104.8 |
| | 10 | 125 | 42.3 | 82.7 | 127 | 13.1 | 113.9 | 114 | 19.9 | 94.1 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 201 | 102 | 99 | 187 | 35 | 152 | 189 | 59.2 | 129.8 |
| | 2 | 178 | 59 | 119 | 161 | 22 | 139 | 165 | 41.2 | 123.8 |
| | 5 | 151 | 51.2 | 99.8 | 138 | 19.2 | 118.8 | 149 | 29.3 | 119.7 |
| | 10 | 119 | 42 | 77 | 122 | 15.2 | 106.8 | 121 | 21.2 | 99.8 |

**A-100, PAM mixing time 2 minutes at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 197 | 104 | 93 | 180 | 43.8 | 136.2 | 204 | 34.6 | 169.4 |
| | 2 | 170 | 87.3 | 82.7 | 148 | 42.1 | 105.9 | 188 | 30.2 | 157.8 |
| | 5 | 130 | 72.8 | 57.2 | 117 | 40.2 | 76.8 | 154 | 26.7 | 127.3 |
| | 10 | 100 | 58.5 | 41.5 | 102 | 31.5 | 70.5 | 116 | 21.3 | 94.7 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 187 | 101 | 86 | 182 | 45.9 | 136.1 | 201 | 35.7 | 165.3 |
| | 2 | 162 | 82.3 | 79.7 | 151 | 43.1 | 107.9 | 187 | 31.3 | 155.7 |
| | 5 | 131 | 73.8 | 57.2 | 121 | 39.2 | 81.8 | 151 | 25.7 | 125.3 |
| | 10 | 107 | 68.1 | 38.9 | 112 | 37.2 | 74.8 | 114 | 22.9 | 91.1 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 201 | 110 | 91 | 195 | 57.2 | 137.8 | 193 | 32.1 | 160.9 |
| | 2 | 176 | 92.3 | 83.7 | 172 | 51.2 | 120.8 | 162 | 28.5 | 133.5 |
| | 5 | 137 | 79.5 | 57.5 | 125 | 45.2 | 79.8 | 131 | 22.1 | 108.9 |
| | 10 | 121 | 62.3 | 58.7 | 109 | 39.8 | 69.2 | 102 | 12 | 90 |

**A-100, PAM mixing time 2 minutes at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 220 | 63.4 | 156.6 | 186 | 14 | 172 | 190 | 27.8 | 162.2 |
| | 2 | 203 | 24.1 | 178.9 | 160 | 9.88 | 150.12 | 155 | 12.4 | 142.6 |
| | 5 | 170 | 18.4 | 151.6 | 134 | 8.46 | 125.54 | 128 | 10.25 | 117.75 |
| | 10 | 134 | 15.1 | 118.9 | 120 | 5.6 | 114.4 | 106.3 | 7.98 | 98.32 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 201 | 51.2 | 149.8 | 187 | 13.7 | 173.3 | 192 | 24.2 | 167.8 |
| | 2 | 175 | 20.3 | 154.7 | 165 | 10.2 | 154.8 | 156 | 12.6 | 143.4 |
| | 5 | 135 | 14.7 | 120.3 | 132 | 9.3 | 122.7 | 120 | 9.25 | 110.75 |
| | 10 | 117 | 12.3 | 104.7 | 123 | 6.2 | 116.8 | 107.9 | 8 | 99.9 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 187 | 47.5 | 139.5 | 175 | 12 | 163 | 185 | 21.2 | 163.8 |
| | 2 | 161 | 19.5 | 141.5 | 153 | 8.76 | 144.24 | 158 | 13.5 | 144.5 |
| | 5 | 135 | 17.2 | 117.8 | 131 | 8.2 | 122.8 | 135 | 12.5 | 122.5 |
| | 10 | 122 | 13.6 | 108.4 | 117 | 8 | 109 | 121 | 11.6 | 109.4 |

**A-100-HMW, PAM mixing time 2 minutes at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 204 | 78.8 | 125.2 | 190 | 51.2 | 138.8 | 182 | 50.2 | 131.8 |
| | 2 | 176 | 66.8 | 109.2 | 173 | 37.3 | 135.7 | 165 | 30.7 | 134.3 |
| | 5 | 141 | 57.5 | 83.5 | 145 | 30 | 115 | 132 | 27.8 | 104.2 |
| | 10 | 123 | 49.7 | 73.3 | 122 | 25.7 | 96.3 | 113 | 25.2 | 87.8 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 200 | 75.2 | 124.8 | 192 | 53.7 | 138.3 | 185 | 51.2 | 133.8 |
| | 2 | 172 | 62.1 | 109.9 | 175 | 36.3 | 138.7 | 172 | 41.3 | 130.7 |
| | 5 | 145 | 53 | 92 | 142 | 32.3 | 109.7 | 135 | 28.8 | 106.2 |
| | 10 | 121 | 46.2 | 74.8 | 127 | 29 | 98 | 117 | 26.3 | 90.7 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 191 | 72.1 | 118.9 | 201 | 61 | 140 | 186 | 52.6 | 133.4 |
| | 2 | 161 | 61.2 | 99.8 | 170 | 41.2 | 128.8 | 161 | 38.5 | 122.5 |
| | 5 | 132.2 | 48.5 | 83.7 | 138 | 30.1 | 107.9 | 134 | 29.5 | 104.5 |
| | 10 | 119 | 42 | 77 | 121 | 24.2 | 96.8 | 112 | 21 | 91 |

**A-100-HMW, PAM mixing time 2 minutes at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 206 | 21.1 | 184.9 | 180 | 26.9 | 153.1 | 181 | 33.2 | 147.8 |
| | 2 | 174 | 15.7 | 158.3 | 159 | 26.3 | 132.7 | 162 | 29.2 | 132.8 |
| | 5 | 143 | 10.07 | 132.93 | 124 | 23.2 | 100.8 | 125 | 27.4 | 97.6 |
| | 10 | 130 | 9.21 | 120.79 | 105 | 12.98 | 92.02 | 112 | 15.7 | 96.3 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 202 | 23.2 | 178.8 | 182 | 27.3 | 154.7 | 185 | 41.2 | 143.8 |
| | 2 | 170 | 17.2 | 152.8 | 161 | 26.2 | 134.8 | 167 | 31 | 136 |
| | 5 | 141 | 12.7 | 128.3 | 123 | 24.7 | 98.3 | 127 | 28.3 | 98.7 |
| | 10 | 127 | 10.3 | 116.7 | 112 | 15.3 | 96.7 | 117 | 17.2 | 99.8 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 187 | 21.1 | 165.9 | 191 | 32 | 159 | 185 | 40 | 145 |
| | 2 | 161 | 15.2 | 145.8 | 162 | 29.5 | 132.5 | 162 | 35.2 | 126.8 |
| | 5 | 132 | 11.9 | 120.1 | 134 | 27.1 | 106.9 | 127 | 29.2 | 97.8 |
| | 10 | 119 | 8.7 | 110.3 | 114 | 15.4 | 98.6 | 115 | 16 | 99 |

**A-120, PAM mixing time 2 minutes at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 182 | 37 | 145 | 175 | 36.6 | 138.4 | 190 | 47.7 | 142.3 |
| | 2 | 162 | 19.2 | 142.8 | 155 | 33.1 | 121.9 | 162 | 27.8 | 134.2 |
| | 5 | 140 | 12 | 128 | 137 | 27.4 | 109.6 | 132 | 24.2 | 107.8 |
| | 10 | 121 | 11.4 | 109.6 | 123 | 24.8 | 98.2 | 118 | 24 | 94 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 178 | 36.2 | 141.8 | 178 | 42 | 136 | 183 | 45.2 | 137.8 |
| | 2 | 158 | 21.3 | 136.7 | 156 | 37.8 | 118.2 | 165 | 32.1 | 132.9 |
| | 5 | 143 | 14.9 | 128.1 | 139 | 27.3 | 111.7 | 143 | 27.8 | 115.2 |
| | 10 | 117 | 12.9 | 104.1 | 122 | 26.2 | 95.8 | 127 | 25.6 | 101.4 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 185 | 42 | 143 | 181 | 51 | 130 | 185 | 46 | 139 |
| | 2 | 165 | 32.2 | 132.8 | 162 | 42.6 | 119.4 | 162 | 31.2 | 130.8 |
| | 5 | 142 | 21.2 | 120.8 | 139 | 34.2 | 104.8 | 137 | 25.9 | 111.1 |
| | 10 | 119 | 15 | 104 | 118 | 25.2 | 92.8 | 122 | 22.1 | 99.9 |

**A-120, PAM mixing time 2 minutes at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 161 | 16.2 | 144.8 | 186 | 27.9 | 158.1 | 175 | 50 | 125 |
| | 2 | 150 | 16 | 134 | 160 | 24.1 | 135.9 | 155 | 27.7 | 127.3 |
| | 5 | 132 | 12 | 120 | 142 | 21.4 | 120.6 | 137 | 21.5 | 115.5 |
| | 10 | 117 | 10 | 107 | 127 | 20.3 | 106.7 | 119 | 18.7 | 100.3 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 183 | 24.2 | 158.8 | 180 | 28.2 | 151.8 | 182 | 51.2 | 130.8 |
| | 2 | 161 | 23.9 | 137.1 | 157 | 26.4 | 130.6 | 161 | 31.3 | 129.7 |
| | 5 | 140 | 21.2 | 118.8 | 147 | 21.3 | 125.7 | 139 | 20.6 | 118.4 |
| | 10 | 122 | 16.7 | 105.3 | 132 | 21.1 | 110.9 | 124 | 19.2 | 104.8 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 185 | 25 | 160 | 201 | 32 | 169 | 185 | 52 | 133 |
| | 2 | 160 | 24.1 | 135.9 | 165 | 27.2 | 137.8 | 162 | 32.3 | 129.7 |
| | 5 | 142 | 22 | 120 | 143 | 22 | 121 | 135 | 21.5 | 113.5 |
| | 10 | 116 | 12.9 | 103.1 | 121 | 20.6 | 100.4 | 118 | 15.2 | 102.8 |

**A-120-HMW, PAM mixing time 2 minutes at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 187 | 183 | 4 | 178 | 70 | 108 | 191 | 49 | 142 |
| | 2 | 161 | 153 | 8 | 152 | 52.2 | 99.8 | 160 | 35.4 | 124.6 |
| | 5 | 142 | 116 | 26 | 138 | 47 | 91 | 131 | 33.9 | 97.1 |
| | 10 | 120 | 97.9 | 22.1 | 125 | 41.8 | 83.2 | 121 | 32.4 | 88.6 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 192 | 187.3 | 4.7 | 176 | 69.8 | 106.2 | 184 | 48.5 | 135.5 |
| | 2 | 180 | 173 | 7 | 150 | 57.3 | 92.7 | 164 | 42.1 | 121.9 |
| | 5 | 160 | 132.7 | 27.3 | 115 | 51.7 | 63.3 | 143 | 37.7 | 105.3 |
| | 10 | 124 | 102.7 | 21.3 | 107 | 40.8 | 66.2 | 127 | 34.4 | 92.6 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 185 | 179 | 6 | 186 | 78.5 | 107.5 | 195 | 51 | 144 |
| | 2 | 158 | 149 | 9 | 162 | 65.9 | 96.1 | 162 | 43.6 | 118.4 |
| | 5 | 141 | 122 | 19 | 142 | 53 | 89 | 134 | 38.2 | 95.8 |
| | 10 | 119 | 101 | 18 | 122 | 43.6 | 78.4 | 122 | 35.2 | 86.8 |

**A-120-HMW, PAM mixing time 2 minutes at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 193 | 34.1 | 158.9 | 187 | 41.3 | 145.7 | 174 | 23.2 | 150.8 |
| | 2 | 167 | 23.2 | 143.8 | 171 | 20.3 | 150.7 | 161 | 17.4 | 143.6 |
| | 5 | 132 | 23 | 109 | 152 | 16.2 | 135.8 | 139 | 16.4 | 122.6 |
| | 10 | 115 | 20.9 | 94.1 | 131 | 14.5 | 116.5 | 115 | 12.9 | 102.1 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 181 | 31.7 | 149.3 | 172 | 37.8 | 134.2 | 183 | 35.3 | 147.7 |
| | 2 | 152 | 20.3 | 131.7 | 146 | 17.3 | 128.7 | 167 | 21.3 | 145.7 |
| | 5 | 125 | 17.4 | 107.6 | 120 | 13.7 | 106.3 | 140 | 17.2 | 122.8 |
| | 10 | 109 | 16.5 | 92.5 | 98 | 11.3 | 86.7 | 125 | 14.3 | 110.7 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 185 | 36.2 | 148.8 | 185 | 42.3 | 142.7 | 187 | 37 | 150 |
| | 2 | 162 | 31.2 | 130.8 | 162 | 21.2 | 140.8 | 162 | 25.3 | 136.7 |
| | 5 | 129 | 25.2 | 103.8 | 135 | 15.2 | 119.8 | 141 | 19.2 | 121.8 |
| | 10 | 112 | 19.5 | 92.5 | 116 | 11.3 | 104.7 | 117 | 12.5 | 104.5 |

# APPENDIX E

Jar Test Results for Solution form PAM, with a mixing time of 1 minute, from a soil-water concentration of 2000 ppm

***All numeric values are measured in NTUs***

**Applied Polymer Blend 702, PAM mixing time 1 minute at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 213 | 58.6 | 154.4 | 190 | 97.4 | 92.6 | 180 | 107.4 | 72.6 |
| | 2 | 163 | 50.9 | 112.1 | 157 | 78.7 | 78.3 | 150 | 84.7 | 65.3 |
| | 5 | 130 | 38.8 | 91.2 | 139 | 64.5 | 74.5 | 125 | 63.7 | 61.3 |
| | 10 | 109 | 31.1 | 77.9 | 115 | 59.9 | 55.1 | 120 | 60 | 60 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 201 | 42.3 | 158.7 | 195 | 99.5 | 95.5 | 191 | 112.9 | 78.1 |
| | 2 | 152 | 36.7 | 115.3 | 161 | 82.3 | 78.7 | 158 | 92.3 | 65.7 |
| | 5 | 132 | 23.3 | 108.7 | 130 | 65.7 | 64.3 | 129.2 | 67.4 | 61.8 |
| | 10 | 112 | 30.7 | 81.3 | 112 | 57.2 | 54.8 | 122 | 61.2 | 60.8 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 197 | 40.2 | 156.8 | 190 | 69.9 | 120.1 | 195 | 115 | 80 |
| | 2 | 162 | 37.2 | 124.8 | 158.2 | 76.4 | 81.8 | 157 | 93.7 | 63.3 |
| | 5 | 131 | 31.3 | 99.7 | 131 | 64.2 | 66.8 | 132 | 74.2 | 57.8 |
| | 10 | 108 | 29.7 | 78.3 | 116 | 58.2 | 57.8 | 114 | 60.7 | 53.3 |

**Applied Polymer Blend 702, PAM mixing time 1 minute at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 200 | 44.9 | 155.1 | 188 | 74.5 | 113.5 | 180 | 97.8 | 82.2 |
| | 2 | 170 | 37.4 | 132.6 | 166 | 62.6 | 103.4 | 162 | 74.8 | 87.2 |
| | 5 | 140 | 30.3 | 109.7 | 135 | 57.5 | 77.5 | 137 | 68.2 | 68.8 |
| | 10 | 111 | 29 | 82 | 119 | 50 | 69 | 120 | 65.6 | 54.4 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 190 | 37.3 | 152.7 | 189 | 76.5 | 112.5 | 191 | 102 | 89 |
| | 2 | 157 | 29.3 | 127.7 | 162 | 63.2 | 98.8 | 168 | 81.2 | 86.8 |
| | 5 | 133 | 22.1 | 110.9 | 128 | 51.7 | 76.3 | 132 | 64.3 | 67.7 |
| | 10 | 120 | 19.7 | 100.3 | 117 | 49.2 | 67.8 | 121 | 62.7 | 58.3 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 191 | 38.9 | 152.1 | 201 | 86.2 | 114.8 | 192 | 104 | 88 |
| | 2 | 152 | 27.2 | 124.8 | 165 | 65.7 | 99.3 | 165 | 77.3 | 87.7 |
| | 5 | 129 | 20.7 | 108.3 | 132 | 54.3 | 77.7 | 132 | 62.1 | 69.9 |
| | 10 | 119 | 18.2 | 100.8 | 121 | 52.1 | 68.9 | 121 | 59.3 | 61.7 |

**Applied Polymer Blend 705, PAM mixing time 1 minute at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 195 | 105 | 90 | 189 | 83.1 | 105.9 | 195 | 92.3 | 102.7 |
| | 2 | 158 | 86 | 72 | 176 | 68.3 | 107.7 | 172 | 72.4 | 99.6 |
| | 5 | 127 | 78.7 | 48.3 | 140 | 66.5 | 73.5 | 142 | 64.3 | 77.7 |
| | 10 | 101 | 61.3 | 39.7 | 110 | 55.3 | 54.7 | 120 | 59.2 | 60.8 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 193 | 100 | 93 | 197 | 92.7 | 104.3 | 202 | 102.3 | 99.7 |
| | 2 | 165 | 89.7 | 75.3 | 183 | 73.4 | 109.6 | 183 | 84.7 | 98.3 |
| | 5 | 132 | 82.3 | 49.7 | 152 | 71.3 | 80.7 | 154 | 72.3 | 81.7 |
| | 10 | 112 | 74.1 | 37.9 | 112 | 58.7 | 53.3 | 121 | 63.1 | 57.9 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 182 | 87.2 | 94.8 | 189 | 85.4 | 103.6 | 207 | 103.5 | 103.5 |
| | 2 | 151 | 82.6 | 68.4 | 172 | 67.2 | 104.8 | 182 | 87.5 | 94.5 |
| | 5 | 123 | 72.6 | 50.4 | 132 | 61.5 | 70.5 | 151 | 74.6 | 76.4 |
| | 10 | 107 | 60.2 | 46.8 | 114 | 57.6 | 56.4 | 121 | 65.9 | 55.1 |

**Applied Polymer Blend 705, PAM mixing time 1 minute at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 192 | 32.7 | 159.3 | 201 | 46 | 155 | 201 | 39.7 | 161.3 |
| | 2 | 175 | 31.7 | 143.3 | 180 | 32.1 | 147.9 | 165 | 27.9 | 137.1 |
| | 5 | 132 | 26.4 | 105.6 | 141 | 29.8 | 111.2 | 138 | 24.2 | 113.8 |
| | 10 | 117 | 22.6 | 94.4 | 111 | 28 | 83 | 108.3 | 22.1 | 86.2 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 190 | 33.2 | 156.8 | 183 | 37.6 | 145.4 | 190 | 31.2 | 158.8 |
| | 2 | 171 | 29.7 | 141.3 | 162 | 30.2 | 131.8 | 172 | 25.4 | 146.6 |
| | 5 | 131 | 27.2 | 103.8 | 142 | 28.3 | 113.7 | 140 | 23.1 | 116.9 |
| | 10 | 120 | 24.1 | 95.9 | 117 | 26.1 | 90.9 | 122 | 23 | 99 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 201 | 46.5 | 154.5 | 195 | 39.5 | 155.5 | 187 | 29.7 | 157.3 |
| | 2 | 180 | 39.5 | 140.5 | 173 | 28.5 | 144.5 | 165 | 26.5 | 138.5 |
| | 5 | 143 | 32.6 | 110.4 | 138 | 26.5 | 111.5 | 149 | 24.5 | 124.5 |
| | 10 | 122 | 27.6 | 94.4 | 119 | 25.1 | 93.9 | 122 | 22.9 | 99.1 |

**Applied Polymer Blend 712, PAM mixing time 1 minute at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 185 | 151 | 34 | 201 | 115 | 86 | 195 | 110 | 85 |
| | 2 | 161 | 125 | 36 | 175 | 110 | 65 | 170 | 91 | 79 |
| | 5 | 132 | 94 | 38 | 139 | 87 | 52 | 141 | 84.6 | 56.4 |
| | 10 | 117 | 78 | 39 | 113 | 76.8 | 36.2 | 117 | 76 | 41 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 188 | 162 | 26 | 191 | 110 | 81 | 202 | 115 | 87 |
| | 2 | 166 | 132 | 34 | 162 | 93.4 | 68.6 | 185 | 101 | 84 |
| | 5 | 131 | 101 | 30 | 129 | 82.6 | 46.4 | 149 | 82.7 | 66.3 |
| | 10 | 115 | 79.2 | 35.8 | 107 | 73.2 | 33.8 | 120 | 75.1 | 44.9 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 207 | 175 | 32 | 196 | 115.6 | 80.4 | 187 | 111 | 76 |
| | 2 | 181 | 146 | 35 | 172 | 112 | 60 | 165 | 87.6 | 77.4 |
| | 5 | 146 | 121 | 25 | 139 | 92.6 | 46.4 | 122 | 65.9 | 56.1 |
| | 10 | 122 | 93.6 | 28.4 | 119 | 81.6 | 37.4 | 109 | 61.6 | 47.4 |

**Applied Polymer Blend 712, PAM mixing time 1 minute at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 171 | 53 | 118 | 189 | 71.2 | 117.8 | 195 | 63.3 | 131.7 |
| | 2 | 155 | 41.6 | 113.4 | 167 | 56.8 | 110.2 | 172 | 49.6 | 122.4 |
| | 5 | 132 | 36 | 96 | 151 | 54.5 | 96.5 | 135 | 44 | 91 |
| | 10 | 109 | 34.3 | 74.7 | 121 | 48.8 | 72.2 | 121 | 41.3 | 79.7 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 190 | 72.4 | 117.6 | 202 | 85.4 | 116.6 | 195 | 65.2 | 129.8 |
| | 2 | 162 | 56.9 | 105.1 | 181 | 71.2 | 109.8 | 175 | 52.3 | 122.7 |
| | 5 | 132 | 42.3 | 89.7 | 142 | 53.2 | 88.8 | 139 | 47.7 | 91.3 |
| | 10 | 117 | 37.2 | 79.8 | 117 | 47.3 | 69.7 | 117 | 40.3 | 76.7 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 197 | 86.5 | 110.5 | 181 | 68.9 | 112.1 | 207 | 79.5 | 127.5 |
| | 2 | 165 | 61.2 | 103.8 | 163 | 55.2 | 107.8 | 171 | 59.5 | 111.5 |
| | 5 | 139 | 45.9 | 93.1 | 142 | 49.5 | 92.5 | 146 | 52.6 | 93.4 |
| | 10 | 125 | 41.6 | 83.4 | 109 | 42.6 | 66.4 | 126 | 45.6 | 80.4 |

**Applied Polymer Blend 730, PAM mixing time 1 minute at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 208 | 87.6 | 120.4 | 190 | 84.5 | 105.5 | 192 | 95.9 | 96.1 |
| | 2 | 180 | 73.7 | 106.3 | 160 | 76.5 | 83.5 | 158 | 90.1 | 67.9 |
| | 5 | 141 | 66.3 | 74.7 | 120 | 73.3 | 46.7 | 131 | 87.9 | 43.1 |
| | 10 | 106 | 50.7 | 55.3 | 115 | 65.3 | 49.7 | 110 | 82.2 | 27.8 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 193 | 81.2 | 111.8 | 195 | 88.3 | 106.7 | 190 | 87.3 | 102.7 |
| | 2 | 173 | 69.2 | 103.8 | 171 | 86.4 | 84.6 | 162 | 85.4 | 76.6 |
| | 5 | 145 | 68.3 | 76.7 | 137 | 79.2 | 57.8 | 129 | 81.2 | 47.8 |
| | 10 | 111 | 62.4 | 48.6 | 112 | 71.3 | 40.7 | 107 | 78.7 | 28.3 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 201 | 84.6 | 116.4 | 202 | 91.2 | 110.8 | 197 | 102 | 95 |
| | 2 | 175 | 71.1 | 103.9 | 179 | 87.9 | 91.1 | 164 | 91.2 | 72.8 |
| | 5 | 147 | 67.6 | 79.4 | 135 | 79.5 | 55.5 | 137 | 89.5 | 47.5 |
| | 10 | 118 | 64.9 | 53.1 | 111 | 71.3 | 39.7 | 116 | 81.2 | 34.8 |

