



PRICE AND COMPANY, INC.

# KEY NOTES

Geopro<sup>®</sup> Learning Tool

April 22, 2002

## PAM Use In Hydraulic Spray Equipment

When properly selected and applied, polyacrylamide [PAM] binders provide outstanding performance. This **KeyNote** focuses on how to use PAM's in conjunction with hydraulic mulching and seeding equipment, one of the primary methods for applying this useful erosion control management practice.

### What PAM's Accomplish

1. Agglomerates near-surface soil particles to result in NO solubilized soil or colloid formation within runoff [runoff is clear, not turbid].
2. Increases infiltration rates, thereby improving germination rate and speed as well as enhancing early chute growth.
3. Reduces runoff and the ensuing sheet flow erosion stresses.
4. Binds soil, seed, fertilizer, soil amendments and hydraulic mulches into an effective, highly permeable cover, protecting its components and underlying soils from both impact and sheet flow erosion stresses.
5. Chelates cationic ions to adjacent soil particles, keeping useful ions where they are needed for plant growth and harmful ions from solubilizing.
6. Reduces pesticide and fertilizer loss during rain events.
7. Reduces dust formation.

### Characteristics of PAM Covers

1. **Durable:** Typically perform for 2 to 4 months; well beyond the germination and critical, early plant growth period.
2. **Permeable:** Remain permeable, enabling the transfer of both liquids and

gases.

3. **Flexible:** Maintain ability to expand and contract with underlying soil movements; critical for use in Northern climates.
4. **Rapid Protection:** Provide performance immediately – no curing needed. The only restriction - PAM covers must be deployed over unfrozen soils.
5. **Self Healing:** As plant chutes penetrate, PAM covers re-form during next rain or sprinkling event.

Achievement in developing these characteristics and benefits is dependent on matching the appropriate PAM with site soil conditions. PAM's work via chemical interaction with soils, free ions and anilities. Soils of differing lithologies require PAM's having differing molecular weights and charge densities. In other words, a particular PAM may work well with a clay 'C' horizon soil but offer little or no performance for an organic loam.

Matching site soil needs to PAM capabilities is relatively easy, involving simple bench tests that can usually be conducted at Price and Company, Inc. or on the project. A one [1] cup soil sample is sufficient for performing these tests. For best results, *Price and Company, Inc.* suggests these tests be performed for each project.

Fortunately, two *Applied Polymer Systems, Inc. [APS]* PAM products provide suitable characteristics for nearly all of the Michigan soils treated by binders distributed by *Price and Company, Inc.* APS's **Silt Stop<sup>®</sup>** is a family of PAM's offering outstanding erosion and sediment control performance for a wide variety of soils.

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**Silt Stop® 705:** Typically used in conjunction with soils exhibiting a small to moderate organic content [topsoils].

**Silt Stop® 740:** Typically used for hydraulic mulch/seed binding and temporary erosion control of inorganic soils.

### **Silt Stop® 700 Series General Information**

Composition: Anionic polyacrylamide

Appearance: White granular powder

Bulk Density: 40-50 lbs per ft<sup>3</sup>

Percent Moisture: ≤ 15%

pH for 0.5% Solution: 6-8

Shelf Life: One year

Packaging: 50 lbs bags

Compliance: ANSI/NSF Standard 60  
drinking water treatment chemical

Compliance: EPA/600/4-90/027F 48 hr

Acute static toxicity [Daphnia Magna]

### **Silt Stop® 700 Series Application Rates**

2.6 to 10 lbs per acre: Use lower rates for flat grades or in areas of low erosion stresses. Higher rates should be used as grades or slope length increase. The maximum application rate allowed by MDEQ is 10 lbs per acre.

### **Mixing Directions**

A. *Direct Powder Introduction:* Slowly sprinkle powder into water with mixing apparatus operating. Typically, 3 to 4 minutes will be required for this step. If additional slurry 'slickness' is desired, continue to mix for an additional 5-10 minutes. Do not exceed a mix ratio of 5 lbs of **Silt Stop® 700 Series** per 1500 gallons of water. Add seed, fertilizer, mulch and other amendments per standard procedures.

B. *Pre-Mixed with Seed or Mulch:* Ask your *Price and Company, Inc.* Sales Representative about having **Silt Stop® 700 Series** pre-mixed with your seed or mulch. For pre-mixed applications, add to water with mixing apparatus operating per standard procedures. If additional slurry 'slickness' is desired, continue mixing 5-10 minutes before application.

### **Precautions / Clean-Up / Limitations**

Prevent inhalation of powder via use of adequate dust mask.

Clean spills quickly. Spilled powder should be removed, as best as possible, using a broom, dry cloth or vacuum. **Caution - Adding water can create an extremely slippery condition.**

In the event of skin contact, wash powder from skin using soap and water.