**Applied Polymer Blend 730, PAM mixing time 1 minute at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 250 | 93.8 | 156.2 | 201 | 120 | 81 | 180 | 125 | 55 |
| | 2 | 190 | 75.8 | 114.2 | 175 | 104.7 | 70.3 | 140 | 107.9 | 32.1 |
| | 5 | 160 | 65.7 | 94.3 | 130 | 91.2 | 38.8 | 125 | 94.2 | 30.8 |
| | 10 | 125 | 64.6 | 60.4 | 119 | 82.3 | 36.7 | 96.5 | 80.9 | 15.6 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 205 | 72.3 | 132.7 | 197 | 121 | 76 | 191 | 132 | 59 |
| | 2 | 183 | 70.1 | 112.9 | 173 | 110 | 63 | 157 | 117 | 40 |
| | 5 | 147 | 59.2 | 87.8 | 128 | 93.7 | 34.3 | 130 | 103 | 27 |
| | 10 | 119 | 25.3 | 93.7 | 115 | 85.4 | 29.6 | 107 | 93.7 | 13.3 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 197 | 69.6 | 127.4 | 202 | 125 | 77 | 195 | 133 | 62 |
| | 2 | 172 | 60.1 | 111.9 | 172 | 101 | 71 | 171 | 129 | 42 |
| | 5 | 138 | 51.2 | 86.8 | 135 | 93.8 | 41.2 | 131 | 107 | 24 |
| | 10 | 112 | 21.5 | 90.5 | 112 | 84.2 | 27.8 | 112 | 102 | 10 |

**Applied Polymer Blend 740, PAM mixing time 1 minute at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 195 | 74.4 | 120.6 | 202 | 107.5 | 94.5 | 196 | 187 | 9 |
| | 2 | 171 | 59.2 | 111.8 | 169 | 91.3 | 77.7 | 160 | 132 | 28 |
| | 5 | 120 | 54.1 | 65.9 | 130 | 88.3 | 41.7 | 136 | 112.3 | 23.7 |
| | 10 | 100 | 48.1 | 51.9 | 119 | 82.9 | 36.1 | 116 | 98.2 | 17.8 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 196 | 76.2 | 119.8 | 192 | 93.7 | 98.3 | 198 | 183 | 15 |
| | 2 | 162 | 51.2 | 110.8 | 163 | 89.2 | 73.8 | 169 | 135 | 34 |
| | 5 | 133 | 49.1 | 83.9 | 129 | 87.1 | 41.9 | 143 | 115 | 28 |
| | 10 | 113 | 47.2 | 65.8 | 117 | 81.2 | 35.8 | 120 | 101 | 19 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 190 | 71.2 | 118.8 | 189 | 92.6 | 96.4 | 203 | 192 | 11 |
| | 2 | 165 | 54.3 | 110.7 | 169 | 90.2 | 78.8 | 170 | 149 | 21 |
| | 5 | 131 | 52.6 | 78.4 | 132 | 89.5 | 42.5 | 141 | 122 | 19 |
| | 10 | 112 | 49.5 | 62.5 | 116 | 83.9 | 32.1 | 119 | 101 | 18 |

**Applied Polymer Blend 740, PAM mixing time 1 minute at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 198 | 89.5 | 108.5 | 196 | 138 | 58 | 197 | 178 | 19 |
| | 2 | 180 | 73.1 | 106.9 | 180 | 112 | 68 | 158 | 120 | 38 |
| | 5 | 150 | 61.9 | 88.1 | 142 | 94 | 48 | 135 | 95.8 | 39.2 |
| | 10 | 122 | 58.9 | 63.1 | 125 | 91.9 | 33.1 | 112 | 88.9 | 23.1 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 202 | 93.7 | 108.3 | 192 | 130 | 62 | 201 | 181 | 20 |
| | 2 | 173 | 71.2 | 101.8 | 173 | 110.3 | 62.7 | 167 | 127 | 40 |
| | 5 | 147 | 60.2 | 86.8 | 138 | 90.1 | 47.9 | 141 | 107.3 | 33.7 |
| | 10 | 118 | 56.2 | 61.8 | 123 | 87.3 | 35.7 | 117 | 95.1 | 21.9 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 192 | 81.2 | 110.8 | 193 | 135 | 58 | 195 | 171 | 24 |
| | 2 | 171 | 70.1 | 100.9 | 172 | 110.1 | 61.9 | 171 | 137 | 34 |
| | 5 | 142 | 56.5 | 85.5 | 141 | 92.1 | 48.9 | 145 | 112 | 33 |
| | 10 | 112 | 49.5 | 62.5 | 121 | 84.6 | 36.4 | 115 | 91.2 | 23.8 |

**Ciba, PAM mixing time 1 minute at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 240 | 138 | 102 | 229 | 175 | 54 | 197 | 171 | 26 |
| | 2 | 200 | 112 | 88 | 200 | 151 | 49 | 175 | 152 | 23 |
| | 5 | 143 | 65.7 | 77.3 | 144 | 119.3 | 24.7 | 143 | 127 | 16 |
| | 10 | 118 | 51.3 | 66.7 | 120 | 97.1 | 22.9 | 119 | 102.3 | 16.7 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 210 | 110 | 100 | 201 | 143 | 58 | 195 | 170 | 25 |
| | 2 | 191 | 90.9 | 100.1 | 183 | 129 | 54 | 173 | 149 | 24 |
| | 5 | 153 | 70.8 | 82.2 | 131 | 103 | 28 | 141 | 120 | 21 |
| | 10 | 121 | 55 | 66 | 117 | 92.1 | 24.9 | 116 | 101.3 | 14.7 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 200 | 102 | 98 | 197 | 138 | 59 | 202 | 175 | 27 |
| | 2 | 185 | 82.6 | 102.4 | 176 | 119 | 57 | 181 | 160 | 21 |
| | 5 | 149 | 65.9 | 83.1 | 135 | 106 | 29 | 137 | 125 | 12 |
| | 10 | 119 | 52.9 | 66.1 | 119 | 97.6 | 21.4 | 119 | 110.2 | 8.8 |

**Ciba, PAM mixing time 1 minute at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 201 | 96.4 | 104.6 | 215 | 146 | 69 | 184 | 151 | 33 |
| | 2 | 183 | 86.3 | 96.7 | 198 | 126 | 72 | 163 | 126 | 37 |
| | 5 | 151 | 80.6 | 70.4 | 160 | 109.7 | 50.3 | 130 | 109 | 21 |
| | 10 | 120 | 60.2 | 59.8 | 136 | 96 | 40 | 112 | 92.3 | 19.7 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 211 | 104.7 | 106.3 | 219 | 151 | 68 | 193 | 163 | 30 |
| | 2 | 190 | 93.8 | 96.2 | 190 | 121 | 69 | 175 | 137 | 38 |
| | 5 | 147 | 81.2 | 65.8 | 142 | 95.6 | 46.4 | 141 | 121 | 20 |
| | 10 | 117 | 59.1 | 57.9 | 123 | 85.6 | 37.4 | 119 | 99.1 | 19.9 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 201 | 97.2 | 103.8 | 201 | 136.2 | 64.8 | 205 | 161 | 44 |
| | 2 | 186 | 91.1 | 94.9 | 182 | 117.2 | 64.8 | 191 | 146 | 45 |
| | 5 | 145 | 85.1 | 59.9 | 149 | 97.6 | 51.4 | 143 | 126 | 17 |
| | 10 | 113 | 61.5 | 51.5 | 114 | 77.2 | 36.8 | 122 | 106.5 | 15.5 |

**A-100, PAM mixing time 1 minute at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 223 | 95.3 | 127.7 | 216 | 138 | 78 | 200 | 130 | 70 |
| | 2 | 190 | 74.3 | 115.7 | 180 | 114 | 66 | 161 | 110 | 51 |
| | 5 | 154 | 51.5 | 102.5 | 152 | 88.7 | 63.3 | 135 | 85.4 | 49.6 |
| | 10 | 121 | 46 | 75 | 129 | 84.5 | 44.5 | 120 | 65 | 55 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 217 | 91.2 | 125.8 | 206 | 125 | 81 | 205 | 131 | 74 |
| | 2 | 181 | 68.7 | 112.3 | 172 | 110.2 | 61.8 | 170 | 117 | 53 |
| | 5 | 150 | 50.1 | 99.9 | 141 | 81.3 | 59.7 | 141 | 93.7 | 47.3 |
| | 10 | 123 | 48.2 | 74.8 | 121 | 72.8 | 48.2 | 122 | 71.3 | 50.7 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 201 | 75.2 | 125.8 | 210 | 131 | 79 | 190 | 124 | 66 |
| | 2 | 171 | 61.6 | 109.4 | 187 | 124 | 63 | 167 | 115 | 52 |
| | 5 | 146 | 50.8 | 95.2 | 161 | 102 | 59 | 145 | 97.1 | 47.9 |
| | 10 | 119 | 47.1 | 71.9 | 138 | 95.4 | 42.6 | 127 | 81.2 | 45.8 |

**A-100, PAM mixing time 1 minute at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 210 | 69.2 | 140.8 | 225 | 124 | 101 | 201 | 124 | 77 |
| | 2 | 180 | 63.1 | 116.9 | 160 | 110.4 | 49.6 | 155 | 101.3 | 53.7 |
| | 5 | 142 | 55.6 | 86.4 | 147 | 89.2 | 57.8 | 136 | 85.5 | 50.5 |
| | 10 | 115 | 48.1 | 66.9 | 120 | 66.9 | 53.1 | 112 | 65.7 | 46.3 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 211 | 71.3 | 139.7 | 215 | 117 | 98 | 207 | 131 | 76 |
| | 2 | 172 | 58.3 | 113.7 | 175 | 120.3 | 54.7 | 173 | 117.3 | 55.7 |
| | 5 | 141 | 52.1 | 88.9 | 151 | 92.7 | 58.3 | 142 | 93.7 | 48.3 |
| | 10 | 117 | 49.2 | 67.8 | 122 | 71.3 | 50.7 | 119 | 75.2 | 43.8 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 197 | 65.2 | 131.8 | 205 | 110 | 95 | 212 | 129 | 83 |
| | 2 | 170 | 52.1 | 117.9 | 178 | 97.2 | 80.8 | 180 | 121 | 59 |
| | 5 | 138 | 48.7 | 89.3 | 154 | 87.9 | 66.1 | 149 | 100.1 | 48.9 |
| | 10 | 112 | 41.2 | 70.8 | 115 | 71 | 44 | 128 | 87.6 | 40.4 |

**A-100-HMW, PAM mixing time 1 minute at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 222 | 95.5 | 126.5 | 230 | 147 | 83 | 200 | 172 | 28 |
| | 2 | 190 | 76.9 | 113.1 | 195 | 124 | 71 | 177 | 123 | 54 |
| | 5 | 145 | 53 | 92 | 154 | 95.3 | 58.7 | 137 | 98 | 39 |
| | 10 | 118 | 51.9 | 66.1 | 130 | 82.3 | 47.7 | 124 | 87.4 | 36.6 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 212 | 86.5 | 125.5 | 215 | 131 | 84 | 205 | 170 | 35 |
| | 2 | 182 | 71.2 | 110.8 | 187 | 117 | 70 | 179 | 135 | 44 |
| | 5 | 141 | 51.2 | 89.8 | 147 | 90.1 | 56.9 | 142 | 102 | 40 |
| | 10 | 120 | 50.7 | 69.3 | 123 | 75.3 | 47.7 | 121 | 91.2 | 29.8 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 202 | 78.3 | 123.7 | 212 | 130 | 82 | 197 | 162 | 35 |
| | 2 | 178 | 70.3 | 107.7 | 181 | 114.3 | 66.7 | 172 | 117 | 55 |
| | 5 | 140 | 50.7 | 89.3 | 148 | 90.1 | 57.9 | 135 | 95.3 | 39.7 |
| | 10 | 117 | 48.3 | 68.7 | 121 | 73.2 | 47.8 | 121 | 83.7 | 37.3 |

**A-100-HMW, PAM mixing time 1 minute at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 192 | 81.8 | 110.2 | 230 | 129 | 101 | 203 | 143 | 60 |
| | 2 | 175 | 73.2 | 101.8 | 200 | 112 | 88 | 179 | 117 | 62 |
| | 5 | 140 | 59.7 | 80.3 | 170 | 95.3 | 74.7 | 142 | 95.7 | 46.3 |
| | 10 | 120 | 55.8 | 64.2 | 136 | 88.5 | 47.5 | 120 | 79.9 | 40.1 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 201 | 92.3 | 108.7 | 220 | 112 | 108 | 207 | 145 | 62 |
| | 2 | 178 | 78.1 | 99.9 | 187 | 101.1 | 85.9 | 180 | 121 | 59 |
| | 5 | 143 | 60.1 | 82.9 | 152 | 77.3 | 74.7 | 143 | 97.3 | 45.7 |
| | 10 | 117 | 51.8 | 65.2 | 121 | 71.2 | 49.8 | 119 | 79.8 | 39.2 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 197 | 84.7 | 112.3 | 217 | 110.3 | 106.7 | 197 | 137.3 | 59.7 |
| | 2 | 181 | 78.2 | 102.8 | 182 | 95.7 | 86.3 | 173 | 112 | 61 |
| | 5 | 147 | 65.1 | 81.9 | 143 | 70.2 | 72.8 | 137 | 91.3 | 45.7 |
| | 10 | 122 | 58.2 | 63.8 | 120 | 65.4 | 54.6 | 117 | 76.5 | 40.5 |

**A-120, PAM mixing time 1 minute at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 210 | 92.1 | 117.9 | 230 | 118 | 112 | 214 | 108.9 | 105.1 |
| | 2 | 176 | 76.3 | 99.7 | 200 | 100.4 | 99.6 | 191 | 103.9 | 87.1 |
| | 5 | 152 | 68.8 | 83.2 | 163 | 95 | 68 | 162 | 100 | 62 |
| | 10 | 120 | 62.7 | 57.3 | 140 | 85.4 | 54.6 | 130 | 94.2 | 35.8 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 215 | 99.2 | 115.8 | 217 | 103.7 | 113.3 | 207 | 102.3 | 104.7 |
| | 2 | 180 | 83.1 | 96.9 | 182 | 83.7 | 98.3 | 183 | 98.2 | 84.8 |
| | 5 | 161 | 77.3 | 83.7 | 163 | 81.1 | 81.9 | 160 | 92.1 | 67.9 |
| | 10 | 121 | 70.1 | 50.9 | 132 | 72.1 | 59.9 | 121 | 87.3 | 33.7 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 202 | 83.1 | 118.9 | 219 | 105.5 | 113.5 | 215 | 112 | 103 |
| | 2 | 170 | 71.1 | 98.9 | 183 | 85.9 | 97.1 | 186 | 101 | 85 |
| | 5 | 153 | 67.1 | 85.9 | 168 | 81.2 | 86.8 | 165 | 94.6 | 70.4 |
| | 10 | 121 | 61.2 | 59.8 | 126 | 71.1 | 54.9 | 124 | 89.5 | 34.5 |

**A-120, PAM mixing time 1 minute at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 212 | 117.3 | 94.7 | 231 | 156 | 75 | 207 | 152 | 55 |
| | 2 | 180 | 97.3 | 82.7 | 199 | 137 | 62 | 189 | 135 | 54 |
| | 5 | 154 | 71.4 | 82.6 | 160 | 116 | 44 | 162 | 122 | 40 |
| | 10 | 121 | 53.7 | 67.3 | 140 | 98.7 | 41.3 | 132 | 112 | 20 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 207 | 112.1 | 94.9 | 207 | 123.2 | 83.8 | 197 | 141 | 56 |
| | 2 | 173 | 89.9 | 83.1 | 183 | 112.4 | 70.6 | 180 | 127 | 53 |
| | 5 | 151 | 70.1 | 80.9 | 161 | 110.1 | 50.9 | 161 | 120.1 | 40.9 |
| | 10 | 117 | 48.1 | 68.9 | 130 | 82.1 | 47.9 | 121 | 107 | 14 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 197 | 99.2 | 97.8 | 219 | 139 | 80 | 219 | 155 | 64 |
| | 2 | 169 | 85.6 | 83.4 | 182 | 119.5 | 62.5 | 182 | 128 | 54 |
| | 5 | 148 | 65.2 | 82.8 | 165 | 125 | 40 | 161 | 117.2 | 43.8 |
| | 10 | 119 | 51.2 | 67.8 | 122 | 85.2 | 36.8 | 125 | 101 | 24 |

**A-120-HMW, PAM mixing time 1 minute at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 191 | 127 | 64 | 214 | 149 | 65 | 179 | 130 | 49 |
| | 2 | 154 | 98.8 | 55.2 | 156 | 123 | 33 | 148 | 111 | 37 |
| | 5 | 128 | 73.6 | 54.4 | 137 | 109.1 | 27.9 | 118 | 87 | 31 |
| | 10 | 105 | 59.2 | 45.8 | 123 | 99.9 | 23.1 | 104 | 78.1 | 25.9 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 201 | 135 | 66 | 217 | 142 | 75 | 207 | 153 | 54 |
| | 2 | 169 | 103.9 | 65.1 | 165 | 131 | 34 | 158 | 131 | 27 |
| | 5 | 139 | 85.1 | 53.9 | 145 | 113.3 | 31.7 | 129 | 97.2 | 31.8 |
| | 10 | 121 | 71.2 | 49.8 | 119 | 97.2 | 21.8 | 117 | 89.1 | 27.9 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 205 | 134.1 | 70.9 | 207 | 138 | 69 | 197 | 149 | 48 |
| | 2 | 171 | 102.1 | 68.9 | 166 | 121 | 45 | 156 | 125 | 31 |
| | 5 | 145 | 87.3 | 57.7 | 141 | 112.1 | 28.9 | 125 | 93.7 | 31.3 |
| | 10 | 122 | 73.1 | 48.9 | 120 | 93.9 | 26.1 | 117 | 87.1 | 29.9 |

**A-120-HMW, PAM mixing time 1 minute at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 183 | 85.1 | 97.9 | 219 | 160 | 59 | 182 | 137 | 45 |
| | 2 | 150 | 69.1 | 80.9 | 185 | 131 | 54 | 160 | 117 | 43 |
| | 5 | 127 | 55.3 | 71.7 | 140 | 113 | 27 | 119 | 103 | 16 |
| | 10 | 106 | 48.5 | 57.5 | 124 | 103.5 | 20.5 | 112 | 92.9 | 19.1 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 195 | 96.2 | 98.8 | 207 | 149 | 58 | 197 | 142 | 55 |
| | 2 | 172 | 74.1 | 97.9 | 181 | 130.1 | 50.9 | 175 | 121 | 54 |
| | 5 | 135 | 59.1 | 75.9 | 137 | 111.3 | 25.7 | 131 | 112.9 | 18.1 |
| | 10 | 122 | 45.1 | 76.9 | 121 | 101.7 | 19.3 | 117 | 99.1 | 17.9 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 197 | 94.1 | 102.9 | 201 | 142.1 | 58.9 | 202 | 151 | 51 |
| | 2 | 178 | 70.1 | 107.9 | 178 | 130.3 | 47.7 | 181 | 132.3 | 48.7 |
| | 5 | 139 | 55.2 | 83.8 | 134 | 110.2 | 23.8 | 138 | 117.9 | 20.1 |
| | 10 | 121 | 42.1 | 78.9 | 117 | 102.1 | 14.9 | 121 | 103.7 | 17.3 |

# APPENDIX F

Jar Test Results for Solution form PAM, with a mixing time of 2 minute, from a soil-water concentration of 2000 ppm

***All numeric values are measured in NTUs***

**Applied Polymer Blend 702, PAM mixing time 2 minutes at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 201 | 42.9 | 158.1 | 207 | 76.3 | 130.7 | 191 | 82.4 | 108.6 |
| | 2 | 153 | 34.3 | 118.7 | 159 | 62.5 | 96.5 | 157 | 78.8 | 78.2 |
| | 5 | 135 | 27 | 108 | 130 | 49.6 | 80.4 | 131 | 62.5 | 68.5 |
| | 10 | 115 | 23.4 | 91.6 | 112 | 45.4 | 66.6 | 120 | 51.9 | 68.1 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 211 | 54.3 | 156.7 | 191 | 64.2 | 126.8 | 195 | 84.7 | 110.3 |
| | 2 | 162 | 43.7 | 118.3 | 142 | 51.7 | 90.3 | 152 | 79.2 | 72.8 |
| | 5 | 137 | 29.3 | 107.7 | 129 | 47.2 | 81.8 | 125 | 61.3 | 63.7 |
| | 10 | 119 | 24.7 | 94.3 | 107 | 41.3 | 65.7 | 112 | 43.2 | 68.8 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 197 | 39.2 | 157.8 | 201 | 72.1 | 128.9 | 197 | 85.4 | 111.6 |
| | 2 | 151 | 32.6 | 118.4 | 152 | 59.5 | 92.5 | 151 | 81.2 | 69.8 |
| | 5 | 131 | 27.5 | 103.5 | 134 | 46.8 | 87.2 | 122 | 58.6 | 63.4 |
| | 10 | 112 | 23.9 | 88.1 | 112 | 44.1 | 67.9 | 107 | 41.2 | 65.8 |

**Applied Polymer Blend 702, PAM mixing time 2 minutes at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 193 | 92.2 | 100.8 | 187 | 40.6 | 146.4 | 190 | 61.5 | 128.5 |
| | 2 | 180 | 77.5 | 102.5 | 154 | 35.6 | 118.4 | 172 | 43.2 | 128.8 |
| | 5 | 142 | 63.7 | 78.3 | 122 | 33.2 | 88.8 | 143 | 38.7 | 104.3 |
| | 10 | 121 | 53.5 | 67.5 | 110 | 27.5 | 82.5 | 120 | 32.3 | 87.7 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 185 | 87.2 | 97.8 | 201 | 61.2 | 139.8 | 183 | 52.3 | 130.7 |
| | 2 | 152 | 62.1 | 89.9 | 162 | 47.3 | 114.7 | 151 | 33.4 | 117.6 |
| | 5 | 132 | 55.4 | 76.6 | 126 | 41.7 | 84.3 | 127 | 27.5 | 99.5 |
| | 10 | 120 | 52.1 | 67.9 | 111 | 29.2 | 81.8 | 112 | 14.3 | 97.7 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 201 | 105 | 96 | 186 | 42.9 | 143.1 | 191 | 62.9 | 128.1 |
| | 2 | 172 | 71.6 | 100.4 | 163 | 37.2 | 125.8 | 173 | 45.4 | 127.6 |
| | 5 | 132 | 59.8 | 72.2 | 132 | 32.1 | 99.9 | 143 | 41.2 | 101.8 |
| | 10 | 121 | 52.9 | 68.1 | 117 | 29.5 | 87.5 | 121 | 35.9 | 85.1 |

**Applied Polymer Blend 705, PAM mixing time 2 minutes at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 193 | 92.2 | 100.8 | 187 | 40.6 | 146.4 | 190 | 61.5 | 128.5 |
| | 2 | 180 | 77.5 | 102.5 | 154 | 35.6 | 118.4 | 172 | 43.2 | 128.8 |
| | 5 | 142 | 63.7 | 78.3 | 122 | 33.2 | 88.8 | 143 | 38.7 | 104.3 |
| | 10 | 121 | 53.5 | 67.5 | 110 | 27.5 | 82.5 | 120 | 32.3 | 87.7 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 185 | 87.2 | 97.8 | 201 | 61.2 | 139.8 | 183 | 52.3 | 130.7 |
| | 2 | 152 | 62.1 | 89.9 | 162 | 47.3 | 114.7 | 151 | 33.4 | 117.6 |
| | 5 | 132 | 55.4 | 76.6 | 126 | 41.7 | 84.3 | 127 | 27.5 | 99.5 |
| | 10 | 120 | 52.1 | 67.9 | 111 | 29.2 | 81.8 | 112 | 14.3 | 97.7 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 201 | 106 | 95 | 186 | 42.9 | 143.1 | 191 | 65.9 | 125.1 |
| | 2 | 172 | 85.6 | 86.4 | 163 | 37.2 | 125.8 | 173 | 45.9 | 127.1 |
| | 5 | 132 | 61.6 | 70.4 | 132 | 35.6 | 96.4 | 143 | 36.5 | 106.5 |
| | 10 | 121 | 51.6 | 69.4 | 117 | 31.2 | 85.8 | 121 | 31.6 | 89.4 |

**Applied Polymer Blend 705, PAM mixing time 2 minutes at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 187 | 23.5 | 163.5 | 197 | 27.8 | 169.2 | 201 | 37.4 | 163.6 |
| | 2 | 172 | 17.6 | 154.4 | 175 | 19.3 | 155.7 | 180 | 25.8 | 154.2 |
| | 5 | 141 | 14.1 | 126.9 | 132 | 19 | 113 | 151 | 24.8 | 126.2 |
| | 10 | 123 | 13 | 110 | 107 | 17 | 90 | 117 | 21.6 | 95.4 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 187 | 24.2 | 162.8 | 217 | 33.4 | 183.6 | 193 | 32.6 | 160.4 |
| | 2 | 172 | 18.4 | 153.6 | 192 | 27.4 | 164.6 | 162 | 21.3 | 140.7 |
| | 5 | 151 | 16.5 | 134.5 | 158 | 22.3 | 135.7 | 140 | 19.7 | 120.3 |
| | 10 | 129 | 15.1 | 113.9 | 123 | 21.1 | 101.9 | 126 | 17.2 | 108.8 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 192 | 27.5 | 164.5 | 201 | 29.6 | 171.4 | 196 | 35.6 | 160.4 |
| | 2 | 170 | 22.6 | 147.4 | 171 | 23.5 | 147.5 | 172 | 32.6 | 139.4 |
| | 5 | 148 | 19.4 | 128.6 | 132 | 21.1 | 110.9 | 155 | 25.9 | 129.1 |
| | 10 | 122 | 15.9 | 106.1 | 110 | 19 | 91 | 122 | 19.5 | 102.5 |

**Applied Polymer Blend 712, PAM mixing time 2 minutes at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 183 | 91.4 | 91.6 | 188 | 80.1 | 107.9 | 175 | 84.5 | 90.5 |
| | 2 | 161 | 77.8 | 83.2 | 165 | 76.3 | 88.7 | 153 | 75.9 | 77.1 |
| | 5 | 127 | 63.9 | 63.1 | 141 | 63.5 | 77.5 | 125 | 61.8 | 63.2 |
| | 10 | 115 | 57.5 | 57.5 | 117 | 57.2 | 59.8 | 112 | 56.2 | 55.8 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 192 | 103.5 | 88.5 | 172 | 76.4 | 95.6 | 189 | 97.8 | 91.2 |
| | 2 | 161 | 83.4 | 77.6 | 165 | 71.4 | 93.6 | 160 | 86.4 | 73.6 |
| | 5 | 131 | 74.9 | 56.1 | 131 | 61.2 | 69.8 | 132 | 71.3 | 60.7 |
| | 10 | 108.3 | 55.2 | 53.1 | 117 | 59.1 | 57.9 | 114 | 60.7 | 53.3 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 201 | 107 | 94 | 189 | 92.6 | 96.4 | 197 | 106 | 91 |
| | 2 | 172 | 85.6 | 86.4 | 153 | 75.6 | 77.4 | 171 | 86.5 | 84.5 |
| | 5 | 146 | 79.5 | 66.5 | 129 | 65.9 | 63.1 | 143 | 81.4 | 61.6 |
| | 10 | 123 | 63.2 | 59.8 | 107 | 55.1 | 51.9 | 125 | 73.5 | 51.5 |

**Applied Polymer Blend 712, PAM mixing time 2 minutes at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 202 | 50 | 152 | 184 | 51.6 | 132.4 | 194 | 38.8 | 155.2 |
| | 2 | 170 | 37.4 | 132.6 | 165 | 40.8 | 124.2 | 161 | 35.9 | 125.1 |
| | 5 | 142 | 33.4 | 108.6 | 141 | 35.8 | 105.2 | 142 | 34.6 | 107.4 |
| | 10 | 117 | 28.7 | 88.3 | 120 | 33.6 | 86.4 | 121 | 31.8 | 89.2 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 179 | 42.3 | 136.7 | 186 | 54.7 | 131.3 | 184 | 31.2 | 152.8 |
| | 2 | 162 | 32.6 | 129.4 | 152 | 39.2 | 112.8 | 171 | 27.3 | 143.7 |
| | 5 | 131 | 27.4 | 103.6 | 134 | 30.3 | 103.7 | 132 | 21.7 | 110.3 |
| | 10 | 109 | 25.4 | 83.6 | 115 | 27.2 | 87.8 | 107 | 18.3 | 88.7 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 195 | 47.6 | 147.4 | 192 | 65.8 | 126.2 | 197 | 49.2 | 147.8 |
| | 2 | 162 | 35.9 | 126.1 | 161 | 43.5 | 117.5 | 168 | 46.5 | 121.5 |
| | 5 | 157 | 32.9 | 124.1 | 141 | 37.5 | 103.5 | 134 | 32.1 | 101.9 |
| | 10 | 119 | 29.4 | 89.6 | 120 | 32.1 | 87.9 | 117 | 29.7 | 87.3 |

**Applied Polymer Blend 730, PAM mixing time 2 minutes at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 202 | 89.5 | 112.5 | 226 | 118 | 108 | 190 | 143 | 47 |
| | 2 | 190 | 73.1 | 116.9 | 180 | 101 | 79 | 170 | 123 | 47 |
| | 5 | 139 | 64.4 | 74.6 | 145 | 94.8 | 50.2 | 135 | 108 | 27 |
| | 10 | 118 | 50.8 | 67.2 | 128 | 92 | 36 | 115 | 104 | 11 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 197 | 84.1 | 112.9 | 201 | 91.2 | 109.8 | 196 | 152 | 44 |
| | 2 | 178 | 71.2 | 106.8 | 175 | 87.8 | 87.2 | 172 | 131 | 41 |
| | 5 | 135 | 63.1 | 71.9 | 141 | 84.9 | 56.1 | 138 | 112 | 26 |
| | 10 | 117 | 51.7 | 65.3 | 117 | 80.7 | 36.3 | 120 | 100.2 | 19.8 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 195 | 81.2 | 113.8 | 197 | 85.6 | 111.4 | 202 | 155 | 47 |
| | 2 | 172 | 66.9 | 105.1 | 172 | 81.9 | 90.1 | 179 | 139 | 40 |
| | 5 | 131 | 61.2 | 69.8 | 131 | 75.9 | 55.1 | 145 | 121 | 24 |
| | 10 | 112 | 52.1 | 59.9 | 116 | 72.9 | 43.1 | 119 | 105.2 | 13.8 |

**Applied Polymer Blend 730, PAM mixing time 2 minutes at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 239 | 69 | 170 | 200 | 129 | 71 | 182 | 127 | 55 |
| | 2 | 192 | 57.1 | 134.9 | 160 | 107.5 | 52.5 | 155 | 115 | 40 |
| | 5 | 141 | 50 | 91 | 139 | 96.6 | 42.4 | 128 | 100.3 | 27.7 |
| | 10 | 116 | 48.4 | 67.6 | 115 | 85.7 | 29.3 | 107 | 91 | 16 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 205 | 52.1 | 152.9 | 207 | 134 | 73 | 197 | 134 | 63 |
| | 2 | 191 | 50.7 | 140.3 | 171 | 112.3 | 58.7 | 172 | 127 | 45 |
| | 5 | 138 | 46.4 | 91.6 | 145 | 102 | 43 | 134 | 114.7 | 19.3 |
| | 10 | 119 | 44.2 | 74.8 | 121 | 93.7 | 27.3 | 118 | 102 | 16 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 195 | 46.2 | 148.8 | 202 | 128.6 | 73.4 | 190 | 132 | 58 |
| | 2 | 176 | 37.2 | 138.8 | 172 | 115.2 | 56.8 | 162 | 121 | 41 |
| | 5 | 132 | 32.1 | 99.9 | 143 | 101 | 42 | 135 | 115.6 | 19.4 |
| | 10 | 117 | 30.9 | 86.1 | 119 | 91.8 | 27.2 | 111 | 95.9 | 15.1 |

**Applied Polymer Blend 740, PAM mixing time 2 minutes at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 205 | 90.1 | 114.9 | 201 | 158 | 43 | 197 | 147 | 50 |
| | 2 | 178 | 68.3 | 109.7 | 170 | 128 | 42 | 165 | 138 | 27 |
| | 5 | 131 | 50.7 | 80.3 | 132 | 104.6 | 27.4 | 138 | 118 | 20 |
| | 10 | 121 | 40.7 | 80.3 | 117 | 86.5 | 30.5 | 119 | 88.2 | 30.8 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 201 | 86.4 | 114.6 | 200 | 157.2 | 42.8 | 202 | 151 | 51 |
| | 2 | 170 | 62.3 | 107.7 | 167 | 129.3 | 37.7 | 171 | 143 | 28 |
| | 5 | 133 | 51.7 | 81.3 | 135 | 112.1 | 22.9 | 143 | 125 | 18 |
| | 10 | 126 | 48.3 | 77.7 | 119 | 91.7 | 27.3 | 121 | 92.6 | 28.4 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 197 | 82.3 | 114.7 | 202 | 163 | 39 | 192 | 141 | 51 |
| | 2 | 171 | 62.1 | 108.9 | 165 | 137 | 28 | 162 | 132 | 30 |
| | 5 | 132 | 50.9 | 81.1 | 130 | 119 | 11 | 135 | 112 | 23 |
| | 10 | 119 | 45.9 | 73.1 | 115 | 91.1 | 23.9 | 117 | 91.2 | 25.8 |

**Applied Polymer Blend 740, PAM mixing time 2 minutes at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 202 | 73.6 | 128.4 | 199 | 115 | 84 | 197 | 147 | 50 |
| | 2 | 168 | 64.1 | 103.9 | 171 | 105.5 | 65.5 | 172 | 123 | 49 |
| | 5 | 132 | 56.2 | 75.8 | 145 | 90.1 | 54.9 | 119 | 103.4 | 15.6 |
| | 10 | 117 | 49.4 | 67.6 | 121 | 80.2 | 40.8 | 101 | 89 | 12 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 201 | 71.2 | 129.8 | 201 | 116.2 | 84.8 | 205 | 151 | 54 |
| | 2 | 171 | 66.7 | 104.3 | 175 | 107.3 | 67.7 | 181 | 131 | 50 |
| | 5 | 131 | 57.2 | 73.8 | 141 | 93.2 | 47.8 | 132 | 117.4 | 14.6 |
| | 10 | 119 | 52.3 | 66.7 | 119 | 81.3 | 37.7 | 112 | 101 | 11 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 195 | 65.2 | 129.8 | 197 | 119 | 78 | 195 | 140 | 55 |
| | 2 | 162 | 61.3 | 100.7 | 171 | 109 | 62 | 168 | 120.2 | 47.8 |
| | 5 | 139 | 57.9 | 81.1 | 132 | 86.2 | 45.8 | 139 | 116 | 23 |
| | 10 | 117 | 52.1 | 64.9 | 115 | 80.2 | 34.8 | 117 | 102.6 | 14.4 |

**Ciba, PAM mixing time 2 minutes at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 198 | 91 | 107 | 198 | 138 | 60 | 201 | 139 | 62 |
| | 2 | 170 | 72 | 98 | 170 | 122 | 48 | 181 | 125 | 56 |
| | 5 | 142 | 54.4 | 87.6 | 138 | 95.4 | 42.6 | 130 | 103 | 27 |
| | 10 | 117 | 44.5 | 72.5 | 112 | 82.4 | 29.6 | 118 | 87.8 | 30.2 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 201 | 93.2 | 107.8 | 196 | 132 | 64 | 210 | 143 | 67 |
| | 2 | 178 | 77.1 | 100.9 | 173 | 123 | 50 | 187 | 133.7 | 53.3 |
| | 5 | 147 | 61.2 | 85.8 | 142 | 96.7 | 45.3 | 137 | 112 | 25 |
| | 10 | 121 | 51.2 | 69.8 | 116 | 91.1 | 24.9 | 121 | 92.6 | 28.4 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 195 | 92.6 | 102.4 | 201 | 139 | 62 | 197 | 133 | 64 |
| | 2 | 172 | 75.2 | 96.8 | 175 | 129.2 | 45.8 | 176 | 119 | 57 |
| | 5 | 141 | 55.6 | 85.4 | 145 | 102 | 43 | 139 | 109.5 | 29.5 |
| | 10 | 112 | 41.2 | 70.8 | 119 | 92.6 | 26.4 | 117 | 89.2 | 27.8 |

**Ciba, PAM mixing time 2 minutes at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 205 | 72.7 | 132.3 | 197 | 119 | 78 | 202 | 130 | 72 |
| | 2 | 187 | 57.4 | 129.6 | 178 | 101.6 | 76.4 | 180 | 116 | 64 |
| | 5 | 153 | 45.4 | 107.6 | 142 | 88.6 | 53.4 | 152 | 93.9 | 58.1 |
| | 10 | 121 | 43.6 | 77.4 | 119 | 69 | 50 | 117 | 80.6 | 36.4 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 195 | 65.7 | 129.3 | 186 | 105 | 81 | 195 | 127 | 68 |
| | 2 | 181 | 51.3 | 129.7 | 164 | 93.2 | 70.8 | 175 | 119 | 56 |
| | 5 | 143 | 41.2 | 101.8 | 132 | 81.7 | 50.3 | 141 | 95.3 | 45.7 |
| | 10 | 117 | 36.9 | 80.1 | 111 | 67.3 | 43.7 | 117 | 83.7 | 33.3 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 201 | 70.1 | 130.9 | 195 | 121 | 74 | 196 | 122 | 74 |
| | 2 | 180 | 51.6 | 128.4 | 172 | 100.3 | 71.7 | 172 | 110.2 | 61.8 |
| | 5 | 149 | 42.1 | 106.9 | 135 | 85.6 | 49.4 | 146 | 87.9 | 58.1 |
| | 10 | 117 | 38.5 | 78.5 | 112 | 65.2 | 46.8 | 120 | 80.9 | 39.1 |

**A-100, PAM mixing time 2 minutes at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 226 | 53.2 | 172.8 | 205 | 95 | 110 | 195 | 107 | 88 |
| | 2 | 192 | 44.8 | 147.2 | 178 | 80.8 | 97.2 | 160 | 84.6 | 75.4 |
| | 5 | 166 | 29.3 | 136.7 | 146 | 68.7 | 77.3 | 137 | 70.4 | 66.6 |
| | 10 | 120 | 21.4 | 98.6 | 112 | 55.7 | 56.3 | 115 | 66 | 49 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 216 | 47.3 | 168.7 | 211 | 101 | 110 | 201 | 112 | 89 |
| | 2 | 178 | 35.1 | 142.9 | 173 | 84.2 | 88.8 | 157 | 90.1 | 66.9 |
| | 5 | 158 | 22.3 | 135.7 | 140 | 73.1 | 66.9 | 136 | 76.1 | 59.9 |
| | 10 | 119 | 19.7 | 99.3 | 117 | 63.1 | 53.9 | 116 | 71.2 | 44.8 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 205 | 35.1 | 169.9 | 197 | 85.1 | 111.9 | 202 | 115 | 87 |
| | 2 | 169 | 28.1 | 140.9 | 165 | 71.6 | 93.4 | 171 | 93.2 | 77.8 |
| | 5 | 151 | 20.1 | 130.9 | 138 | 68.2 | 69.8 | 151 | 84.1 | 66.9 |
| | 10 | 122 | 19.1 | 102.9 | 115 | 62.1 | 52.9 | 122 | 75 | 47 |

**A-100, PAM mixing time 2 minutes at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 200 | 42.7 | 157.3 | 216 | 93 | 123 | 198 | 119 | 79 |
| | 2 | 162 | 40.4 | 121.6 | 180 | 73.2 | 106.8 | 172 | 84.3 | 87.7 |
| | 5 | 140 | 35.2 | 104.8 | 150 | 65.7 | 84.3 | 138 | 76.2 | 61.8 |
| | 10 | 115 | 27 | 88 | 121 | 54.1 | 66.9 | 115 | 64.4 | 50.6 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 207 | 51.1 | 155.9 | 217 | 95.1 | 121.9 | 202 | 123 | 79 |
| | 2 | 171 | 48.3 | 122.7 | 181 | 75.3 | 105.7 | 168 | 87.2 | 80.8 |
| | 5 | 143 | 39.2 | 103.8 | 152 | 68.1 | 83.9 | 139 | 78.1 | 60.9 |
| | 10 | 117 | 29.3 | 87.7 | 120 | 56.2 | 63.8 | 119 | 66.2 | 52.8 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 211 | 54.1 | 156.9 | 208 | 85.1 | 122.9 | 194 | 112 | 82 |
| | 2 | 173 | 47.2 | 125.8 | 180 | 71.6 | 108.4 | 178 | 89.5 | 88.5 |
| | 5 | 149 | 41.2 | 107.8 | 141 | 52.1 | 88.9 | 148 | 81.5 | 66.5 |
| | 10 | 121 | 35.8 | 85.2 | 115 | 45.1 | 69.9 | 121 | 71.1 | 49.9 |

**A-100-HMW, PAM mixing time 2 minutes at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 213 | 80 | 133 | 217 | 122 | 95 | 201 | 110 | 91 |
| | 2 | 187 | 69.3 | 117.7 | 183 | 105.9 | 77.1 | 179 | 98.2 | 80.8 |
| | 5 | 142 | 49 | 93 | 145 | 92.9 | 52.1 | 141 | 81.3 | 59.7 |
| | 10 | 121 | 39 | 82 | 120 | 75.9 | 44.1 | 117 | 70.1 | 46.9 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 206 | 71.1 | 134.9 | 201 | 101 | 100 | 210 | 119 | 91 |
| | 2 | 175 | 62.3 | 112.7 | 176 | 95.1 | 80.9 | 184 | 104 | 80 |
| | 5 | 143 | 48.1 | 94.9 | 137 | 81.6 | 55.4 | 150 | 87.5 | 62.5 |
| | 10 | 124 | 39.9 | 84.1 | 121 | 75.1 | 45.9 | 126 | 82.1 | 43.9 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 205 | 70.5 | 134.5 | 205 | 109 | 96 | 203 | 110.2 | 92.8 |
| | 2 | 170 | 54.6 | 115.4 | 183 | 103.2 | 79.8 | 180 | 95.6 | 84.4 |
| | 5 | 141 | 48.1 | 92.9 | 147 | 95.9 | 51.1 | 149 | 83.2 | 65.8 |
| | 10 | 121 | 37.5 | 83.5 | 119 | 74.6 | 44.4 | 113 | 72.9 | 40.1 |

**A-100-HMW, PAM mixing time 2 minutes at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 220 | 56.7 | 163.3 | 217 | 107.1 | 109.9 | 212 | 126 | 86 |
| | 2 | 187 | 47.6 | 139.4 | 183 | 91.4 | 91.6 | 181 | 101.8 | 79.2 |
| | 5 | 146 | 39.1 | 106.9 | 141 | 78.1 | 62.9 | 148 | 89 | 59 |
| | 10 | 121 | 38.6 | 82.4 | 123 | 70.2 | 52.8 | 120 | 76.3 | 43.7 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 205 | 46.2 | 158.8 | 212 | 102.6 | 109.4 | 202 | 115 | 87 |
| | 2 | 176 | 36.2 | 139.8 | 179 | 87.1 | 91.9 | 176 | 98.2 | 77.8 |
| | 5 | 142 | 26.9 | 115.1 | 142 | 75.6 | 66.4 | 142 | 85.1 | 56.9 |
| | 10 | 120 | 24.1 | 95.9 | 121 | 71.2 | 49.8 | 119 | 75.1 | 43.9 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 207 | 45.2 | 161.8 | 206 | 95.9 | 110.1 | 215 | 125 | 90 |
| | 2 | 181 | 40.1 | 140.9 | 181 | 89.5 | 91.5 | 182 | 105.1 | 76.9 |
| | 5 | 142 | 35.1 | 106.9 | 146 | 79.9 | 66.1 | 146 | 89.2 | 56.8 |
| | 10 | 119 | 38.1 | 80.9 | 126 | 72.4 | 53.6 | 122 | 78.9 | 43.1 |

**A-120, PAM mixing time 2 minutes at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 217 | 92.5 | 124.5 | 216 | 142 | 74 | 208 | 154 | 54 |
| | 2 | 182 | 82.6 | 99.4 | 180 | 122 | 58 | 181 | 138 | 43 |
| | 5 | 155 | 63.1 | 91.9 | 159 | 100.1 | 58.9 | 163 | 117 | 46 |
| | 10 | 121 | 53.1 | 67.9 | 123 | 97.7 | 25.3 | 125 | 104 | 21 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 212 | 89.9 | 122.1 | 201 | 120 | 81 | 211 | 156 | 55 |
| | 2 | 175 | 75.4 | 99.6 | 171 | 111.9 | 59.1 | 178 | 135.3 | 42.7 |
| | 5 | 142 | 55.6 | 86.4 | 145 | 91.2 | 53.8 | 159 | 110 | 49 |
| | 10 | 116 | 49.2 | 66.8 | 117 | 87.3 | 29.7 | 121 | 100.1 | 20.9 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 201 | 71.2 | 129.8 | 198 | 116 | 82 | 212 | 150 | 62 |
| | 2 | 176 | 65.2 | 110.8 | 171 | 101 | 70 | 178 | 130.1 | 47.9 |
| | 5 | 149 | 51.2 | 97.8 | 142 | 92.1 | 49.9 | 161 | 109 | 52 |
| | 10 | 119 | 48.1 | 70.9 | 121 | 87.6 | 33.4 | 123 | 97.9 | 25.1 |

**A-120, PAM mixing time 2 minutes at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 213 | 81.8 | 131.2 | 195 | 135 | 60 | 205 | 141 | 64 |
| | 2 | 183 | 65.3 | 117.7 | 173 | 124 | 49 | 170 | 136 | 34 |
| | 5 | 151 | 53.1 | 97.9 | 158 | 102.7 | 55.3 | 155 | 113 | 42 |
| | 10 | 119 | 50.3 | 68.7 | 117 | 100.5 | 16.5 | 121 | 110 | 11 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 198 | 65.4 | 132.6 | 201 | 141 | 60 | 207 | 145 | 62 |
| | 2 | 170 | 50.1 | 119.9 | 181 | 131 | 50 | 181 | 137 | 44 |
| | 5 | 147 | 47.3 | 99.7 | 162 | 107.3 | 54.7 | 162 | 117 | 45 |
| | 10 | 119 | 44.3 | 74.7 | 121 | 102.1 | 18.9 | 119 | 107 | 12 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 201 | 66.2 | 134.8 | 192 | 130 | 62 | 195 | 131 | 64 |
| | 2 | 163 | 49.5 | 113.5 | 168 | 119.2 | 48.8 | 178 | 124 | 54 |
| | 5 | 140 | 41.1 | 98.9 | 141 | 92.6 | 48.4 | 153 | 116.2 | 36.8 |
| | 10 | 112 | 37.5 | 74.5 | 120 | 87.1 | 32.9 | 123 | 101.3 | 21.7 |

**A-120-HMW, PAM mixing time 2 minutes at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 197 | 111 | 86 | 192 | 150 | 42 | 201 | 182 | 19 |
| | 2 | 155 | 86.2 | 68.8 | 154 | 135 | 19 | 162 | 145 | 17 |
| | 5 | 131 | 68.2 | 62.8 | 130 | 91.8 | 38.2 | 143 | 123 | 20 |
| | 10 | 117 | 53 | 64 | 121 | 79.1 | 41.9 | 122 | 113 | 9 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 210 | 120 | 90 | 197 | 152 | 45 | 211 | 187 | 24 |
| | 2 | 185 | 99.3 | 85.7 | 165 | 141 | 24 | 178 | 168 | 10 |
| | 5 | 143 | 75.1 | 67.9 | 141 | 105.3 | 35.7 | 151 | 129 | 22 |
| | 10 | 122 | 61.5 | 60.5 | 122 | 81.3 | 40.7 | 121 | 117 | 4 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 197 | 110 | 87 | 203 | 158 | 45 | 202 | 181 | 21 |
| | 2 | 170 | 92.1 | 77.9 | 175 | 143.2 | 31.8 | 175 | 160.2 | 14.8 |
| | 5 | 139 | 71.3 | 67.7 | 138 | 117.8 | 20.2 | 142 | 121.1 | 20.9 |
| | 10 | 121 | 58.4 | 62.6 | 119 | 92.3 | 26.7 | 122 | 108.9 | 13.1 |

**A-120-HMW, PAM mixing time 2 minutes at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 198 | 97.3 | 100.7 | 195 | 147 | 48 | 205 | 157 | 48 |
| | 2 | 168 | 85.1 | 82.9 | 170 | 136 | 34 | 175 | 149 | 26 |
| | 5 | 143 | 65.1 | 77.9 | 142 | 125 | 17 | 139 | 116 | 23 |
| | 10 | 123 | 42.1 | 80.9 | 121 | 106.3 | 14.7 | 121 | 109 | 12 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 215 | 103.4 | 111.6 | 198 | 142 | 56 | 201 | 142 | 59 |
| | 2 | 181 | 97.4 | 83.6 | 158 | 129.3 | 28.7 | 170 | 139 | 31 |
| | 5 | 156 | 68.9 | 87.1 | 139 | 119.1 | 19.9 | 142 | 121 | 21 |
| | 10 | 121 | 47.3 | 73.7 | 117 | 102.3 | 14.7 | 120 | 112 | 8 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 201 | 97.3 | 103.7 | 202 | 153 | 49 | 217 | 161 | 56 |
| | 2 | 171 | 84.1 | 86.9 | 170 | 140 | 30 | 178 | 143 | 35 |
| | 5 | 148 | 62.3 | 85.7 | 141 | 128 | 13 | 149 | 121 | 28 |
| | 10 | 121 | 41.4 | 79.6 | 119 | 103 | 16 | 122 | 107.3 | 14.7 |

# APPENDIX G

Jar Test Results for Dry Granular PAM, with a mixing time of 1 minute, from a soil-water concentration of 10,000 ppm

***All numeric values are measured in NTUs***

**Applied Polymer Blend 702, PAM mixing time 1 minute at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 950 | 574 | 376 | 866 | 470 | 396 | 920 | 278 | 642 |
| | 2 | 703 | 398 | 305 | 725 | 327 | 398 | 799 | 203 | 596 |
| | 5 | 520 | 280 | 240 | 552 | 241 | 311 | 593 | 148 | 445 |
| | 10 | 370 | 182 | 188 | 411 | 215 | 196 | 457 | 139 | 318 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 975 | 592 | 383 | 872 | 482 | 390 | 925 | 286 | 639 |
| | 2 | 721 | 412 | 309 | 731 | 341 | 390 | 802 | 213 | 589 |
| | 5 | 547 | 292 | 255 | 571 | 245 | 326 | 591 | 159 | 432 |
| | 10 | 392 | 196 | 196 | 422 | 222 | 200 | 462 | 135 | 327 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 932 | 562 | 370 | 907 | 502 | 405 | 956 | 301 | 655 |
| | 2 | 687 | 372 | 315 | 752 | 362 | 390 | 802 | 221 | 581 |
| | 5 | 511 | 210 | 301 | 571 | 259 | 312 | 582 | 145 | 437 |
| | 10 | 381 | 172 | 209 | 432 | 231 | 201 | 451 | 131 | 320 |

**Applied Polymer Blend 702, PAM mixing time 1 minute at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 972 | 73.1 | 898.9 | 923 | 96.7 | 826.3 | 911 | 52.4 | 858.6 |
| | 2 | 815 | 40 | 775 | 765 | 42.4 | 722.6 | 701 | 40.9 | 660.1 |
| | 5 | 632 | 20.9 | 611.1 | 620 | 24.2 | 595.8 | 560 | 26.4 | 533.6 |
| | 10 | 478 | 15.7 | 462.3 | 430 | 19.7 | 410.3 | 400 | 26 | 374 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 975 | 75 | 900 | 925 | 101 | 824 | 901 | 47.2 | 853.8 |
| | 2 | 817 | 42.1 | 774.9 | 762 | 50 | 712 | 692 | 39.2 | 652.8 |
| | 5 | 638 | 22.9 | 615.1 | 625 | 35.4 | 589.6 | 553 | 25.2 | 527.8 |
| | 10 | 489 | 17.9 | 471.1 | 422 | 23.2 | 398.8 | 403 | 25.3 | 377.7 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 971 | 79.2 | 891.8 | 910 | 85.6 | 824.4 | 922 | 61.5 | 860.5 |
| | 2 | 812 | 49.5 | 762.5 | 752 | 39.2 | 712.8 | 716 | 49.2 | 666.8 |
| | 5 | 625 | 21.9 | 603.1 | 612 | 22.1 | 589.9 | 571 | 32.9 | 538.1 |
| | 10 | 481 | 16.2 | 464.8 | 415 | 16.5 | 398.5 | 422 | 29.5 | 392.5 |

**Applied Polymer Blend 705, PAM mixing time 1 minute at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 955 | 833 | 122 | 882 | 805 | 77 | 805 | 700 | 105 |
| | 2 | 756 | 625 | 131 | 789 | 607 | 182 | 702 | 506 | 196 |
| | 5 | 585 | 437 | 148 | 562 | 406 | 156 | 526 | 348 | 178 |
| | 10 | 422 | 288 | 134 | 414 | 247 | 167 | 400 | 229 | 171 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 957 | 835 | 122 | 892 | 812 | 80 | 807 | 701 | 106 |
| | 2 | 782 | 647 | 135 | 789 | 608 | 181 | 705 | 508 | 197 |
| | 5 | 581 | 432 | 149 | 571 | 412 | 159 | 521 | 345 | 176 |
| | 10 | 432 | 291 | 141 | 423 | 251 | 172 | 412 | 231 | 181 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 962 | 842 | 120 | 902 | 820 | 82 | 821 | 722 | 99 |
| | 2 | 772 | 639 | 133 | 785 | 615 | 170 | 732 | 526 | 206 |
| | 5 | 561 | 419 | 142 | 575 | 419 | 156 | 546 | 359 | 187 |
| | 10 | 441 | 295 | 146 | 439 | 263 | 176 | 432 | 245 | 187 |

**Applied Polymer Blend 705, PAM mixing time 1 minute at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 923 | 823 | 100 | 820 | 771 | 49 | 792 | 609 | 183 |
| | 2 | 765 | 701 | 64 | 700 | 568 | 132 | 692 | 354 | 338 |
| | 5 | 620 | 500 | 120 | 522 | 400 | 122 | 536 | 270 | 266 |
| | 10 | 430 | 339 | 91 | 400 | 258 | 142 | 407 | 161 | 246 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 925 | 825 | 100 | 825 | 782 | 43 | 801 | 617 | 184 |
| | 2 | 762 | 700 | 62 | 702 | 561 | 141 | 702 | 365 | 337 |
| | 5 | 625 | 501 | 124 | 531 | 407 | 124 | 538 | 284 | 254 |
| | 10 | 422 | 321 | 101 | 407 | 261 | 146 | 412 | 172.3 | 239.7 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 910 | 815 | 95 | 845 | 807 | 38 | 823 | 633 | 190 |
| | 2 | 752 | 682 | 70 | 726 | 586 | 140 | 698 | 372 | 326 |
| | 5 | 612 | 520 | 92 | 542 | 419 | 123 | 526 | 293 | 233 |
| | 10 | 415 | 321 | 94 | 422 | 272 | 150 | 411 | 182.6 | 228.4 |

**Applied Polymer Blend 712, PAM mixing time 1 minute at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1064 | 802 | 262 | 891 | 688 | 203 | 866 | 682 | 184 |
| | 2 | 828 | 630 | 198 | 711 | 534 | 177 | 725 | 508 | 217 |
| | 5 | 630 | 419 | 211 | 566 | 372 | 194 | 552 | 353 | 199 |
| | 10 | 450 | 268 | 182 | 408 | 252 | 156 | 411 | 244 | 167 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 957 | 741 | 216 | 902 | 697 | 205 | 872 | 689 | 183 |
| | 2 | 792 | 621 | 171 | 721 | 551 | 170 | 731 | 612 | 119 |
| | 5 | 541 | 372 | 169 | 581 | 392 | 189 | 571 | 372 | 199 |
| | 10 | 392 | 241 | 151 | 418 | 261 | 157 | 422 | 257 | 165 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 965 | 752 | 213 | 911 | 702 | 209 | 907 | 715 | 192 |
| | 2 | 802 | 625 | 177 | 735 | 562 | 173 | 752 | 536 | 216 |
| | 5 | 592 | 401 | 191 | 594 | 407 | 187 | 571 | 402 | 169 |
| | 10 | 422 | 252 | 170 | 427 | 279 | 148 | 432 | 276 | 156 |

**Applied Polymer Blend 712, PAM mixing time 1 minute at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 720 | 579 | 141 | 857 | 182 | 675 | 800 | 206 | 594 |
| | 2 | 565 | 353 | 212 | 690 | 106 | 584 | 697 | 133 | 564 |
| | 5 | 328 | 183 | 145 | 527 | 81.3 | 445.7 | 559 | 103.2 | 455.8 |
| | 10 | 278 | 117 | 161 | 369 | 56.5 | 312.5 | 414 | 71 | 343 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 728 | 585 | 143 | 850 | 189 | 661 | 805 | 212 | 593 |
| | 2 | 572 | 362 | 210 | 683 | 114 | 569 | 699 | 135 | 564 |
| | 5 | 342 | 207 | 135 | 521 | 91.2 | 429.8 | 562 | 107.2 | 454.8 |
| | 10 | 293 | 129.4 | 163.6 | 371 | 58.2 | 312.8 | 417 | 73.2 | 343.8 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 835 | 702 | 133 | 862 | 201 | 661 | 822 | 219 | 603 |
| | 2 | 652 | 476 | 176 | 695 | 126 | 569 | 642 | 122 | 520 |
| | 5 | 382 | 249 | 133 | 538 | 96.5 | 441.5 | 522 | 87 | 435 |
| | 10 | 312 | 149 | 163 | 379 | 64.2 | 314.8 | 391 | 63.2 | 327.8 |

**Applied Polymer Blend 730, PAM mixing time 1 minute at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1051 | 876 | 175 | 920 | 306 | 614 | 810 | 182 | 628 |
| | 2 | 981 | 609 | 372 | 799 | 232 | 567 | 715 | 114 | 601 |
| | 5 | 650 | 425 | 225 | 593 | 178 | 415 | 550 | 90.6 | 459.4 |
| | 10 | 460 | 276 | 184 | 457 | 146 | 311 | 441 | 78.4 | 362.6 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 957 | 781 | 176 | 925 | 312 | 613 | 825 | 201 | 624 |
| | 2 | 809 | 521 | 288 | 802 | 241 | 561 | 731 | 121 | 610 |
| | 5 | 597 | 407 | 190 | 591 | 181 | 410 | 575 | 101.2 | 473.8 |
| | 10 | 445 | 251 | 194 | 462 | 152 | 310 | 462 | 91.1 | 370.9 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 972 | 802 | 170 | 956 | 346 | 610 | 897 | 279 | 618 |
| | 2 | 821 | 539 | 282 | 802 | 259 | 543 | 762 | 165 | 597 |
| | 5 | 602 | 422 | 180 | 582 | 195 | 387 | 542 | 87.2 | 454.8 |
| | 10 | 455 | 264 | 191 | 451 | 162 | 289 | 421 | 72.1 | 348.9 |

**Applied Polymer Blend 730, PAM mixing time 1 minute at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 950 | 79.6 | 870.4 | 891 | 82.3 | 808.7 | 800 | 76.3 | 723.7 |
| | 2 | 703 | 44.8 | 658.2 | 788 | 36.6 | 751.4 | 695 | 22.9 | 672.1 |
| | 5 | 520 | 39 | 481 | 605 | 23.2 | 581.8 | 562 | 11.6 | 550.4 |
| | 10 | 370 | 28 | 342 | 475 | 13.9 | 461.1 | 432 | 9.19 | 422.81 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 975 | 97.3 | 877.7 | 907 | 102.3 | 804.7 | 810 | 79.7 | 730.3 |
| | 2 | 721 | 57.2 | 663.8 | 792 | 41.2 | 750.8 | 705 | 25.6 | 679.4 |
| | 5 | 547 | 42 | 505 | 617 | 32.1 | 584.9 | 571 | 15.2 | 555.8 |
| | 10 | 392 | 36 | 356 | 487 | 17.8 | 469.2 | 447 | 10.2 | 436.8 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 932 | 62.3 | 869.7 | 937 | 139 | 798 | 892 | 168 | 724 |
| | 2 | 687 | 37.2 | 649.8 | 812 | 59 | 753 | 772 | 102 | 670 |
| | 5 | 511 | 28.2 | 482.8 | 642 | 51.3 | 590.7 | 612 | 72 | 540 |
| | 10 | 381 | 19.02 | 361.98 | 512 | 36.5 | 475.5 | 462 | 42.3 | 419.7 |

**Applied Polymer Blend 740, PAM mixing time 1 minute at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1047 | 340 | 707 | 969 | 93.3 | 875.7 | 972 | 89.3 | 882.7 |
| | 2 | 906 | 250 | 656 | 811 | 50.6 | 760.4 | 815 | 42.1 | 772.9 |
| | 5 | 737 | 185 | 552 | 626 | 35.1 | 590.9 | 632 | 30.7 | 601.3 |
| | 10 | 534 | 157 | 377 | 473 | 31.2 | 441.8 | 478 | 28.2 | 449.8 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 972 | 307 | 665 | 978 | 94.3 | 883.7 | 975 | 90.1 | 884.9 |
| | 2 | 815 | 209.3 | 605.7 | 817 | 56.4 | 760.6 | 817 | 41.3 | 775.7 |
| | 5 | 637 | 132 | 505 | 637 | 39.3 | 597.7 | 638 | 29.8 | 608.2 |
| | 10 | 492 | 128 | 364 | 482 | 33.7 | 448.3 | 489 | 26.9 | 462.1 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 962 | 312 | 650 | 972 | 93.2 | 878.8 | 971 | 92.1 | 878.9 |
| | 2 | 802 | 212.3 | 589.7 | 812 | 52.3 | 759.7 | 812 | 43.2 | 768.8 |
| | 5 | 622 | 145 | 477 | 635 | 39.1 | 595.9 | 625 | 28.7 | 596.3 |
| | 10 | 472 | 112 | 360 | 481 | 32 | 449 | 481 | 25.9 | 455.1 |

**Applied Polymer Blend 740, PAM mixing time 1 minute at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 875 | 39.1 | 835.9 | 898 | 44.5 | 853.5 | 907 | 42.3 | 864.7 |
| | 2 | 762 | 29.9 | 732.1 | 790 | 19.3 | 770.7 | 781 | 15.2 | 765.8 |
| | 5 | 623 | 28.3 | 594.7 | 650 | 13.4 | 636.6 | 672 | 11.8 | 660.2 |
| | 10 | 472 | 19.1 | 452.9 | 494 | 7.33 | 486.67 | 507 | 7.24 | 499.76 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 891 | 52.3 | 838.7 | 902 | 45 | 857 | 912 | 41.7 | 870.3 |
| | 2 | 782 | 41.7 | 740.3 | 793 | 19.7 | 773.3 | 792 | 17.2 | 774.8 |
| | 5 | 631 | 38.2 | 592.8 | 661 | 14.2 | 646.8 | 691 | 10.2 | 680.8 |
| | 10 | 502.3 | 25.7 | 476.6 | 507 | 9.12 | 497.88 | 518 | 8.56 | 509.44 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 902 | 49.2 | 852.8 | 912 | 47 | 865 | 902 | 40.1 | 861.9 |
| | 2 | 781 | 38.2 | 742.8 | 801 | 21.2 | 779.8 | 795 | 15.2 | 779.8 |
| | 5 | 633 | 31.6 | 601.4 | 689 | 17.3 | 671.7 | 665 | 10.95 | 654.05 |
| | 10 | 481 | 26.4 | 454.6 | 519 | 12.8 | 506.2 | 512 | 9.2 | 502.8 |

**Ciba, PAM mixing time 1 minute at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 967 | 882 | 85 | 882 | 407 | 475 | 865 | 392 | 473 |
| | 2 | 811 | 645 | 166 | 747 | 270 | 477 | 732 | 272 | 460 |
| | 5 | 610 | 465 | 145 | 560 | 202 | 358 | 552 | 198 | 354 |
| | 10 | 435 | 281 | 154 | 405 | 155 | 250 | 402 | 148 | 254 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 951 | 871 | 80 | 885 | 405 | 480 | 872 | 401 | 471 |
| | 2 | 817 | 652 | 165 | 746 | 275 | 471 | 741 | 285.4 | 455.6 |
| | 5 | 589.3 | 437.2 | 152.1 | 568 | 212 | 356 | 557 | 207 | 350 |
| | 10 | 420 | 273.4 | 146.6 | 417 | 167 | 250 | 412 | 162 | 250 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 973 | 902 | 71 | 902 | 439 | 463 | 882 | 422 | 460 |
| | 2 | 822 | 672 | 150 | 776 | 301 | 475 | 745 | 298 | 447 |
| | 5 | 624 | 481 | 143 | 581 | 235 | 346 | 549 | 221 | 328 |
| | 10 | 445 | 301 | 144 | 422 | 182 | 240 | 402 | 162 | 240 |

**Ciba, PAM mixing time 1 minute at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 911 | 155 | 756 | 860 | 71.3 | 788.7 | 783 | 52.9 | 730.1 |
| | 2 | 701 | 96.3 | 604.7 | 725 | 43 | 682 | 673 | 23 | 650 |
| | 5 | 560 | 63 | 497 | 540 | 40.2 | 499.8 | 531 | 12.7 | 518.3 |
| | 10 | 400 | 55.3 | 344.7 | 417 | 20 | 397 | 392 | 10.95 | 381.05 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 901 | 142 | 759 | 870 | 79.4 | 790.6 | 785 | 41.7 | 743.3 |
| | 2 | 692 | 92.1 | 599.9 | 732 | 47.6 | 684.4 | 672 | 24.7 | 647.3 |
| | 5 | 553 | 60.3 | 492.7 | 549 | 44.7 | 504.3 | 541 | 13.3 | 527.7 |
| | 10 | 403 | 54.6 | 348.4 | 412 | 17.3 | 394.7 | 399 | 11.7 | 387.3 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 922 | 179 | 743 | 912 | 132.3 | 779.7 | 875 | 109 | 766 |
| | 2 | 716 | 109.2 | 606.8 | 698 | 52 | 646 | 731 | 87.2 | 643.8 |
| | 5 | 571 | 75.5 | 495.5 | 561 | 41.2 | 519.8 | 542 | 22.6 | 519.4 |
| | 10 | 422 | 68.2 | 353.8 | 413 | 21.5 | 391.5 | 413 | 14.6 | 398.4 |

**A-100, PAM mixing time 1 minute at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 983 | 519 | 464 | 985 | 422 | 563 | 638 | 67.2 | 570.8 |
| | 2 | 708 | 362 | 346 | 712 | 322 | 390 | 540 | 31.8 | 508.2 |
| | 5 | 410 | 228 | 182 | 427 | 212 | 215 | 350 | 25.2 | 324.8 |
| | 10 | 235 | 150 | 85 | 351 | 108 | 243 | 254 | 21.4 | 232.6 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 985 | 522 | 463 | 972 | 412 | 560 | 937 | 395 | 542 |
| | 2 | 710 | 371 | 339 | 702 | 301 | 401 | 775 | 259 | 516 |
| | 5 | 425 | 242 | 183 | 425 | 225 | 200 | 561 | 221 | 340 |
| | 10 | 301 | 192.3 | 108.7 | 341 | 112 | 229 | 437 | 195 | 242 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 972 | 522 | 450 | 985 | 425 | 560 | 945 | 401 | 544 |
| | 2 | 682 | 378 | 304 | 712 | 312 | 400 | 781 | 265 | 516 |
| | 5 | 401 | 219 | 182 | 428 | 219.3 | 208.7 | 572 | 235 | 337 |
| | 10 | 297 | 187.2 | 109.8 | 301 | 97.5 | 203.5 | 316 | 190.2 | 125.8 |

**A-100, PAM mixing time 1 minute at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1080 | 178 | 902 | 927 | 76.1 | 850.9 | 869 | 20.6 | 848.4 |
| | 2 | 800 | 115 | 685 | 774 | 32.3 | 741.7 | 662 | 12.4 | 649.6 |
| | 5 | 606 | 95.7 | 510.3 | 572 | 20.4 | 551.6 | 533 | 7.25 | 525.75 |
| | 10 | 450 | 73 | 377 | 430 | 19 | 411 | 370 | 3.53 | 366.47 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 982 | 98.7 | 883.3 | 932 | 82.3 | 849.7 | 872 | 22.3 | 849.7 |
| | 2 | 702 | 93.7 | 608.3 | 782 | 41.7 | 740.3 | 671 | 15.7 | 655.3 |
| | 5 | 590.2 | 90.1 | 500.1 | 575 | 25.7 | 549.3 | 541 | 10.8 | 530.2 |
| | 10 | 442 | 75.3 | 366.7 | 442 | 23.2 | 418.8 | 382 | 9.3 | 372.7 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 971 | 92.3 | 878.7 | 952 | 102 | 850 | 902 | 32.6 | 869.4 |
| | 2 | 692 | 82.1 | 609.9 | 801 | 72.6 | 728.4 | 689 | 22.1 | 666.9 |
| | 5 | 581.2 | 76.9 | 504.3 | 597 | 36.39 | 560.61 | 568 | 17.2 | 550.8 |
| | 10 | 431 | 72.1 | 358.9 | 462 | 29.5 | 432.5 | 402 | 14.2 | 387.8 |

**A-100-HMW, PAM mixing time 1 minute at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1052 | 577 | 475 | 1014 | 64.7 | 949.3 | 760 | 86.9 | 673.1 |
| | 2 | 700 | 386 | 314 | 715 | 29.9 | 685.1 | 520 | 27.6 | 492.4 |
| | 5 | 465 | 239 | 226 | 541 | 22.1 | 518.9 | 360 | 16.3 | 343.7 |
| | 10 | 280 | 181 | 99 | 447 | 20.8 | 426.2 | 250 | 15.3 | 234.7 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 860 | 427 | 433 | 902 | 63.2 | 838.8 | 907 | 85.3 | 821.7 |
| | 2 | 582 | 321 | 261 | 631 | 27.3 | 603.7 | 641 | 32.1 | 608.9 |
| | 5 | 447 | 263 | 184 | 497 | 19.7 | 477.3 | 499 | 21.3 | 477.7 |
| | 10 | 307 | 201 | 106 | 373 | 17.2 | 355.8 | 382 | 19.9 | 362.1 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 922 | 502 | 420 | 921 | 72.3 | 848.7 | 912 | 91.2 | 820.8 |
| | 2 | 612 | 342 | 270 | 659 | 42.1 | 616.9 | 651 | 51.6 | 599.4 |
| | 5 | 472 | 242 | 230 | 512 | 31.2 | 480.8 | 509 | 35.2 | 473.8 |
| | 10 | 362 | 225 | 137 | 402 | 21.5 | 380.5 | 402 | 26.4 | 375.6 |

**A-100-HMW, PAM mixing time 1 minute at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1028 | 112 | 916 | 850 | 57.8 | 792.2 | 1050 | 81.3 | 968.7 |
| | 2 | 790 | 57 | 733 | 580 | 27.6 | 552.4 | 680 | 27.3 | 652.7 |
| | 5 | 632 | 46.8 | 585.2 | 440 | 15.1 | 424.9 | 506 | 15.9 | 490.1 |
| | 10 | 480 | 30.3 | 449.7 | 332 | 14.5 | 317.5 | 401 | 15.1 | 385.9 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 902 | 97.2 | 804.8 | 907 | 62.3 | 844.7 | 912 | 70.9 | 841.1 |
| | 2 | 659 | 43.7 | 615.3 | 641 | 38.9 | 602.1 | 651 | 29.2 | 621.8 |
| | 5 | 507 | 39.3 | 467.7 | 502 | 21.9 | 480.1 | 507 | 17.3 | 489.7 |
| | 10 | 381 | 32.2 | 348.8 | 375 | 19.7 | 355.3 | 391 | 14.2 | 376.8 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 921 | 102 | 819 | 937 | 112 | 825 | 938 | 62.3 | 875.7 |
| | 2 | 672 | 52 | 620 | 682 | 72 | 610 | 682 | 21.6 | 660.4 |
| | 5 | 521 | 41.6 | 479.4 | 529 | 49.8 | 479.2 | 538 | 19.5 | 518.5 |
| | 10 | 407 | 38 | 369 | 412 | 41.2 | 370.8 | 417 | 16.2 | 400.8 |

**A-120, PAM mixing time 1 minute at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1040 | 722 | 318 | 980 | 106 | 874 | 820 | 120 | 700 |
| | 2 | 902 | 462 | 440 | 797 | 76.5 | 720.5 | 701 | 67.2 | 633.8 |
| | 5 | 732 | 342 | 390 | 602 | 63 | 539 | 523 | 50.3 | 472.7 |
| | 10 | 512 | 200 | 312 | 448 | 54 | 394 | 402 | 34 | 368 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 978 | 697 | 281 | 985 | 112 | 873 | 832 | 125 | 707 |
| | 2 | 816 | 472 | 344 | 802 | 81.3 | 720.7 | 721 | 78.3 | 642.7 |
| | 5 | 638 | 317 | 321 | 617 | 68 | 549 | 532 | 52.1 | 479.9 |
| | 10 | 481 | 201 | 280 | 461 | 62 | 399 | 417 | 42.3 | 374.7 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 975 | 682 | 293 | 976 | 102 | 874 | 971 | 245 | 726 |
| | 2 | 806 | 452 | 354 | 812 | 72.9 | 739.1 | 782 | 121 | 661 |
| | 5 | 635 | 297 | 338 | 655 | 65.3 | 589.7 | 581 | 97.2 | 483.8 |
| | 10 | 462 | 182 | 280 | 472 | 59.2 | 412.8 | 432 | 72.9 | 359.1 |

**A-120, PAM mixing time 1 minute at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1042 | 146 | 896 | 940 | 97.6 | 842.4 | 890 | 81.4 | 808.6 |
| | 2 | 903 | 112 | 791 | 746 | 40 | 706 | 785 | 37.4 | 747.6 |
| | 5 | 731 | 74.1 | 656.9 | 572 | 13 | 559 | 561 | 22.2 | 538.8 |
| | 10 | 521 | 67 | 454 | 417 | 12 | 405 | 421 | 12.5 | 408.5 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 972 | 122 | 850 | 947 | 92.1 | 854.9 | 902 | 82.3 | 819.7 |
| | 2 | 816 | 97.2 | 718.8 | 752 | 42.3 | 709.7 | 793 | 28.9 | 764.1 |
| | 5 | 638 | 68.2 | 569.8 | 568 | 17 | 551 | 582 | 24.7 | 557.3 |
| | 10 | 507 | 62 | 445 | 412 | 15.3 | 396.7 | 432 | 17.2 | 414.8 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 981 | 129 | 852 | 975 | 122 | 853 | 921 | 98.9 | 822.1 |
| | 2 | 822 | 102 | 720 | 821 | 102.3 | 718.7 | 802 | 42.9 | 759.1 |
| | 5 | 652 | 76.5 | 575.5 | 635 | 87 | 548 | 601 | 42.1 | 558.9 |
| | 10 | 519 | 65 | 454 | 482 | 59 | 423 | 455 | 25.9 | 429.1 |

**A-120-HMW, PAM mixing time 1 minute at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1042 | 881 | 161 | 902 | 391 | 511 | 876 | 636 | 240 |
| | 2 | 873 | 620 | 253 | 721 | 281 | 440 | 737 | 480 | 257 |
| | 5 | 649 | 405 | 244 | 576 | 190 | 386 | 562 | 312 | 250 |
| | 10 | 467 | 367 | 100 | 417 | 123 | 294 | 423 | 207 | 216 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 958 | 802 | 156 | 902 | 395 | 507 | 872 | 623 | 249 |
| | 2 | 793 | 587 | 206 | 721 | 273 | 448 | 731 | 492 | 239 |
| | 5 | 540 | 373 | 167 | 581 | 198 | 383 | 573 | 323 | 250 |
| | 10 | 391 | 281 | 110 | 421 | 137 | 284 | 417 | 217 | 200 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 968 | 821 | 147 | 938 | 421 | 517 | 901 | 652 | 249 |
| | 2 | 792 | 602 | 190 | 742 | 309 | 433 | 759 | 522 | 237 |
| | 5 | 562 | 402 | 160 | 598 | 215 | 383 | 601 | 345 | 256 |
| | 10 | 412 | 322 | 90 | 453 | 149 | 304 | 422 | 235 | 187 |

**A-120-HMW, PAM mixing time 1 minute at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 807 | 702 | 105 | 800 | 115 | 685 | 805 | 126 | 679 |
| | 2 | 698 | 567 | 131 | 698 | 58.1 | 639.9 | 699 | 50.4 | 648.6 |
| | 5 | 563 | 430 | 133 | 562 | 24.5 | 537.5 | 563 | 37.8 | 525.2 |
| | 10 | 421 | 306 | 115 | 412 | 22.4 | 389.6 | 421 | 27.3 | 393.7 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 857 | 745 | 112 | 738 | 97.3 | 640.7 | 802 | 121 | 681 |
| | 2 | 690 | 597 | 93 | 582 | 32.3 | 549.7 | 697 | 47.3 | 649.7 |
| | 5 | 523 | 421 | 102 | 352 | 15.7 | 336.3 | 561 | 32.7 | 528.3 |
| | 10 | 407 | 301 | 106 | 307 | 12.3 | 294.7 | 415 | 26.2 | 388.8 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 902 | 792 | 110 | 812 | 138 | 674 | 821 | 132 | 689 |
| | 2 | 721 | 622 | 99 | 703 | 98.9 | 604.1 | 712 | 62.3 | 649.7 |
| | 5 | 549 | 486 | 63 | 578 | 72.9 | 505.1 | 576 | 42.6 | 533.4 |
| | 10 | 422 | 361 | 61 | 411 | 43.9 | 367.1 | 419 | 32.1 | 386.9 |

# APPENDIX H

Jar Test Results for Dry Granular PAM, with a mixing time of 2 minute, from a soil-water concentration of 10,000 ppm

***All numeric values are measured in NTUs***

**Applied Polymer Blend 702, PAM mixing time 2 minutes at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 870 | 310 | 560 | 832 | 335 | 497 | 810 | 194 | 616 |
| | 2 | 663 | 201 | 462 | 713 | 239 | 474 | 712 | 159 | 553 |
| | 5 | 531 | 140 | 391 | 514 | 165 | 349 | 550 | 109 | 441 |
| | 10 | 410 | 110 | 300 | 372 | 141 | 231 | 442 | 77.1 | 364.9 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 875 | 317 | 558 | 852 | 342 | 510 | 835 | 207 | 628 |
| | 2 | 668 | 221 | 447 | 731 | 249 | 482 | 731 | 164 | 567 |
| | 5 | 542 | 157 | 385 | 517 | 172 | 345 | 576 | 110 | 466 |
| | 10 | 421 | 121 | 300 | 391 | 153 | 238 | 472 | 72.3 | 399.7 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 892 | 342 | 550 | 891 | 402 | 489 | 926 | 298 | 628 |
| | 2 | 672 | 252 | 420 | 752 | 326 | 426 | 812 | 201 | 611 |
| | 5 | 549 | 182 | 367 | 532 | 197 | 335 | 602 | 132 | 470 |
| | 10 | 419 | 145 | 274 | 412 | 162 | 250 | 472 | 82.1 | 389.9 |

**Applied Polymer Blend 702, PAM mixing time 2 minutes at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 860 | 144 | 716 | 980 | 48 | 932 | 950 | 59 | 891 |
| | 2 | 671 | 82.1 | 588.9 | 741 | 20 | 721 | 792 | 13 | 779 |
| | 5 | 548 | 57.1 | 490.9 | 625 | 15.6 | 609.4 | 611 | 10.29 | 600.71 |
| | 10 | 406 | 50.1 | 355.9 | 517 | 8.66 | 508.34 | 457 | 7.6 | 449.4 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 873 | 152 | 721 | 983 | 42 | 941 | 951 | 61 | 890 |
| | 2 | 664 | 83.7 | 580.3 | 743 | 24 | 719 | 781 | 14.3 | 766.7 |
| | 5 | 534 | 54 | 480 | 627 | 17.3 | 609.7 | 607 | 10.7 | 596.3 |
| | 10 | 410 | 48.2 | 361.8 | 512 | 10.72 | 501.28 | 447 | 7.2 | 439.8 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 875 | 149 | 726 | 985 | 97 | 888 | 975 | 87.2 | 887.8 |
| | 2 | 665 | 86.2 | 578.8 | 762 | 56 | 706 | 802 | 46.2 | 755.8 |
| | 5 | 542 | 62 | 480 | 625 | 42.3 | 582.7 | 622 | 22.9 | 599.1 |
| | 10 | 402 | 51.2 | 350.8 | 519 | 17.3 | 501.7 | 438 | 12.9 | 425.1 |

**Applied Polymer Blend 705, PAM mixing time 2 minutes at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1054 | 834 | 220 | 850 | 205 | 645 | 857 | 64.8 | 792.2 |
| | 2 | 844 | 724 | 120 | 751 | 150 | 601 | 754 | 39.3 | 714.7 |
| | 5 | 631 | 455 | 176 | 489 | 94.3 | 394.7 | 502 | 16.3 | 485.7 |
| | 10 | 466 | 257 | 209 | 380 | 76.1 | 303.9 | 387 | 11 | 376 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 957 | 731 | 226 | 851 | 207 | 644 | 862 | 72.3 | 789.7 |
| | 2 | 835 | 689 | 146 | 752 | 157 | 595 | 758 | 42.1 | 715.9 |
| | 5 | 607 | 467 | 140 | 501 | 112.3 | 388.7 | 512 | 21.3 | 490.7 |
| | 10 | 442 | 264 | 178 | 387 | 82 | 305 | 407 | 15.7 | 391.3 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 961 | 749 | 212 | 859 | 211 | 648 | 852 | 65.2 | 786.8 |
| | 2 | 842 | 672 | 170 | 752 | 162 | 590 | 753 | 41.2 | 711.8 |
| | 5 | 615 | 452 | 163 | 492 | 119 | 373 | 498 | 15.9 | 482.1 |
| | 10 | 432 | 252 | 180 | 383 | 87.2 | 295.8 | 402 | 16.2 | 385.8 |

**Applied Polymer Blend 705, PAM mixing time 2 minutes at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 950 | 591 | 359 | 841 | 294 | 547 | 845 | 81.6 | 763.4 |
| | 2 | 792 | 376 | 416 | 737 | 135 | 602 | 742 | 39.4 | 702.6 |
| | 5 | 611 | 238 | 373 | 504 | 104.5 | 399.5 | 514 | 29.4 | 484.6 |
| | 10 | 457 | 166 | 291 | 389 | 85.8 | 303.2 | 402 | 15.3 | 386.7 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 951 | 590 | 361 | 842 | 296 | 546 | 857 | 92.1 | 764.9 |
| | 2 | 781 | 372 | 409 | 738 | 142 | 596 | 741 | 47.3 | 693.7 |
| | 5 | 607 | 235 | 372 | 512 | 118.3 | 393.7 | 504 | 32.3 | 471.7 |
| | 10 | 447 | 158 | 289 | 392 | 97.2 | 294.8 | 412 | 19.9 | 392.1 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 975 | 612 | 363 | 875 | 319 | 556 | 901 | 125 | 776 |
| | 2 | 802 | 407 | 395 | 752 | 145 | 607 | 756 | 68.9 | 687.1 |
| | 5 | 622 | 249 | 373 | 538 | 129.5 | 408.5 | 529 | 42.9 | 486.1 |
| | 10 | 438 | 171 | 267 | 407 | 119 | 288 | 417 | 21.9 | 395.1 |

**Applied Polymer Blend 712, PAM mixing time 2 minutes at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1052 | 733 | 319 | 939 | 186 | 753 | 864 | 142 | 722 |
| | 2 | 828 | 496 | 332 | 805 | 112 | 693 | 728 | 104 | 624 |
| | 5 | 641 | 312 | 329 | 619 | 85.7 | 533.3 | 548 | 76.9 | 471.1 |
| | 10 | 443 | 199 | 244 | 451 | 75.8 | 375.2 | 411 | 67.4 | 343.6 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 957 | 702 | 255 | 942 | 192 | 750 | 867 | 145 | 722 |
| | 2 | 821 | 481 | 340 | 809.3 | 117 | 692.3 | 725 | 103 | 622 |
| | 5 | 637 | 307 | 330 | 621 | 86.2 | 534.8 | 546 | 79.2 | 466.8 |
| | 10 | 448 | 203 | 245 | 455 | 78.2 | 376.8 | 407 | 63.1 | 343.9 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 972 | 722 | 250 | 955 | 201 | 754 | 901 | 162 | 739 |
| | 2 | 831 | 502 | 329 | 812 | 132 | 680 | 742 | 112 | 630 |
| | 5 | 642 | 319 | 323 | 629 | 102 | 527 | 562 | 92.6 | 469.4 |
| | 10 | 439 | 201 | 238 | 452 | 81.2 | 370.8 | 419 | 79.5 | 339.5 |

**Applied Polymer Blend 712, PAM mixing time 2 minutes at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1013 | 308 | 705 | 873 | 58.3 | 814.7 | 807 | 109 | 698 |
| | 2 | 743 | 173 | 570 | 680 | 34.2 | 645.8 | 704 | 40.9 | 663.1 |
| | 5 | 584 | 117 | 467 | 515 | 28 | 487 | 581 | 25.6 | 555.4 |
| | 10 | 405 | 71.5 | 333.5 | 367 | 20.3 | 346.7 | 426 | 33.5 | 392.5 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 987 | 287 | 700 | 873 | 59.1 | 813.9 | 812 | 115 | 697 |
| | 2 | 811 | 193 | 618 | 682 | 33.2 | 648.8 | 709 | 42.3 | 666.7 |
| | 5 | 637 | 142 | 495 | 521 | 29.7 | 491.3 | 592 | 36.3 | 555.7 |
| | 10 | 412 | 97.7 | 314.3 | 362 | 22.7 | 339.3 | 437 | 32.1 | 404.9 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 985 | 285 | 700 | 875 | 62.8 | 812.2 | 925 | 221 | 704 |
| | 2 | 817 | 192 | 625 | 681 | 38.2 | 642.8 | 716 | 122 | 594 |
| | 5 | 625 | 137 | 488 | 512 | 29.8 | 482.2 | 592 | 81.1 | 510.9 |
| | 10 | 416 | 92.6 | 323.4 | 422 | 25.1 | 396.9 | 421 | 42.9 | 378.1 |

**Applied Polymer Blend 730, PAM mixing time 2 minutes at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1050 | 401 | 649 | 980 | 155 | 825 | 900 | 39.9 | 860.1 |
| | 2 | 923 | 293 | 630 | 741 | 85.8 | 655.2 | 731 | 34.7 | 696.3 |
| | 5 | 626 | 215 | 411 | 625 | 66.7 | 558.3 | 632 | 30.6 | 601.4 |
| | 10 | 509 | 152 | 357 | 517 | 55.9 | 461.1 | 452 | 24 | 428 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 985 | 357 | 628 | 983 | 152 | 831 | 918 | 42.1 | 875.9 |
| | 2 | 751 | 207 | 544 | 743 | 92.1 | 650.9 | 752 | 37.8 | 714.2 |
| | 5 | 637 | 177 | 460 | 627 | 68.3 | 558.7 | 641 | 32.3 | 608.7 |
| | 10 | 521 | 151 | 370 | 512 | 57.3 | 454.7 | 473 | 28.3 | 444.7 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 991 | 362 | 629 | 985 | 150 | 835 | 921 | 45.1 | 875.9 |
| | 2 | 763 | 227 | 536 | 762 | 112 | 650 | 762 | 42.9 | 719.1 |
| | 5 | 643 | 201 | 442 | 625 | 72.9 | 552.1 | 652 | 38.5 | 613.5 |
| | 10 | 522 | 150 | 372 | 519 | 62.3 | 456.7 | 463 | 33.3 | 429.7 |

**Applied Polymer Blend 730, PAM mixing time 2 minutes at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1051 | 76.5 | 974.5 | 953 | 43.8 | 909.2 | 861 | 46.7 | 814.3 |
| | 2 | 996 | 42.8 | 953.2 | 733 | 33.8 | 699.2 | 714 | 24.7 | 689.3 |
| | 5 | 634 | 35.5 | 598.5 | 632 | 15.4 | 616.6 | 585 | 21.3 | 563.7 |
| | 10 | 507 | 30 | 477 | 482 | 13.7 | 468.3 | 457 | 19.8 | 437.2 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 972 | 62.3 | 909.7 | 962 | 48.2 | 913.8 | 892 | 52.3 | 839.7 |
| | 2 | 753 | 44.7 | 708.3 | 741 | 39.7 | 701.3 | 732 | 34.9 | 697.1 |
| | 5 | 641 | 35.5 | 605.5 | 653 | 23.2 | 629.8 | 612 | 29.3 | 582.7 |
| | 10 | 510 | 31 | 479 | 501 | 19.2 | 481.8 | 502 | 21.7 | 480.3 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 975 | 63.2 | 911.8 | 971 | 55.6 | 915.4 | 901 | 62.9 | 838.1 |
| | 2 | 759 | 45.8 | 713.2 | 746 | 41.6 | 704.4 | 745 | 42.9 | 702.1 |
| | 5 | 651 | 41.6 | 609.4 | 659 | 29.5 | 629.5 | 622 | 32.9 | 589.1 |
| | 10 | 522 | 36.2 | 485.8 | 509 | 22.9 | 486.1 | 507 | 22.8 | 484.2 |

**Applied Polymer Blend 740, PAM mixing time 2 minutes at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1017 | 103.3 | 913.7 | 900 | 94.4 | 805.6 | 830 | 94 | 736 |
| | 2 | 725 | 72.4 | 652.6 | 754 | 21.6 | 732.4 | 725 | 34.1 | 690.9 |
| | 5 | 531 | 61.4 | 469.6 | 538 | 19.3 | 518.7 | 565 | 21.6 | 543.4 |
| | 10 | 383 | 57.4 | 325.6 | 415 | 16.8 | 398.2 | 425 | 19.9 | 405.1 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 987 | 87.3 | 899.7 | 905 | 96.7 | 808.3 | 890 | 107 | 783 |
| | 2 | 712 | 59.2 | 652.8 | 765 | 23 | 742 | 755 | 52.3 | 702.7 |
| | 5 | 513 | 52.4 | 460.6 | 542 | 21.3 | 520.7 | 607 | 31.3 | 575.7 |
| | 10 | 397 | 41.7 | 355.3 | 423 | 19.9 | 403.1 | 485 | 27.3 | 457.7 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1002 | 92.3 | 909.7 | 921 | 112 | 809 | 908 | 159 | 749 |
| | 2 | 719 | 71.9 | 647.1 | 779 | 42.9 | 736.1 | 759 | 68.2 | 690.8 |
| | 5 | 522 | 59.2 | 462.8 | 552 | 29.5 | 522.5 | 546 | 32.9 | 513.1 |
| | 10 | 383 | 51 | 332 | 429 | 22.5 | 406.5 | 429 | 22.5 | 406.5 |

**Applied Polymer Blend 740, PAM mixing time 2 minutes at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 967 | 84.6 | 882.4 | 901 | 29.3 | 871.7 | 800 | 38.7 | 761.3 |
| | 2 | 828 | 67.1 | 760.9 | 730 | 16.5 | 713.5 | 710 | 18.2 | 691.8 |
| | 5 | 639 | 46.8 | 592.2 | 583 | 16 | 567 | 540 | 16.8 | 523.2 |
| | 10 | 510 | 43.1 | 466.9 | 410 | 12.2 | 397.8 | 415 | 6.12 | 408.88 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 890 | 72.3 | 817.7 | 912 | 32.3 | 879.7 | 810 | 48.7 | 761.3 |
| | 2 | 755 | 60.1 | 694.9 | 745 | 18 | 727 | 721 | 19.3 | 701.7 |
| | 5 | 615 | 39.2 | 575.8 | 592 | 15.3 | 576.7 | 505 | 17.9 | 487.1 |
| | 10 | 509.7 | 37.8 | 471.9 | 421 | 13.7 | 407.3 | 421 | 10.2 | 410.8 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 902 | 75.2 | 826.8 | 915 | 35.2 | 879.8 | 825 | 55.9 | 769.1 |
| | 2 | 769 | 62.5 | 706.5 | 756 | 21 | 735 | 716 | 22 | 694 |
| | 5 | 625 | 41.2 | 583.8 | 601 | 19.5 | 581.5 | 542 | 21.4 | 520.6 |
| | 10 | 514 | 38.2 | 475.8 | 426 | 17.2 | 408.8 | 429 | 13.5 | 415.5 |

**Ciba, PAM mixing time 2 minutes at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1040 | 818 | 222 | 960 | 71.7 | 888.3 | 853 | 43.4 | 809.6 |
| | 2 | 756 | 556 | 200 | 693 | 52.8 | 640.2 | 620 | 32 | 588 |
| | 5 | 593 | 361 | 232 | 552 | 48.5 | 503.5 | 500 | 25.8 | 474.2 |
| | 10 | 430 | 220 | 210 | 390 | 42.5 | 347.5 | 380 | 23.6 | 356.4 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 945 | 715 | 230 | 972 | 82.3 | 889.7 | 861 | 47.2 | 813.8 |
| | 2 | 752 | 543 | 209 | 709 | 63 | 646 | 626 | 38.2 | 587.8 |
| | 5 | 590 | 354.7 | 235.3 | 571 | 53.7 | 517.3 | 512 | 31.7 | 480.3 |
| | 10 | 412 | 247 | 165 | 407 | 51.9 | 355.1 | 397 | 28.9 | 368.1 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 956 | 722 | 234 | 965 | 72.9 | 892.1 | 921 | 97.2 | 823.8 |
| | 2 | 762 | 559 | 203 | 690 | 55.2 | 634.8 | 685 | 52.9 | 632.1 |
| | 5 | 602 | 372 | 230 | 562 | 49.2 | 512.8 | 552 | 47.5 | 504.5 |
| | 10 | 422 | 226 | 196 | 412 | 47.5 | 364.5 | 419 | 32.8 | 386.2 |

**Ciba, PAM mixing time 2 minutes at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1007 | 99.4 | 907.6 | 870 | 48 | 822 | 872 | 58.2 | 813.8 |
| | 2 | 760 | 55 | 705 | 663 | 45 | 618 | 678 | 45.8 | 632.2 |
| | 5 | 584 | 38.3 | 545.7 | 531 | 40 | 491 | 541 | 37.9 | 503.1 |
| | 10 | 447 | 30 | 417 | 410 | 9.27 | 400.73 | 412 | 24.9 | 387.1 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 950 | 63.2 | 886.8 | 875 | 49.7 | 825.3 | 875 | 59.1 | 815.9 |
| | 2 | 682 | 42.3 | 639.7 | 668 | 47.2 | 620.8 | 672 | 43.2 | 628.8 |
| | 5 | 552 | 31.7 | 520.3 | 542 | 43.9 | 498.1 | 541 | 38.2 | 502.8 |
| | 10 | 402 | 25.3 | 376.7 | 421 | 13.7 | 407.3 | 409 | 25.4 | 383.6 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 975 | 82.6 | 892.4 | 892 | 62.3 | 829.7 | 901 | 72.9 | 828.1 |
| | 2 | 695 | 55.8 | 639.2 | 672 | 51.4 | 620.6 | 682 | 52.3 | 629.7 |
| | 5 | 568 | 42.1 | 525.9 | 549 | 45.31 | 503.69 | 556 | 45.1 | 510.9 |
| | 10 | 412 | 31.2 | 380.8 | 419 | 12.9 | 406.1 | 422 | 31.2 | 390.8 |

**A-100, PAM mixing time 2 minutes at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1040 | 864 | 176 | 1050 | 86.3 | 963.7 | 900 | 47 | 853 |
| | 2 | 925 | 502 | 423 | 839 | 35.4 | 803.6 | 684 | 44.1 | 639.9 |
| | 5 | 667 | 356 | 311 | 648 | 28 | 620 | 541 | 41 | 500 |
| | 10 | 470 | 234 | 236 | 471 | 26.4 | 444.6 | 425 | 39.4 | 385.6 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 942 | 765 | 177 | 952 | 46.7 | 905.3 | 907 | 49.3 | 857.7 |
| | 2 | 837 | 423 | 414 | 741 | 41.2 | 699.8 | 692 | 47.1 | 644.9 |
| | 5 | 576 | 275 | 301 | 552 | 37.8 | 514.2 | 547 | 43 | 504 |
| | 10 | 371 | 141 | 230 | 381 | 22.1 | 358.9 | 431 | 42.4 | 388.6 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 975 | 792 | 183 | 955 | 52.1 | 902.9 | 921 | 55.6 | 865.4 |
| | 2 | 876 | 476 | 400 | 742 | 37.2 | 704.8 | 702 | 52 | 650 |
| | 5 | 601 | 302 | 299 | 559 | 25.3 | 533.7 | 569 | 47.2 | 521.8 |
| | 10 | 422 | 201 | 221 | 401 | 16.5 | 384.5 | 419 | 35.2 | 383.8 |

**A-100, PAM mixing time 2 minutes at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1041 | 67.5 | 973.5 | 940 | 47.6 | 892.4 | 932 | 41.3 | 890.7 |
| | 2 | 832 | 47.7 | 784.3 | 740 | 30.8 | 709.2 | 734 | 28.7 | 705.3 |
| | 5 | 696 | 28.9 | 667.1 | 612 | 27.5 | 584.5 | 598.3 | 21.2 | 577.1 |
| | 10 | 490 | 23.1 | 466.9 | 431 | 16.8 | 414.2 | 421.7 | 14.2 | 407.5 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 978 | 62.5 | 915.5 | 955 | 51.2 | 903.8 | 951 | 49.7 | 901.3 |
| | 2 | 792 | 48.9 | 743.1 | 751 | 44.7 | 706.3 | 744 | 38.3 | 705.7 |
| | 5 | 641 | 32.3 | 608.7 | 627 | 35.9 | 591.1 | 604 | 30.3 | 573.7 |
| | 10 | 457 | 29.3 | 427.7 | 441 | 21.2 | 419.8 | 437 | 22.1 | 414.9 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 952 | 42.3 | 909.7 | 957 | 52 | 905 | 953 | 51.2 | 901.8 |
| | 2 | 741 | 32.1 | 708.9 | 742 | 41.2 | 700.8 | 754 | 41.3 | 712.7 |
| | 5 | 621 | 28.4 | 592.6 | 625 | 34.2 | 590.8 | 612 | 31.2 | 580.8 |
| | 10 | 422 | 17 | 405 | 429 | 17.2 | 411.8 | 422 | 15.1 | 406.9 |

**A-100-HMW, PAM mixing time 2 minutes at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1058 | 204 | 854 | 982 | 84.3 | 897.7 | 985 | 83.2 | 901.8 |
| | 2 | 823 | 121 | 702 | 810 | 44.5 | 765.5 | 806 | 40.7 | 765.3 |
| | 5 | 550 | 75.8 | 474.2 | 563 | 25.1 | 537.9 | 551 | 24.1 | 526.9 |
| | 10 | 411 | 60.4 | 350.6 | 420 | 12.5 | 407.5 | 417 | 14.2 | 402.8 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 995 | 183 | 812 | 987 | 84.2 | 902.8 | 982 | 81.2 | 900.8 |
| | 2 | 817 | 107 | 710 | 812 | 47.3 | 764.7 | 812 | 51.2 | 760.8 |
| | 5 | 572 | 62.3 | 509.7 | 572 | 28.2 | 543.8 | 561 | 27.2 | 533.8 |
| | 10 | 432 | 58.2 | 373.8 | 427 | 15.7 | 411.3 | 407 | 19.3 | 387.7 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 975 | 132 | 843 | 996 | 95.2 | 900.8 | 985 | 84.2 | 900.8 |
| | 2 | 782 | 82.3 | 699.7 | 822 | 62.6 | 759.4 | 802 | 41.2 | 760.8 |
| | 5 | 541 | 42.1 | 498.9 | 575 | 32.1 | 542.9 | 547 | 22 | 525 |
| | 10 | 412 | 32.1 | 379.9 | 421 | 19.2 | 401.8 | 412 | 14.8 | 397.2 |

**A-100-HMW, PAM mixing time 2 minutes at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1048 | 116 | 932 | 963 | 63.9 | 899.1 | 832 | 35.9 | 796.1 |
| | 2 | 850 | 42.3 | 807.7 | 763 | 22.8 | 740.2 | 713 | 34.2 | 678.8 |
| | 5 | 691 | 22.6 | 668.4 | 562 | 17.6 | 544.4 | 514 | 23.8 | 490.2 |
| | 10 | 470 | 17.2 | 452.8 | 430 | 11 | 419 | 372 | 10.61 | 361.39 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 965 | 101 | 864 | 951 | 57.3 | 893.7 | 852 | 41.3 | 810.7 |
| | 2 | 770 | 28.3 | 741.7 | 750 | 21.3 | 728.7 | 731 | 37.2 | 693.8 |
| | 5 | 550 | 12.6 | 537.4 | 541 | 14.7 | 526.3 | 517 | 24.1 | 492.9 |
| | 10 | 421 | 10.6 | 410.4 | 412 | 12.3 | 399.7 | 391 | 14.7 | 376.3 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 975 | 102 | 873 | 975 | 72.1 | 902.9 | 891 | 72.6 | 818.4 |
| | 2 | 782 | 31.2 | 750.8 | 772 | 31.2 | 740.8 | 752 | 45.9 | 706.1 |
| | 5 | 562 | 15.2 | 546.8 | 581 | 24.6 | 556.4 | 532 | 36.2 | 495.8 |
| | 10 | 417 | 11.2 | 405.8 | 435 | 14.6 | 420.4 | 412 | 22 | 390 |

**A-120, PAM mixing time 2 minutes at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 989 | 601 | 388 | 906 | 111 | 795 | 890 | 73 | 817 |
| | 2 | 712 | 409 | 303 | 766 | 70 | 696 | 756 | 42.1 | 713.9 |
| | 5 | 512 | 297 | 215 | 541 | 60.7 | 480.3 | 610 | 33.1 | 576.9 |
| | 10 | 398 | 192 | 206 | 427 | 47 | 380 | 427 | 32.1 | 394.9 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 981 | 591 | 390 | 912 | 115 | 797 | 902 | 89 | 813 |
| | 2 | 702 | 415 | 287 | 772 | 87.2 | 684.8 | 761 | 57.3 | 703.7 |
| | 5 | 517 | 312 | 205 | 542 | 71.3 | 470.7 | 617 | 42.3 | 574.7 |
| | 10 | 402 | 207 | 195 | 429 | 52 | 377 | 431 | 40.7 | 390.3 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 985 | 601 | 384 | 915 | 112 | 803 | 915 | 97 | 818 |
| | 2 | 712 | 422 | 290 | 775 | 92.3 | 682.7 | 765 | 62.3 | 702.7 |
| | 5 | 522 | 326 | 196 | 541 | 73.5 | 467.5 | 622 | 47.2 | 574.8 |
| | 10 | 415 | 219 | 196 | 419 | 59.2 | 359.8 | 422 | 42.9 | 379.1 |

**A-120, PAM mixing time 2 minutes at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 983 | 112 | 871 | 907 | 80.4 | 826.6 | 912 | 87.8 | 824.2 |
| | 2 | 728 | 30.2 | 697.8 | 732 | 31.3 | 700.7 | 893 | 21.2 | 871.8 |
| | 5 | 572 | 29.9 | 542.1 | 522 | 17.3 | 504.7 | 587 | 20.3 | 566.7 |
| | 10 | 462 | 17 | 445 | 401 | 9.3 | 391.7 | 451 | 8.04 | 442.96 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 980 | 97 | 883 | 909 | 81.2 | 827.8 | 915 | 92.3 | 822.7 |
| | 2 | 701 | 42.3 | 658.7 | 721 | 33.7 | 687.3 | 892 | 22.7 | 869.3 |
| | 5 | 512 | 20.3 | 491.7 | 525 | 19.9 | 505.1 | 586 | 19.7 | 566.3 |
| | 10 | 407 | 18 | 389 | 411 | 14.3 | 396.7 | 431 | 15.3 | 415.7 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 985 | 115 | 870 | 915 | 92.3 | 822.7 | 925 | 91.2 | 833.8 |
| | 2 | 715 | 45.3 | 669.7 | 742 | 41.9 | 700.1 | 822 | 17.6 | 804.4 |
| | 5 | 522 | 24.3 | 497.7 | 531 | 25.3 | 505.7 | 521 | 14.2 | 506.8 |
| | 10 | 426 | 12 | 414 | 422 | 17.9 | 404.1 | 419 | 7.2 | 411.8 |

**A-120-HMW, PAM mixing time 2 minutes at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1041 | 736 | 305 | 920 | 115 | 805 | 810 | 64.1 | 745.9 |
| | 2 | 972 | 483 | 489 | 798 | 80 | 718 | 712 | 42.3 | 669.7 |
| | 5 | 651 | 300 | 351 | 592 | 63.9 | 528.1 | 550 | 39.8 | 510.2 |
| | 10 | 462 | 180 | 282 | 456 | 50 | 406 | 442 | 36.6 | 405.4 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 958 | 722 | 236 | 925 | 112 | 813 | 835 | 53.2 | 781.8 |
| | 2 | 810 | 463 | 347 | 802 | 91 | 711 | 731 | 47.1 | 683.9 |
| | 5 | 598 | 290 | 308 | 593 | 65.3 | 527.7 | 576 | 45.3 | 530.7 |
| | 10 | 456 | 201 | 255 | 461 | 61.5 | 399.5 | 472 | 42.7 | 429.3 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 975 | 742 | 233 | 937 | 122 | 815 | 926 | 172 | 754 |
| | 2 | 819 | 462 | 357 | 822 | 102.6 | 719.4 | 812 | 151 | 661 |
| | 5 | 602 | 295 | 307 | 602 | 75.9 | 526.1 | 602 | 112.3 | 489.7 |
| | 10 | 442 | 202 | 240 | 439 | 62.9 | 376.1 | 472 | 62.8 | 409.2 |

**A-120-HMW, PAM mixing time 2 minutes at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 956 | 81.4 | 874.6 | 892 | 82.2 | 809.8 | 802 | 92.4 | 709.6 |
| | 2 | 707 | 69.3 | 637.7 | 789 | 67.7 | 721.3 | 697 | 45 | 652 |
| | 5 | 523 | 42.1 | 480.9 | 607 | 42.7 | 564.3 | 571 | 29.8 | 541.2 |
| | 10 | 381 | 34 | 347 | 475 | 26.3 | 448.7 | 435 | 10.35 | 424.65 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 975 | 102.3 | 872.7 | 907 | 83.2 | 823.8 | 812 | 86.6 | 725.4 |
| | 2 | 721 | 77.3 | 643.7 | 792 | 69.3 | 722.7 | 705 | 51 | 654 |
| | 5 | 548 | 51.8 | 496.2 | 617 | 40.1 | 576.9 | 571 | 31.2 | 539.8 |
| | 10 | 392 | 41.2 | 350.8 | 498 | 31.2 | 466.8 | 456 | 14.7 | 441.3 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 981 | 125 | 856 | 912 | 92 | 820 | 910 | 201 | 709 |
| | 2 | 741 | 82.2 | 658.8 | 807 | 75.3 | 731.7 | 806 | 172.6 | 633.4 |
| | 5 | 562 | 62.5 | 499.5 | 629 | 62.9 | 566.1 | 632 | 101 | 531 |
| | 10 | 412 | 51.2 | 360.8 | 435 | 32.1 | 402.9 | 502 | 52.9 | 449.1 |

# APPENDIX I

Jar Test Results for Solution form PAM, with a mixing time of 1 minute, from a soil-water concentration of 10,000 ppm

***All numeric values are measured in NTUs***

**Applied Polymer Blend 702, PAM mixing time 1 minute at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1000 | 107 | 893 | 930 | 79.3 | 850.7 | 836 | 121 | 715 |
| | 2 | 831 | 42.3 | 788.7 | 751 | 65.5 | 685.5 | 742 | 93 | 649 |
| | 5 | 545 | 36.6 | 508.4 | 600 | 51 | 549 | 530 | 76.6 | 453.4 |
| | 10 | 430 | 32.3 | 397.7 | 431 | 45.7 | 385.3 | 410 | 67 | 343 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 937 | 72.3 | 864.7 | 955 | 93.7 | 861.3 | 901 | 142 | 759 |
| | 2 | 762 | 34.6 | 727.4 | 802 | 79.2 | 722.8 | 762 | 102 | 660 |
| | 5 | 552 | 29.2 | 522.8 | 647 | 67.3 | 579.7 | 557 | 91.7 | 465.3 |
| | 10 | 442 | 27.3 | 414.7 | 421 | 37.2 | 383.8 | 417 | 72.3 | 344.7 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 950 | 92.6 | 857.4 | 938 | 81.9 | 856.1 | 931 | 168 | 763 |
| | 2 | 773 | 37.6 | 735.4 | 758 | 71.6 | 686.4 | 749 | 102 | 647 |
| | 5 | 561 | 32.9 | 528.1 | 549 | 40.6 | 508.4 | 582 | 90.9 | 491.1 |
| | 10 | 432 | 29.8 | 402.2 | 432 | 37.5 | 394.5 | 422 | 76.8 | 345.2 |

**Applied Polymer Blend 702, PAM mixing time 1 minute at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1005 | 41.1 | 963.9 | 1007 | 65.2 | 941.8 | 829 | 99.1 | 729.9 |
| | 2 | 800 | 27.5 | 772.5 | 730 | 32.8 | 697.2 | 713 | 64.3 | 648.7 |
| | 5 | 584 | 10.35 | 573.65 | 563 | 29.3 | 533.7 | 536 | 54.1 | 481.9 |
| | 10 | 470 | 8.76 | 461.24 | 425 | 23.2 | 401.8 | 412 | 41.4 | 370.6 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 987 | 37.8 | 949.2 | 955 | 42.6 | 912.4 | 951 | 166 | 785 |
| | 2 | 782 | 22.6 | 759.4 | 752 | 30.4 | 721.6 | 792 | 122 | 670 |
| | 5 | 561 | 12.6 | 548.4 | 601 | 27.2 | 573.8 | 612 | 97.2 | 514.8 |
| | 10 | 451 | 10.6 | 440.4 | 432 | 26.3 | 405.7 | 427 | 71.2 | 355.8 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 992 | 40.6 | 951.4 | 982 | 51.6 | 930.4 | 982 | 175 | 807 |
| | 2 | 781 | 26.5 | 754.5 | 772 | 29.5 | 742.5 | 812 | 135 | 677 |
| | 5 | 546 | 14.6 | 531.4 | 541 | 24.6 | 516.4 | 602 | 95.6 | 506.4 |
| | 10 | 416 | 10.6 | 405.4 | 422 | 21.6 | 400.4 | 421 | 75.6 | 345.4 |

**Applied Polymer Blend 705, PAM mixing time 1 minute at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 975 | 137 | 838 | 987 | 129 | 858 | 989 | 88 | 901 |
| | 2 | 721 | 92.4 | 628.6 | 780 | 98.2 | 681.8 | 781 | 70.9 | 710.1 |
| | 5 | 547 | 71.4 | 475.6 | 541 | 91.7 | 449.3 | 552 | 64.7 | 487.3 |
| | 10 | 392 | 63.4 | 328.6 | 422 | 78.3 | 343.7 | 432 | 62.5 | 369.5 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 956 | 123 | 833 | 996 | 132 | 864 | 1001 | 97.3 | 903.7 |
| | 2 | 752 | 98.2 | 653.8 | 782 | 99.7 | 682.3 | 787 | 75.9 | 711.1 |
| | 5 | 582 | 81.2 | 500.8 | 553 | 93.4 | 459.6 | 567 | 71.3 | 495.7 |
| | 10 | 421 | 73.9 | 347.1 | 417 | 74.5 | 342.5 | 437 | 66.5 | 370.5 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 972 | 132 | 840 | 201 | 142 | 59 | 1002 | 92 | 910 |
| | 2 | 719 | 85.6 | 633.4 | 786 | 102 | 684 | 789 | 75.6 | 713.4 |
| | 5 | 535 | 65.2 | 469.8 | 562 | 95.6 | 466.4 | 568 | 72.9 | 495.1 |
| | 10 | 402 | 62.1 | 339.9 | 422 | 82.9 | 339.1 | 429 | 64.9 | 364.1 |

**Applied Polymer Blend 705, PAM mixing time 1 minute at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 978 | 72.8 | 905.2 | 983 | 52.8 | 930.2 | 975 | 40.5 | 934.5 |
| | 2 | 801 | 38.7 | 762.3 | 721 | 32.5 | 688.5 | 703 | 16.4 | 686.6 |
| | 5 | 597 | 17.3 | 579.7 | 432 | 28.7 | 403.3 | 421 | 16.2 | 404.8 |
| | 10 | 422 | 11.1 | 410.9 | 312 | 14.9 | 297.1 | 301 | 16 | 285 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 982 | 76.4 | 905.6 | 987 | 53.2 | 933.8 | 987 | 55.4 | 931.6 |
| | 2 | 797 | 36.4 | 760.6 | 731 | 40.1 | 690.9 | 721 | 21.2 | 699.8 |
| | 5 | 602 | 19.7 | 582.3 | 431 | 31.2 | 399.8 | 422 | 17.4 | 404.6 |
| | 10 | 412 | 12.4 | 399.6 | 321 | 22.3 | 298.7 | 312 | 17.1 | 294.9 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 982 | 78.9 | 903.1 | 975 | 48.5 | 926.5 | 1002 | 68.2 | 933.8 |
| | 2 | 805 | 42.9 | 762.1 | 752 | 42.6 | 709.4 | 756 | 46.5 | 709.5 |
| | 5 | 583 | 26.5 | 556.5 | 501 | 41.9 | 459.1 | 452 | 34.9 | 417.1 |
| | 10 | 417 | 17.5 | 399.5 | 367 | 35.6 | 331.4 | 331 | 28.5 | 302.5 |

**Applied Polymer Blend 712, PAM mixing time 1 minute at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 985 | 243 | 742 | 910 | 165 | 745 | 921 | 201 | 720 |
| | 2 | 712 | 153 | 559 | 657 | 144 | 513 | 670 | 172 | 498 |
| | 5 | 591 | 122 | 469 | 512 | 128 | 384 | 519 | 138 | 381 |
| | 10 | 437 | 98.4 | 338.6 | 387 | 103.7 | 283.3 | 401 | 127 | 274 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 932 | 201 | 731 | 938 | 183 | 755 | 939 | 219 | 720 |
| | 2 | 781 | 189 | 592 | 642 | 157 | 485 | 672 | 191 | 481 |
| | 5 | 567 | 152.1 | 414.9 | 501 | 135 | 366 | 529 | 147 | 382 |
| | 10 | 440 | 107.3 | 332.7 | 376 | 102 | 274 | 407 | 133 | 274 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1001 | 262 | 739 | 955 | 195 | 760 | 987 | 257 | 730 |
| | 2 | 782 | 192 | 590 | 694 | 191 | 503 | 719 | 212 | 507 |
| | 5 | 612 | 149 | 463 | 522 | 146 | 376 | 601 | 197.2 | 403.8 |
| | 10 | 451 | 122 | 329 | 407 | 121.2 | 285.8 | 422 | 142 | 280 |

**Applied Polymer Blend 712, PAM mixing time 1 minute at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 979 | 99.9 | 879.1 | 961 | 97.2 | 863.8 | 1031 | 79.7 | 951.3 |
| | 2 | 812 | 68.1 | 743.9 | 796 | 45.1 | 750.9 | 819 | 44.3 | 774.7 |
| | 5 | 635 | 40.7 | 594.3 | 541 | 33 | 508 | 622 | 31.3 | 590.7 |
| | 10 | 431 | 33 | 398 | 392 | 31.8 | 360.2 | 422 | 26.2 | 395.8 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 912 | 72.3 | 839.7 | 976 | 107.3 | 868.7 | 961 | 51.2 | 909.8 |
| | 2 | 734 | 50.3 | 683.7 | 801 | 54.7 | 746.3 | 792 | 39.2 | 752.8 |
| | 5 | 572 | 37.2 | 534.8 | 614 | 49.9 | 564.1 | 541 | 29.2 | 511.8 |
| | 10 | 417 | 27.2 | 389.8 | 422 | 44.3 | 377.7 | 401 | 21.2 | 379.8 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 956 | 81.6 | 874.4 | 975 | 111 | 864 | 987 | 65.3 | 921.7 |
| | 2 | 729 | 58.2 | 670.8 | 791 | 61.3 | 729.7 | 801 | 45.2 | 755.8 |
| | 5 | 561 | 41.3 | 519.7 | 622 | 57.2 | 564.8 | 561 | 39.4 | 521.6 |
| | 10 | 409 | 32.1 | 376.9 | 431 | 51.6 | 379.4 | 431 | 32.1 | 398.9 |

**Applied Polymer Blend 730, PAM mixing time 1 minute at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1020 | 122 | 898 | 950 | 316 | 634 | 870 | 357 | 513 |
| | 2 | 816 | 73.2 | 742.8 | 710 | 263 | 447 | 660 | 301 | 359 |
| | 5 | 620 | 66.7 | 553.3 | 582 | 190 | 392 | 510 | 239 | 271 |
| | 10 | 420 | 47.9 | 372.1 | 420 | 143 | 277 | 375 | 193 | 182 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 967 | 82.9 | 884.1 | 975 | 336 | 639 | 950 | 417 | 533 |
| | 2 | 702 | 60.1 | 641.9 | 737 | 291 | 446 | 625 | 305 | 320 |
| | 5 | 607 | 55.6 | 551.4 | 612 | 212 | 400 | 502 | 249 | 253 |
| | 10 | 401 | 32.5 | 368.5 | 442 | 175 | 267 | 376 | 201 | 175 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 935 | 70.1 | 864.9 | 985 | 341 | 644 | 912 | 401 | 511 |
| | 2 | 687 | 55.3 | 631.7 | 742 | 312 | 430 | 701 | 357 | 344 |
| | 5 | 515 | 46.5 | 468.5 | 625 | 241 | 384 | 562 | 321 | 241 |
| | 10 | 391 | 29.5 | 361.5 | 447 | 189 | 258 | 402 | 215 | 187 |

**Applied Polymer Blend 730, PAM mixing time 1 minute at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1030 | 45.5 | 984.5 | 940 | 180 | 760 | 750 | 255 | 495 |
| | 2 | 741 | 34.6 | 706.4 | 620 | 142 | 478 | 630 | 200 | 430 |
| | 5 | 613 | 25.7 | 587.3 | 500 | 111 | 389 | 520 | 171 | 349 |
| | 10 | 430 | 24.9 | 405.1 | 360 | 91.4 | 268.6 | 378 | 140 | 238 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 975 | 31.2 | 943.8 | 955 | 201 | 754 | 967 | 462 | 505 |
| | 2 | 732 | 26.5 | 705.5 | 627 | 161 | 466 | 672 | 326 | 346 |
| | 5 | 617 | 22.9 | 594.1 | 512 | 139 | 373 | 517 | 222 | 295 |
| | 10 | 441 | 21.1 | 419.9 | 381 | 102 | 279 | 372 | 197 | 175 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1001 | 35.2 | 965.8 | 985 | 210 | 775 | 947 | 455 | 492 |
| | 2 | 762 | 31.2 | 730.8 | 692 | 197 | 495 | 635 | 301 | 334 |
| | 5 | 597 | 22.1 | 574.9 | 597 | 181 | 416 | 509 | 216 | 293 |
| | 10 | 416 | 19.5 | 396.5 | 432 | 136 | 296 | 376 | 182 | 194 |

**Applied Polymer Blend 740, PAM mixing time 1 minute at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1030 | 86.7 | 943.3 | 1034 | 175 | 859 | 1015 | 258 | 757 |
| | 2 | 890 | 64.8 | 825.2 | 750 | 139 | 611 | 880 | 203 | 677 |
| | 5 | 671 | 46.2 | 624.8 | 610 | 108.8 | 501.2 | 621 | 169 | 452 |
| | 10 | 477 | 31.8 | 445.2 | 455 | 79.5 | 375.5 | 468 | 138 | 330 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1015 | 71.2 | 943.8 | 1001 | 141 | 860 | 1012 | 250 | 762 |
| | 2 | 872 | 51.3 | 820.7 | 722 | 110 | 612 | 841 | 187 | 654 |
| | 5 | 643 | 38.1 | 604.9 | 582 | 92.1 | 489.9 | 612 | 142 | 470 |
| | 10 | 447 | 29.2 | 417.8 | 431 | 68.7 | 362.3 | 431 | 121 | 310 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 985 | 51.2 | 933.8 | 985 | 122 | 863 | 975 | 219 | 756 |
| | 2 | 759 | 47.9 | 711.1 | 712 | 112 | 600 | 802 | 182 | 620 |
| | 5 | 456 | 32.1 | 423.9 | 459 | 85.6 | 373.4 | 622 | 142 | 480 |
| | 10 | 402 | 20.1 | 381.9 | 379 | 61.2 | 317.8 | 438 | 129 | 309 |

**Applied Polymer Blend 740, PAM mixing time 1 minute at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1032 | 72.7 | 959.3 | 1035 | 149 | 886 | 1001 | 241 | 760 |
| | 2 | 830 | 35.2 | 794.8 | 730 | 135 | 595 | 717 | 202 | 515 |
| | 5 | 640 | 11.4 | 628.6 | 610 | 103.5 | 506.5 | 571 | 173 | 398 |
| | 10 | 490 | 7.5 | 482.5 | 450 | 83.7 | 366.3 | 432 | 112 | 320 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1021 | 67.3 | 953.7 | 1011 | 121 | 890 | 1013 | 253 | 760 |
| | 2 | 817 | 31.2 | 785.8 | 712 | 102.3 | 609.7 | 762 | 231 | 531 |
| | 5 | 632 | 17.3 | 614.7 | 607 | 100.1 | 506.9 | 610 | 194 | 416 |
| | 10 | 481 | 9.12 | 471.88 | 442 | 78.3 | 363.7 | 461 | 153 | 308 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 992 | 51.2 | 940.8 | 980 | 101 | 879 | 962 | 192 | 770 |
| | 2 | 811 | 43.2 | 767.8 | 731 | 91.2 | 639.8 | 751 | 187 | 564 |
| | 5 | 635 | 21.3 | 613.7 | 615 | 105 | 510 | 561 | 170 | 391 |
| | 10 | 422 | 9.7 | 412.3 | 462 | 87.6 | 374.4 | 441 | 139 | 302 |

**Ciba, PAM mixing time 1 minute at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1070 | 147 | 923 | 980 | 127 | 853 | 860 | 134 | 726 |
| | 2 | 794 | 93.7 | 700.3 | 720 | 113.7 | 606.3 | 732 | 131 | 601 |
| | 5 | 570 | 62.1 | 507.9 | 546 | 91.3 | 454.7 | 580 | 127.3 | 452.7 |
| | 10 | 421 | 55.3 | 365.7 | 385 | 63.6 | 321.4 | 420 | 97.2 | 322.8 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 992 | 56.2 | 935.8 | 982 | 122 | 860 | 985 | 174 | 811 |
| | 2 | 738 | 52.6 | 685.4 | 731 | 117 | 614 | 712 | 139 | 573 |
| | 5 | 558 | 33.1 | 524.9 | 547 | 92.4 | 454.6 | 542 | 105.6 | 436.4 |
| | 10 | 402 | 23.6 | 378.4 | 393 | 73.1 | 319.9 | 397 | 85.7 | 311.3 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1001 | 65.9 | 935.1 | 995 | 129.5 | 865.5 | 995 | 179 | 816 |
| | 2 | 742 | 58.2 | 683.8 | 738 | 119 | 619 | 735 | 151 | 584 |
| | 5 | 562 | 50.1 | 511.9 | 551 | 97.1 | 453.9 | 561 | 122 | 439 |
| | 10 | 422 | 39.5 | 382.5 | 407 | 81.1 | 325.9 | 416 | 97.5 | 318.5 |

**Ciba, PAM mixing time 1 minute at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1060 | 124 | 936 | 983 | 125 | 858 | 860 | 92.8 | 767.2 |
| | 2 | 820 | 101 | 719 | 700 | 87.9 | 612.1 | 652 | 85.9 | 566.1 |
| | 5 | 614 | 81.02 | 532.98 | 542 | 68.2 | 473.8 | 512 | 81.1 | 430.9 |
| | 10 | 435 | 51 | 384 | 440 | 57.1 | 382.9 | 415 | 76.9 | 338.1 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1010 | 79.2 | 930.8 | 987 | 130 | 857 | 981 | 194 | 787 |
| | 2 | 772 | 48 | 724 | 702 | 93 | 609 | 721 | 175 | 546 |
| | 5 | 581 | 30.4 | 550.6 | 551 | 71.2 | 479.8 | 571 | 165 | 406 |
| | 10 | 412 | 21.2 | 390.8 | 441 | 58.8 | 382.2 | 427 | 96.4 | 330.6 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 987 | 71.1 | 915.9 | 1001 | 163 | 838 | 976 | 189 | 787 |
| | 2 | 742 | 41.6 | 700.4 | 759 | 142 | 617 | 741 | 181 | 560 |
| | 5 | 579 | 31.1 | 547.9 | 562 | 119.5 | 442.5 | 612 | 173.5 | 438.5 |
| | 10 | 425 | 25.9 | 399.1 | 429 | 89.1 | 339.9 | 437 | 122 | 315 |

**A-100, PAM mixing time 1 minute at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 975 | 83.3 | 891.7 | 960 | 132 | 828 | 989 | 180 | 809 |
| | 2 | 806 | 51.2 | 754.8 | 865 | 101.4 | 763.6 | 780 | 144 | 636 |
| | 5 | 605 | 43.9 | 561.1 | 621 | 82.3 | 538.7 | 600 | 108.3 | 491.7 |
| | 10 | 462 | 37.4 | 424.6 | 462 | 66.8 | 395.2 | 446 | 92.2 | 353.8 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 982 | 92.1 | 889.9 | 975 | 145 | 830 | 925 | 122 | 803 |
| | 2 | 834 | 82.1 | 751.9 | 847 | 100.6 | 746.4 | 722 | 100.1 | 621.9 |
| | 5 | 637 | 64.1 | 572.9 | 625 | 81.4 | 543.6 | 605 | 95.1 | 509.9 |
| | 10 | 472 | 41.8 | 430.2 | 453 | 62.8 | 390.2 | 441 | 91.2 | 349.8 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 973 | 81.2 | 891.8 | 955 | 122 | 833 | 983 | 172 | 811 |
| | 2 | 822 | 68.9 | 753.1 | 832 | 87.1 | 744.9 | 739 | 131 | 608 |
| | 5 | 624 | 54.1 | 569.9 | 629 | 81.1 | 547.9 | 622 | 115 | 507 |
| | 10 | 445 | 31.2 | 413.8 | 452 | 61.1 | 390.9 | 437 | 90.1 | 346.9 |

**A-100, PAM mixing time 1 minute at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1046 | 50.2 | 995.8 | 900 | 109 | 791 | 821 | 165 | 656 |
| | 2 | 950 | 22 | 928 | 780 | 90.4 | 689.6 | 678 | 148 | 530 |
| | 5 | 670 | 19.1 | 650.9 | 600 | 84.3 | 515.7 | 600 | 134 | 466 |
| | 10 | 472 | 16.9 | 455.1 | 440 | 70.2 | 369.8 | 462 | 118 | 344 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1013 | 31.2 | 981.8 | 980 | 187 | 793 | 967 | 279 | 688 |
| | 2 | 743 | 19.1 | 723.9 | 772 | 122 | 650 | 828 | 259 | 569 |
| | 5 | 584 | 13.1 | 570.9 | 575 | 81.2 | 493.8 | 639 | 201 | 438 |
| | 10 | 405 | 8.21 | 396.79 | 422 | 60.1 | 361.9 | 510 | 165 | 345 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 985 | 21.1 | 963.9 | 987 | 169 | 818 | 1010 | 315 | 695 |
| | 2 | 712 | 14.2 | 697.8 | 755 | 82.1 | 672.9 | 772 | 225 | 547 |
| | 5 | 501 | 10.4 | 490.6 | 562 | 72.1 | 489.9 | 629 | 189 | 440 |
| | 10 | 429 | 8.76 | 420.24 | 439 | 65.5 | 373.5 | 459 | 139 | 320 |

**A-100-HMW, PAM mixing time 1 minute at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 942 | 72.1 | 869.9 | 948 | 185 | 763 | 850 | 177 | 673 |
| | 2 | 773 | 64.1 | 708.9 | 772 | 135.5 | 636.5 | 700 | 142 | 558 |
| | 5 | 559 | 43.6 | 515.4 | 601 | 117.5 | 483.5 | 541 | 120 | 421 |
| | 10 | 427 | 30.6 | 396.4 | 442 | 101.5 | 340.5 | 420 | 109.7 | 310.3 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 987 | 109.5 | 877.5 | 955 | 192 | 763 | 890 | 198 | 692 |
| | 2 | 739 | 70.1 | 668.9 | 761 | 130 | 631 | 732 | 156 | 576 |
| | 5 | 523 | 40.1 | 482.9 | 605 | 122 | 483 | 605 | 142 | 463 |
| | 10 | 402 | 25.1 | 376.9 | 437 | 97.6 | 339.4 | 437 | 119 | 318 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 932 | 69.1 | 862.9 | 945 | 182 | 763 | 902 | 250 | 652 |
| | 2 | 702 | 40.1 | 661.9 | 770 | 134.1 | 635.9 | 762 | 192 | 570 |
| | 5 | 521 | 31.1 | 489.9 | 561 | 102 | 459 | 622 | 169 | 453 |
| | 10 | 412 | 22.1 | 389.9 | 431 | 91.3 | 339.7 | 439 | 135 | 304 |

**A-100-HMW, PAM mixing time 1 minute at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 976 | 47.3 | 928.7 | 957 | 151 | 806 | 800 | 185 | 615 |
| | 2 | 783 | 17.5 | 765.5 | 772 | 111 | 661 | 668 | 151 | 517 |
| | 5 | 610 | 12.2 | 597.8 | 615 | 86.7 | 528.3 | 554 | 125 | 429 |
| | 10 | 460 | 7.5 | 452.5 | 453 | 69.5 | 383.5 | 439 | 102.5 | 336.5 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 982 | 55.9 | 926.1 | 975 | 170 | 805 | 915 | 221 | 694 |
| | 2 | 781 | 22.1 | 758.9 | 781 | 119 | 662 | 756 | 197 | 559 |
| | 5 | 622 | 19.5 | 602.5 | 612 | 89.2 | 522.8 | 601 | 149 | 452 |
| | 10 | 475 | 15.2 | 459.8 | 451 | 71.2 | 379.8 | 426 | 119 | 307 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 975 | 45.1 | 929.9 | 962 | 155 | 807 | 937 | 231 | 706 |
| | 2 | 780 | 22.1 | 757.9 | 770 | 115 | 655 | 762 | 201 | 561 |
| | 5 | 619 | 17.9 | 601.1 | 612 | 91.2 | 520.8 | 615 | 155 | 460 |
| | 10 | 472 | 12.3 | 459.7 | 446 | 72.1 | 373.9 | 439 | 126 | 313 |

**A-120, PAM mixing time 1 minute at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1032 | 110 | 922 | 1028 | 208 | 820 | 900 | 354 | 546 |
| | 2 | 760 | 70.8 | 689.2 | 730 | 162 | 568 | 730 | 238 | 492 |
| | 5 | 600 | 53.3 | 546.7 | 530 | 137 | 393 | 590 | 182 | 408 |
| | 10 | 406 | 39.2 | 366.8 | 393 | 107.7 | 285.3 | 411 | 148 | 263 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 989 | 75.6 | 913.4 | 1016 | 197 | 819 | 959 | 362 | 597 |
| | 2 | 726 | 71.1 | 654.9 | 721 | 155 | 566 | 735 | 269 | 466 |
| | 5 | 589 | 50.1 | 538.9 | 522 | 122 | 400 | 605 | 201 | 404 |
| | 10 | 421 | 41.6 | 379.4 | 421 | 112 | 309 | 421 | 152 | 269 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1002 | 89.5 | 912.5 | 1005 | 191 | 814 | 985 | 372 | 613 |
| | 2 | 751 | 71.6 | 679.4 | 731 | 152 | 579 | 729 | 272 | 457 |
| | 5 | 552 | 51.2 | 500.8 | 535 | 132 | 403 | 592 | 197 | 395 |
| | 10 | 419 | 41.2 | 377.8 | 429 | 112 | 317 | 435 | 151 | 284 |

**A-120, PAM mixing time 1 minute at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1000 | 98.5 | 901.5 | 1030 | 213 | 817 | 900 | 321 | 579 |
| | 2 | 786 | 53.2 | 732.8 | 803 | 136 | 667 | 705 | 240 | 465 |
| | 5 | 570 | 36.3 | 533.7 | 590 | 138 | 452 | 575 | 189 | 386 |
| | 10 | 400 | 32.6 | 367.4 | 410 | 103.7 | 306.3 | 437 | 153 | 284 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 989 | 82.5 | 906.5 | 1014 | 197 | 817 | 921 | 326 | 595 |
| | 2 | 762 | 42.6 | 719.4 | 785 | 121 | 664 | 716 | 245 | 471 |
| | 5 | 521 | 21.3 | 499.7 | 572 | 112.6 | 459.4 | 541 | 172 | 369 |
| | 10 | 412 | 19.9 | 392.1 | 421 | 110.1 | 310.9 | 421 | 131 | 290 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1002 | 95.6 | 906.4 | 997 | 175 | 822 | 959 | 332 | 627 |
| | 2 | 772 | 51.2 | 720.8 | 756 | 112 | 644 | 739 | 251 | 488 |
| | 5 | 538 | 31.1 | 506.9 | 531 | 91.2 | 439.8 | 578 | 201 | 377 |
| | 10 | 421 | 22.9 | 398.1 | 419 | 86.9 | 332.1 | 429 | 162 | 267 |

**A-120-HMW, PAM mixing time 1 minute at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1033 | 134 | 899 | 900 | 238 | 662 | 800 | 331 | 469 |
| | 2 | 811 | 77 | 734 | 730 | 166 | 564 | 700 | 260 | 440 |
| | 5 | 591 | 53.1 | 537.9 | 500 | 130 | 370 | 540 | 205 | 335 |
| | 10 | 416 | 39.1 | 376.9 | 400 | 100.4 | 299.6 | 412 | 166 | 246 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 985 | 102 | 883 | 982 | 255 | 727 | 960 | 341 | 619 |
| | 2 | 749 | 51.3 | 697.7 | 741 | 201 | 540 | 693 | 289 | 404 |
| | 5 | 557 | 39.2 | 517.8 | 562 | 156 | 406 | 546 | 224 | 322 |
| | 10 | 401 | 30.1 | 370.9 | 419 | 121 | 298 | 406 | 171 | 235 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 955 | 82.6 | 872.4 | 980 | 241 | 739 | 972 | 300 | 672 |
| | 2 | 729 | 71.6 | 657.4 | 743 | 189 | 554 | 709 | 241 | 468 |
| | 5 | 534 | 42.6 | 491.4 | 539 | 146 | 393 | 541 | 197 | 344 |
| | 10 | 412 | 29.5 | 382.5 | 421 | 119 | 302 | 407 | 181 | 226 |

**A-120-HMW, PAM mixing time 1 minute at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1050 | 97.7 | 952.3 | 900 | 223 | 677 | 802 | 333 | 469 |
| | 2 | 840 | 38.8 | 801.2 | 720 | 168 | 552 | 703 | 274 | 429 |
| | 5 | 630 | 35.6 | 594.4 | 580 | 141 | 439 | 535 | 222 | 313 |
| | 10 | 438 | 27.6 | 410.4 | 404 | 124 | 280 | 410 | 173 | 237 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 932 | 72.6 | 859.4 | 975 | 235 | 740 | 830 | 321 | 509 |
| | 2 | 734 | 22.6 | 711.4 | 759 | 201 | 558 | 725 | 251 | 474 |
| | 5 | 599 | 17.5 | 581.5 | 651 | 159 | 492 | 565 | 212 | 353 |
| | 10 | 422 | 10.2 | 411.8 | 522 | 137 | 385 | 425 | 151 | 274 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 923 | 65.6 | 857.4 | 971 | 221 | 750 | 962 | 341 | 621 |
| | 2 | 765 | 31.2 | 733.8 | 812 | 197 | 615 | 741 | 297 | 444 |
| | 5 | 620 | 19.5 | 600.5 | 625 | 139 | 486 | 653 | 251 | 402 |
| | 10 | 430 | 10.69 | 419.31 | 481 | 122 | 359 | 501 | 197 | 304 |

## APPENDIX J

Jar Test Results for Solution form PAM, with a mixing time of 2 minute, from a soil-water concentration of 10,000 ppm

***All numeric values are measured in NTUs***

**Applied Polymer Blend 702, PAM mixing time 2 minutes at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1020 | 23.3 | 996.7 | 1011 | 51.4 | 959.6 | 965 | 78.8 | 886.2 |
| | 2 | 851 | 22.9 | 828.1 | 832 | 39.7 | 792.3 | 812 | 75.4 | 736.6 |
| | 5 | 562 | 19.2 | 542.8 | 541 | 36.1 | 504.9 | 632 | 40.2 | 591.8 |
| | 10 | 425 | 13.4 | 411.6 | 422 | 35.4 | 386.6 | 417 | 39.1 | 377.9 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 987 | 17.2 | 969.8 | 995 | 32.9 | 962.1 | 1001 | 102 | 899 |
| | 2 | 832 | 14.6 | 817.4 | 821 | 29.5 | 791.5 | 830 | 82.6 | 747.4 |
| | 5 | 534 | 13.6 | 520.4 | 521 | 22.1 | 498.9 | 621 | 49.5 | 571.5 |
| | 10 | 412 | 10.96 | 401.04 | 417 | 20.2 | 396.8 | 427 | 41.2 | 385.8 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 987 | 16.3 | 970.7 | 982 | 29.7 | 952.3 | 975 | 82.6 | 892.4 |
| | 2 | 795 | 12.6 | 782.4 | 801 | 22.9 | 778.1 | 809 | 72.9 | 736.1 |
| | 5 | 582 | 10.6 | 571.4 | 536 | 19.7 | 516.3 | 635 | 42.8 | 592.2 |
| | 10 | 425 | 9.87 | 415.13 | 426 | 17.2 | 408.8 | 422 | 38.5 | 383.5 |

**Applied Polymer Blend 702, PAM mixing time 2 minutes at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 989 | 34.3 | 954.7 | 1012 | 22.3 | 989.7 | 1008 | 52.4 | 955.6 |
| | 2 | 781 | 23.7 | 757.3 | 802 | 14 | 788 | 732 | 38.6 | 693.4 |
| | 5 | 552 | 17.5 | 534.5 | 587 | 13 | 574 | 565 | 26.4 | 538.6 |
| | 10 | 432 | 5.62 | 426.38 | 432 | 9.72 | 422.28 | 422 | 21.5 | 400.5 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 992 | 47.2 | 944.8 | 987 | 21.2 | 965.8 | 930 | 22.6 | 907.4 |
| | 2 | 793 | 34.2 | 758.8 | 782 | 12.6 | 769.4 | 752 | 21.05 | 730.95 |
| | 5 | 567 | 21.5 | 545.5 | 541 | 10.65 | 530.35 | 571 | 19.5 | 551.5 |
| | 10 | 421 | 12.6 | 408.4 | 422 | 8.21 | 413.79 | 417 | 18.5 | 398.5 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1001 | 64.2 | 936.8 | 995 | 22 | 973 | 951 | 32.3 | 918.7 |
| | 2 | 731 | 37.5 | 693.5 | 781 | 11.9 | 769.1 | 735 | 25.9 | 709.1 |
| | 5 | 562 | 24.2 | 537.8 | 553 | 11.1 | 541.9 | 561 | 21.4 | 539.6 |
| | 10 | 418 | 13.5 | 404.5 | 417 | 7.23 | 409.77 | 421 | 19.8 | 401.2 |

**Applied Polymer Blend 705, PAM mixing time 2 minutes at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 957 | 74.2 | 882.8 | 965 | 101.6 | 863.4 | 972 | 127 | 845 |
| | 2 | 793 | 65.2 | 727.8 | 801 | 86.9 | 714.1 | 821 | 102 | 719 |
| | 5 | 632 | 58.2 | 573.8 | 587 | 65.9 | 521.1 | 600 | 76.2 | 523.8 |
| | 10 | 432 | 49.8 | 382.2 | 397 | 63.8 | 333.2 | 441 | 72.9 | 368.1 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 985 | 92.6 | 892.4 | 992 | 127.5 | 864.5 | 935 | 101 | 834 |
| | 2 | 802 | 76.5 | 725.5 | 829 | 95.6 | 733.4 | 750 | 87 | 663 |
| | 5 | 612 | 62.5 | 549.5 | 622 | 81.6 | 540.4 | 601 | 72.9 | 528.1 |
| | 10 | 422 | 52.9 | 369.1 | 417 | 76.5 | 340.5 | 421 | 65.9 | 355.1 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 985 | 94.8 | 890.2 | 976 | 119 | 857 | 956 | 114 | 842 |
| | 2 | 804 | 77 | 727 | 812 | 95.6 | 716.4 | 802 | 91.6 | 710.4 |
| | 5 | 580 | 58.9 | 521.1 | 637 | 85.6 | 551.4 | 647 | 83.6 | 563.4 |
| | 10 | 422 | 51.9 | 370.1 | 422 | 72.9 | 349.1 | 422 | 72.6 | 349.4 |

**Applied Polymer Blend 705, PAM mixing time 2 minutes at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 972 | 86.7 | 885.3 | 983 | 65.4 | 917.6 | 985 | 51.6 | 933.4 |
| | 2 | 681 | 34.8 | 646.2 | 708 | 29 | 679 | 715 | 50.3 | 664.7 |
| | 5 | 452 | 22.2 | 429.8 | 422 | 41.8 | 380.2 | 429 | 37.5 | 391.5 |
| | 10 | 321 | 14.6 | 306.4 | 301 | 9.78 | 291.22 | 312 | 29.2 | 282.8 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 957 | 72.6 | 884.4 | 985 | 62.6 | 922.4 | 987 | 52.9 | 934.1 |
| | 2 | 722 | 36.5 | 685.5 | 720 | 41.6 | 678.4 | 822 | 47.6 | 774.4 |
| | 5 | 526 | 21.6 | 504.4 | 435 | 39.5 | 395.5 | 521 | 45.2 | 475.8 |
| | 10 | 422 | 17.6 | 404.4 | 322 | 17.6 | 304.4 | 403 | 39.2 | 363.8 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 951 | 75.6 | 875.4 | 992 | 72.6 | 919.4 | 985 | 56.5 | 928.5 |
| | 2 | 771 | 51.6 | 719.4 | 735 | 56.5 | 678.5 | 795 | 51.2 | 743.8 |
| | 5 | 559 | 32.6 | 526.4 | 342 | 38.6 | 303.4 | 542 | 47.6 | 494.4 |
| | 10 | 421 | 22.9 | 398.1 | 322 | 22.1 | 299.9 | 409 | 36.5 | 372.5 |

**Applied Polymer Blend 712, PAM mixing time 2 minutes at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 861 | 85.5 | 775.5 | 941 | 99.1 | 841.9 | 956 | 75.7 | 880.3 |
| | 2 | 759 | 68.6 | 690.4 | 806 | 78.4 | 727.6 | 817 | 71.2 | 745.8 |
| | 5 | 492 | 40.3 | 451.7 | 612 | 73 | 539 | 627 | 59.2 | 567.8 |
| | 10 | 403 | 35.5 | 367.5 | 432 | 61.2 | 370.8 | 428 | 53 | 375 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 950 | 107.3 | 842.7 | 973 | 119.2 | 853.8 | 987 | 99.8 | 887.2 |
| | 2 | 791 | 101.1 | 689.9 | 821 | 87.3 | 733.7 | 817 | 75.4 | 741.6 |
| | 5 | 517 | 73.7 | 443.3 | 637 | 82.4 | 554.6 | 626 | 62.4 | 563.6 |
| | 10 | 432 | 49.2 | 382.8 | 438 | 70.3 | 367.7 | 417 | 51.9 | 365.1 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 980 | 122 | 858 | 953 | 110.2 | 842.8 | 950 | 79.5 | 870.5 |
| | 2 | 741 | 97.2 | 643.8 | 731 | 85.1 | 645.9 | 792 | 65.5 | 726.5 |
| | 5 | 524 | 72.1 | 451.9 | 631 | 72.6 | 558.4 | 611 | 58.5 | 552.5 |
| | 10 | 437 | 51.6 | 385.4 | 439 | 69.4 | 369.6 | 437 | 51.6 | 385.4 |

**Applied Polymer Blend 712, PAM mixing time 2 minutes at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 901 | 107 | 794 | 922 | 80.6 | 841.4 | 957 | 91.5 | 865.5 |
| | 2 | 735 | 61.9 | 673.1 | 781 | 42.3 | 738.7 | 768 | 59.5 | 708.5 |
| | 5 | 641 | 41.7 | 599.3 | 551 | 20.4 | 530.6 | 607 | 57.4 | 549.6 |
| | 10 | 437 | 21 | 416 | 427 | 15.7 | 411.3 | 423 | 25.8 | 397.2 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 956 | 92.3 | 863.7 | 960 | 111 | 849 | 905 | 70.1 | 834.9 |
| | 2 | 754 | 75.4 | 678.6 | 812 | 75.9 | 736.1 | 692 | 42.1 | 649.9 |
| | 5 | 637 | 41.9 | 595.1 | 621 | 71.4 | 549.6 | 621 | 41.3 | 579.7 |
| | 10 | 443 | 33.1 | 409.9 | 441 | 41.2 | 399.8 | 417 | 21.7 | 395.3 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 901 | 110 | 791 | 961 | 115.2 | 845.8 | 892 | 61.2 | 830.8 |
| | 2 | 759 | 82.6 | 676.4 | 772 | 87.2 | 684.8 | 732 | 57.5 | 674.5 |
| | 5 | 621 | 65.9 | 555.1 | 612 | 76.5 | 535.5 | 612 | 51.6 | 560.4 |
| | 10 | 422 | 37.5 | 384.5 | 431 | 39.8 | 391.2 | 452 | 37.5 | 414.5 |

**Applied Polymer Blend 730, PAM mixing time 2 minutes at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1042 | 64.7 | 977.3 | 1030 | 143 | 887 | 900 | 185 | 715 |
| | 2 | 944 | 50.8 | 893.2 | 751 | 101.8 | 649.2 | 700 | 145 | 555 |
| | 5 | 625 | 25.8 | 599.2 | 530 | 92.1 | 437.9 | 534 | 124 | 410 |
| | 10 | 470 | 23.6 | 446.4 | 401 | 70.2 | 330.8 | 497 | 107.1 | 389.9 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 978 | 42.3 | 935.7 | 978 | 101 | 877 | 875 | 171 | 704 |
| | 2 | 751 | 35.1 | 715.9 | 732 | 82.3 | 649.7 | 662 | 121 | 541 |
| | 5 | 622 | 26.1 | 595.9 | 541 | 81.1 | 459.9 | 521 | 119 | 402 |
| | 10 | 431 | 21.3 | 409.7 | 427 | 77.3 | 349.7 | 432 | 97.1 | 334.9 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1022 | 44.2 | 977.8 | 1001 | 112 | 889 | 961 | 225 | 736 |
| | 2 | 922 | 36.5 | 885.5 | 759 | 100.6 | 658.4 | 781 | 201 | 580 |
| | 5 | 627 | 27.9 | 599.1 | 535 | 98.9 | 436.1 | 612 | 196 | 416 |
| | 10 | 461 | 21.2 | 439.8 | 422 | 81.2 | 340.8 | 437 | 101 | 336 |

**Applied Polymer Blend 730, PAM mixing time 2 minutes at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1052 | 73.6 | 978.4 | 1005 | 109.2 | 895.8 | 900 | 184 | 716 |
| | 2 | 910 | 28.9 | 881.1 | 861 | 80.2 | 780.8 | 654 | 153 | 501 |
| | 5 | 647 | 23.6 | 623.4 | 560 | 74.1 | 485.9 | 502 | 133 | 369 |
| | 10 | 500 | 19.1 | 480.9 | 450 | 65.9 | 384.1 | 365 | 106.5 | 258.5 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 985 | 31.2 | 953.8 | 956 | 51.2 | 904.8 | 942 | 222 | 720 |
| | 2 | 751 | 21.1 | 729.9 | 637 | 24.6 | 612.4 | 623 | 142 | 481 |
| | 5 | 621 | 17.5 | 603.5 | 527 | 21.1 | 505.9 | 507 | 131 | 376 |
| | 10 | 479 | 12.6 | 466.4 | 422 | 17.6 | 404.4 | 371 | 112 | 259 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1042 | 70.1 | 971.9 | 1045 | 141 | 904 | 956 | 225 | 731 |
| | 2 | 901 | 28.1 | 872.9 | 906 | 102 | 804 | 672 | 171 | 501 |
| | 5 | 641 | 21.2 | 619.8 | 601 | 97.2 | 503.8 | 522 | 146 | 376 |
| | 10 | 481 | 13.1 | 467.9 | 497 | 83.2 | 413.8 | 381 | 125 | 256 |

**Applied Polymer Blend 740, PAM mixing time 2 minutes at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1030 | 114 | 916 | 1035 | 119 | 916 | 1020 | 195 | 825 |
| | 2 | 832 | 84.4 | 747.6 | 837 | 87.6 | 749.4 | 751 | 154 | 597 |
| | 5 | 652 | 60.5 | 591.5 | 742 | 80.2 | 661.8 | 520 | 110 | 410 |
| | 10 | 530 | 42.4 | 487.6 | 522 | 65.7 | 456.3 | 420 | 91.2 | 328.8 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 989 | 81.2 | 907.8 | 975 | 71.6 | 903.4 | 981 | 145 | 836 |
| | 2 | 811 | 72.6 | 738.4 | 769 | 55.9 | 713.1 | 741 | 137 | 604 |
| | 5 | 637 | 52.6 | 584.4 | 622 | 41.6 | 580.4 | 539 | 122 | 417 |
| | 10 | 422 | 32.6 | 389.4 | 422 | 22.9 | 399.1 | 468 | 101 | 367 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 985 | 80.2 | 904.8 | 980 | 65.2 | 914.8 | 985 | 165 | 820 |
| | 2 | 812 | 69.2 | 742.8 | 755 | 51.9 | 703.1 | 762 | 157 | 605 |
| | 5 | 622 | 42.6 | 579.4 | 615 | 32.9 | 582.1 | 525 | 119 | 406 |
| | 10 | 412 | 35.2 | 376.8 | 429 | 24.6 | 404.4 | 468 | 111 | 357 |

**Applied Polymer Blend 740, PAM mixing time 2 minutes at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1032 | 57.7 | 974.3 | 995 | 66.3 | 928.7 | 937 | 128 | 809 |
| | 2 | 792 | 24.5 | 767.5 | 762 | 49.2 | 712.8 | 765 | 101.7 | 663.3 |
| | 5 | 670 | 22.9 | 647.1 | 570 | 46.5 | 523.5 | 520 | 88.5 | 431.5 |
| | 10 | 460 | 6.45 | 453.55 | 420 | 37.2 | 382.8 | 400 | 72.6 | 327.4 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1012 | 41.6 | 970.4 | 987 | 59.5 | 927.5 | 1003 | 201 | 802 |
| | 2 | 755 | 31.6 | 723.4 | 711 | 42.6 | 668.4 | 739 | 132 | 607 |
| | 5 | 581 | 27.5 | 553.5 | 535 | 22.6 | 512.4 | 522 | 92.6 | 429.4 |
| | 10 | 401 | 11.2 | 389.8 | 402 | 14.6 | 387.4 | 383 | 61.6 | 321.4 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1019 | 45.2 | 973.8 | 1001 | 72.6 | 928.4 | 991 | 191 | 800 |
| | 2 | 791 | 26.5 | 764.5 | 719 | 41.6 | 677.4 | 802 | 155 | 647 |
| | 5 | 622 | 14.6 | 607.4 | 522 | 31.6 | 490.4 | 617 | 141 | 476 |
| | 10 | 452 | 7.6 | 444.4 | 406 | 13.2 | 392.8 | 461 | 129.9 | 331.1 |

**Ciba, PAM mixing time 2 minutes at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1030 | 92 | 938 | 954 | 89.3 | 864.7 | 805 | 118 | 687 |
| | 2 | 888 | 81.2 | 806.8 | 837 | 66 | 771 | 650 | 88.6 | 561.4 |
| | 5 | 617 | 41.9 | 575.1 | 570 | 54.7 | 515.3 | 490 | 82.9 | 407.1 |
| | 10 | 450 | 35.1 | 414.9 | 423 | 49.2 | 373.8 | 340 | 75 | 265 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 967 | 37.5 | 929.5 | 958 | 91.2 | 866.8 | 922 | 231 | 691 |
| | 2 | 841 | 26.5 | 814.5 | 793 | 60.1 | 732.9 | 745 | 197 | 548 |
| | 5 | 607 | 23.2 | 583.8 | 540 | 47.1 | 492.9 | 592 | 142 | 450 |
| | 10 | 431 | 20.1 | 410.9 | 407 | 32.6 | 374.4 | 412 | 109 | 303 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 970 | 41.6 | 928.4 | 968 | 105 | 863 | 909 | 221 | 688 |
| | 2 | 759 | 22.3 | 736.7 | 792 | 65.2 | 726.8 | 756 | 205 | 551 |
| | 5 | 552 | 12.6 | 539.4 | 562 | 51.2 | 510.8 | 601 | 159 | 442 |
| | 10 | 422 | 10.25 | 411.75 | 422 | 47.1 | 374.9 | 411 | 129 | 282 |

**Ciba, PAM mixing time 2 minutes at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1032 | 67 | 965 | 990 | 81.3 | 908.7 | 900 | 92.2 | 807.8 |
| | 2 | 802 | 42.7 | 759.3 | 821 | 43.6 | 777.4 | 676 | 75.4 | 600.6 |
| | 5 | 640 | 37.9 | 602.1 | 582 | 36.8 | 545.2 | 501 | 66.8 | 434.2 |
| | 10 | 448 | 11.7 | 436.3 | 438 | 33.8 | 404.2 | 360 | 59.6 | 300.4 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 984 | 41.2 | 942.8 | 967 | 55.6 | 911.4 | 939 | 134 | 805 |
| | 2 | 743 | 32.1 | 710.9 | 811 | 32.6 | 778.4 | 751 | 121 | 630 |
| | 5 | 635 | 24.6 | 610.4 | 601 | 29.9 | 571.1 | 591 | 102 | 489 |
| | 10 | 429 | 19.1 | 409.9 | 435 | 26.8 | 408.2 | 451 | 91.2 | 359.8 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 991 | 42.6 | 948.4 | 975 | 65.6 | 909.4 | 942 | 141 | 801 |
| | 2 | 762 | 31.1 | 730.9 | 822 | 45.8 | 776.2 | 809.3 | 139 | 670.3 |
| | 5 | 625 | 17.3 | 607.7 | 624 | 39.9 | 584.1 | 621 | 129 | 492 |
| | 10 | 441 | 10.6 | 430.4 | 440 | 32.1 | 407.9 | 455 | 107.5 | 347.5 |

**A-100, PAM mixing time 2 minutes at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 982 | 42.2 | 939.8 | 975 | 128 | 847 | 979 | 127 | 852 |
| | 2 | 821 | 33.3 | 787.7 | 831 | 77.9 | 753.1 | 827 | 106.8 | 720.2 |
| | 5 | 607 | 28.8 | 578.2 | 621 | 61.9 | 559.1 | 607 | 90.6 | 516.4 |
| | 10 | 439 | 24.4 | 414.6 | 451 | 46.1 | 404.9 | 445 | 87.1 | 357.9 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 987 | 49.2 | 937.8 | 998 | 142 | 856 | 984 | 138 | 846 |
| | 2 | 819 | 31.2 | 787.8 | 845 | 87.9 | 757.1 | 822 | 111 | 711 |
| | 5 | 601 | 24.9 | 576.1 | 632 | 73.5 | 558.5 | 609 | 92.9 | 516.1 |
| | 10 | 422 | 21.1 | 400.9 | 439 | 41.2 | 397.8 | 438 | 81.9 | 356.1 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 992 | 51.2 | 940.8 | 979 | 125 | 854 | 993 | 145 | 848 |
| | 2 | 822 | 35.9 | 786.1 | 835 | 79.5 | 755.5 | 837 | 121 | 716 |
| | 5 | 619 | 35.1 | 583.9 | 619 | 63.5 | 555.5 | 619 | 101.2 | 517.8 |
| | 10 | 442 | 27.1 | 414.9 | 451 | 47.1 | 403.9 | 449 | 89.8 | 359.2 |

**A-100, PAM mixing time 2 minutes at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 985 | 30.9 | 954.1 | 992 | 56.9 | 935.1 | 955 | 119 | 836 |
| | 2 | 825 | 26 | 799 | 807 | 42.9 | 764.1 | 813 | 86.7 | 726.3 |
| | 5 | 636 | 14.3 | 621.7 | 612 | 38.4 | 573.6 | 624 | 84.9 | 539.1 |
| | 10 | 450 | 8.14 | 441.86 | 443 | 32.3 | 410.7 | 445 | 69.1 | 375.9 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 999 | 39.2 | 959.8 | 997 | 61.2 | 935.8 | 987 | 142 | 845 |
| | 2 | 837 | 34.2 | 802.8 | 822 | 53.1 | 768.9 | 822 | 102 | 720 |
| | 5 | 649 | 19.4 | 629.6 | 622 | 45.9 | 576.1 | 635 | 87.9 | 547.1 |
| | 10 | 452 | 12.8 | 439.2 | 458 | 41.1 | 416.9 | 451 | 73.9 | 377.1 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 981 | 31.2 | 949.8 | 968 | 40.1 | 927.9 | 995 | 151 | 844 |
| | 2 | 820 | 26.5 | 793.5 | 809 | 37.5 | 771.5 | 830 | 119 | 711 |
| | 5 | 629 | 13.4 | 615.6 | 607 | 35.1 | 571.9 | 631 | 91.2 | 539.8 |
| | 10 | 442 | 9.1 | 432.9 | 441 | 31 | 410 | 451 | 81.1 | 369.9 |

**A-100-HMW, PAM mixing time 2 minutes at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1025 | 60.6 | 964.4 | 1012 | 98.6 | 913.4 | 940 | 137 | 803 |
| | 2 | 937 | 31.9 | 905.1 | 785 | 70.6 | 714.4 | 754 | 96.8 | 657.2 |
| | 5 | 647 | 29.1 | 617.9 | 565 | 58.2 | 506.8 | 568 | 86.3 | 481.7 |
| | 10 | 450 | 28.3 | 421.7 | 425 | 49.6 | 375.4 | 427 | 76.8 | 350.2 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 998 | 41.2 | 956.8 | 1001 | 95.2 | 905.8 | 985 | 165 | 820 |
| | 2 | 805 | 25.2 | 779.8 | 782 | 68.2 | 713.8 | 785 | 122 | 663 |
| | 5 | 621 | 12.6 | 608.4 | 562 | 59.2 | 502.8 | 565 | 92.3 | 472.7 |
| | 10 | 431 | 9.56 | 421.44 | 422 | 47.2 | 374.8 | 422 | 75.9 | 346.1 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 985 | 36.2 | 948.8 | 998 | 82.6 | 915.4 | 995 | 169 | 826 |
| | 2 | 775 | 22.1 | 752.9 | 772 | 61.5 | 710.5 | 792 | 135 | 657 |
| | 5 | 560 | 10.2 | 549.8 | 542 | 42.6 | 499.4 | 601 | 105 | 496 |
| | 10 | 421 | 7.21 | 413.79 | 420 | 39.5 | 380.5 | 426 | 79.8 | 346.2 |

**A-100-HMW, PAM mixing time 2 minutes at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1012 | 74.5 | 937.5 | 980 | 86.9 | 893.1 | 922 | 131 | 791 |
| | 2 | 893 | 25.3 | 867.7 | 772 | 56.9 | 715.1 | 725 | 115 | 610 |
| | 5 | 620 | 21.7 | 598.3 | 583 | 50.2 | 532.8 | 545 | 91.8 | 453.2 |
| | 10 | 449 | 8.91 | 440.09 | 422 | 42.6 | 379.4 | 424 | 80.4 | 343.6 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 987 | 60.1 | 926.9 | 998 | 102.6 | 895.4 | 938 | 141 | 797 |
| | 2 | 795 | 20.1 | 774.9 | 792 | 81.2 | 710.8 | 765 | 131 | 634 |
| | 5 | 587 | 12.6 | 574.4 | 592 | 61.2 | 530.8 | 561 | 112 | 449 |
| | 10 | 436 | 9.87 | 426.13 | 426 | 49.2 | 376.8 | 427 | 92.1 | 334.9 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1002 | 70.1 | 931.9 | 987 | 91.2 | 895.8 | 946 | 152 | 794 |
| | 2 | 812 | 22.3 | 789.7 | 775 | 62.5 | 712.5 | 745 | 129 | 616 |
| | 5 | 569 | 13.2 | 555.8 | 582 | 52.6 | 529.4 | 561 | 110.3 | 450.7 |
| | 10 | 422 | 8.21 | 413.79 | 421 | 45.6 | 375.4 | 422 | 81.6 | 340.4 |

**A-120, PAM mixing time 2 minutes at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1041 | 71.8 | 969.2 | 1012 | 122 | 890 | 900 | 166 | 734 |
| | 2 | 902 | 47.5 | 854.5 | 850 | 96.3 | 753.7 | 752 | 128 | 624 |
| | 5 | 610 | 44.7 | 565.3 | 612 | 77.4 | 534.6 | 561 | 109.5 | 451.5 |
| | 10 | 422 | 34.7 | 387.3 | 440 | 65.1 | 374.9 | 412 | 96.7 | 315.3 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1031 | 63.2 | 967.8 | 989 | 102 | 887 | 959 | 201 | 758 |
| | 2 | 897 | 41.2 | 855.8 | 843 | 91.6 | 751.4 | 781 | 159 | 622 |
| | 5 | 592 | 32.6 | 559.4 | 598 | 71.6 | 526.4 | 575 | 122 | 453 |
| | 10 | 421 | 29.9 | 391.1 | 431 | 61.2 | 369.8 | 429 | 102.2 | 326.8 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1017 | 59.5 | 957.5 | 1011 | 120 | 891 | 1002 | 219 | 783 |
| | 2 | 869 | 32.6 | 836.4 | 843 | 92.6 | 750.4 | 802 | 172 | 630 |
| | 5 | 582 | 28.9 | 553.1 | 598 | 71.5 | 526.5 | 598 | 122 | 476 |
| | 10 | 435 | 25.2 | 409.8 | 426 | 59.8 | 366.2 | 439 | 112 | 327 |

**A-120, PAM mixing time 2 minutes at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1021 | 106 | 915 | 1017 | 129 | 888 | 971 | 219 | 752 |
| | 2 | 871 | 49.7 | 821.3 | 820 | 118 | 702 | 814 | 184 | 630 |
| | 5 | 650 | 17.2 | 632.8 | 620 | 103.9 | 516.1 | 584 | 164 | 420 |
| | 10 | 430 | 10.94 | 419.06 | 442 | 82.8 | 359.2 | 417 | 146 | 271 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 1014 | 98.2 | 915.8 | 989 | 102 | 887 | 1002 | 225 | 777 |
| | 2 | 822 | 45.1 | 776.9 | 798 | 91.2 | 706.8 | 826 | 206 | 620 |
| | 5 | 622 | 12.6 | 609.4 | 621 | 82.6 | 538.4 | 602 | 182 | 420 |
| | 10 | 421 | 9.87 | 411.13 | 432 | 72.9 | 359.1 | 429 | 159 | 270 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 989 | 72.3 | 916.7 | 1012 | 119 | 893 | 998 | 215 | 783 |
| | 2 | 782 | 31.2 | 750.8 | 829 | 92.6 | 736.4 | 822 | 172 | 650 |
| | 5 | 598 | 11.12 | 586.88 | 619 | 87.1 | 531.9 | 598 | 152 | 446 |
| | 10 | 419 | 7.25 | 411.75 | 431 | 79.5 | 351.5 | 435 | 132 | 303 |

**A-120-HMW, PAM mixing time 2 minutes at 80 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 964 | 68.8 | 895.2 | 828 | 172 | 656 | 900 | 222 | 678 |
| | 2 | 795 | 42.3 | 752.7 | 683 | 129 | 554 | 622 | 184 | 438 |
| | 5 | 560 | 35.8 | 524.2 | 561 | 119 | 442 | 500 | 153 | 347 |
| | 10 | 378 | 23.1 | 354.9 | 390 | 89.4 | 300.6 | 400 | 119 | 281 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 995 | 75.3 | 919.7 | 860 | 201 | 659 | 905 | 201 | 704 |
| | 2 | 802 | 51.6 | 750.4 | 671 | 151 | 520 | 638 | 175 | 463 |
| | 5 | 591 | 41.6 | 549.4 | 548 | 131 | 417 | 512 | 141 | 371 |
| | 10 | 422 | 30.9 | 391.1 | 402 | 97.2 | 304.8 | 421 | 110.2 | 310.8 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 987 | 72.6 | 914.4 | 873 | 197 | 676 | 955 | 215 | 740 |
| | 2 | 798 | 49.5 | 748.5 | 664 | 137 | 527 | 726 | 186 | 540 |
| | 5 | 572 | 37.6 | 534.4 | 534 | 121 | 413 | 549 | 159 | 390 |
| | 10 | 413 | 29.5 | 383.5 | 410 | 102.1 | 307.9 | 419 | 119.5 | 299.5 |

**A-120-HMW, PAM mixing time 2 minutes at 150 rpms**

| Rep 1 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 942 | 51.7 | 890.3 | 933 | 145 | 788 | 932 | 242 | 690 |
| | 2 | 775 | 22.7 | 752.3 | 686 | 115 | 571 | 656 | 193 | 463 |
| | 5 | 643 | 21.6 | 621.4 | 554 | 96.7 | 457.3 | 500 | 147 | 353 |
| | 10 | 440 | 15.5 | 424.5 | 430 | 83.8 | 346.2 | 402 | 140 | 262 |

| Rep 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 989 | 72.1 | 916.9 | 902 | 121 | 781 | 951 | 231 | 720 |
| | 2 | 802 | 41.2 | 760.8 | 656 | 102 | 554 | 781 | 201 | 580 |
| | 5 | 659 | 39.5 | 619.5 | 521 | 81.2 | 439.8 | 607 | 178 | 429 |
| | 10 | 423 | 21.2 | 401.8 | 419 | 76.5 | 342.5 | 447 | 159 | 288 |

| Rep 3 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Settling Time (minutes) | 0 ppm PAM | 1 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 5 ppm PAM | Total Turbidity Reduction | 0 ppm PAM | 10 ppm PAM | Total Turbidity Reduction |
| | 0.5 | 955 | 51.6 | 903.4 | 935 | 141 | 794 | 975 | 241 | 734 |
| | 2 | 781 | 29.5 | 751.5 | 671 | 121 | 550 | 802 | 216 | 586 |
| | 5 | 652 | 25.1 | 626.9 | 512 | 87.2 | 424.8 | 622 | 189 | 433 |
| | 10 | 431 | 17.2 | 413.8 | 407 | 71.6 | 335.4 | 438 | 141 | 297 |

# APPENDIX K

Listing of SAS Programs Used to Analyze Turbidity Reductions

**SAS program to analyze total turbidity reductions**

```
proc contents data=mydata varnum; run;

*this step creates the difference score;
data use; set mydata;
diff=initial_turbidity-turbidity;
run;

%include 'c:\DandA_3.sas';

options ls=76 nodate nonumber errors=1;
title 'Excel Spreadsheet Title';
%mmaov(use,diff,class=concentration mix_time energy form,
        fixed=concentration*mix_time*energy*form);
```

SAS program if the 4-way interaction was not significant, the three-way interactions were ran using the code that follows;

```
options ls=72 nodate nonumber errors=1;
title 'aps702, 2000';
%mmaov(use,diff,class=concentration mix_time energy form,
        fixed=concentration*mix_time*energy
            concentration*mix_time*form
                                concentration*energy*form
                                mix_time*energy*form);
```

SAS program to run descriptive stats on the original turbidity measures and the difference score;

```
proc sort data=use; by concentration mix_time;
proc means data=use mean std maxdec=2;
class energy form settling_time;
var turbidity initial_turbidity;
by concentration mix_time;
run;

proc sort data=use; by concentration mix_time;
proc means data=use mean std maxdec=2;
class energy form settling_time;
var diff;
by concentration mix_time;
run;
```

SAS program if the Levene P  shows un-equal variance, the rank transformation were ran using the code that follows;

runs proc rank on variable named ???,creates new rank variable
  named r???, outputs new dataset named rranks;

```
proc rank data=use out=rranks;
  var diff;
  ranks rdiff;
run;
options ls=72 nodate nonumber errors=1;
title 'DATA SHEET';
%mmaov(rranks,rdiff,class=concentration mix_time energy form,
        fixed=concentration*mix_time*energy*form); run;
```

# VITA

Kenton Michael Brotherton was born in Greeneville, Tennessee March 30, 1982. He grew up on a farm in the community of Romeo, Tennessee. He attended Mosheim Elementary and West Greene High School, both in Mosheim, Tennessee. He graduated from West Greene in May of 2000. He received his Bachelor of Science degree in Environmental and Soil Science, with a concentration in Environmental Science from the University of Tennessee, Knoxville in December of 2004. In August of 2005 he entered the Master's program at the University of Tennessee in the Department of Biosystems Engineering and Soil Science, pursuing a Master of Science in Biosystems Engineering Technology. The Master's degree was awarded in August of 2007.