

STORM WATER TRAINING TOPIC:

The use of a PAM Product for Soil Stabilization



Introduction

Anionic Polyacrylamide (PAM) is a non-toxic chemical material that is used to control soil erosion and sedimentation on construction sites. When PAM is used in conjunction with conventional erosion and sediment controls (seed, mulch, perimeter controls, sediment basins, etc.) it can be a safe, effective, and economical best management practice (BMP).

Background

PAM is a generic term for long-chain organic polymers developed to facilitate erosion control and clarify drinking water. Applying PAM to soil can reduce sheet erosion by helping to stabilize soils and remove fine suspended sediments from stormwater runoff at construction sites. Research and testing on the product PAM has demonstrated that occupational exposure to PAM is non-toxic when used as directed and is not a federally listed hazardous compound.

Reference materials

- PAM product SWPPP Insert: EarthGuard Example Attached (Appendix A)
- Manufacturer's Safety Data Sheet (Appendix A)
- DOT&PF BMP 51.00 (Hydraulic Erosion Control Products (HECP))
- Construction General Permit (CGP) Sections 4.6.1.7, 4.6.2.3.4 and 5.8.2.7

Training items covered

- This training is specifically for the application of anionic or nonionic PAM products, which are nontoxic to plant and animal life.
- This training will *not* cover cationic PAM which is highly toxic to aquatic life and is prohibited with the Alaska DEC Construction General Permit (CGP).
- This training will reference "PAM" in two methods:
 1. "PAM emulsion" represents a PAM media (e.g. dry granular, liquid emulsion, or premixed mulch bail packaged from the manufacturer) has been mixed in a mulch slurry.
 2. "PAM alone" represents a PAM media will be applied, diluted in water without a mulch.
- This training will discuss the land application of PAM for enhance performance with a mulch when applied directly to slopes, and other exposed soil surfaces for soil stabilization. However, there are PAM products available that may be applied alone with no mulch additive.
- This training is *not* intended for water application of a PAM product. An example of a water application would be adding a FLOC-BLOCKS directly instream to treat suspended sediment.
- Document the names of the training participants using the project SWPPP Training Log 25D-125.

Question and Answer: CGP Requirements for the use of Anionic Polyacrylamide (PAM)

Q1. When does the CGP consider a PAM product to be a land application treatment chemical?

Answer: When anionic PAM arrives at the job site as a raw stand-alone product, it is categorized as a land application treatment chemical under the CGP Part 4.6.3.1.

Stand-alone products that will be mixed with a mulch onsite have a greater potential for spillage and improper mix ratios.



Q2. When is a PAM product not considered a land application treatment chemical by the CGP?

Answer: If the PAM product comes in a premixed bale from the manufacturer or is premixed with mulch offsite before it arrives on the project, it is not considered a land application treatment chemical by the CGP.



Q3. When should the box for treatment chemicals on the project's NOI be checked "yes"?

Answer: If a treatment chemical is brought on-site in a raw form (liquid or granular) and is either mixed with a mulch or similar material on-site or used as a stand-alone product, then the project must check "yes" for Treatment Chemicals when apply for an NOI.

If a project's original NOI has checked "no" for treatment chemicals but the project now plans to use stand-alone or raw PAM as described above, an NOI Modification (Mod) must be filed and the box for treatment chemicals on the project's NOI must be checked "yes." In addition to filing the NOI mod, the manufactures specifications for the treatment chemical must be amended into the project's SWPPP.

Q4. When should the box for treatment chemicals on the project's NOI be checked "no"?

Answer: Check "no" if (1) the PAM product is stored and mixed as an emulsion offsite, or (2) if the PAM product is prepackaged as a mulch bale at the manufacturer.

Note: prepackaged bales may be stored on the project site.

Application

Apply a PAM method to sites with problem soils in accordance with the manufacturer's guidelines and to comply with the Alaska CGP, and the Multi Sector General Permit (MSGP).

PAM emulsion may be applied in areas with high amounts of fine silt, clay, or colloidal soils. PAM emulsions are useful where the timely establishment of vegetation may not be feasible, is absent or inadequate, or where topographic conditions, construction activities, or other forces

limit the utility of conventional temporary sediment control practices alone. Consider using a PAM emulsion on:

- Slopes
- Sites for winter shutdown (only when mixed with a mulch to enhance performance)
- Soil stockpiles
- Areas requiring temporary or permanent stabilization
- Disturbed areas that have not been adequately stabilized with vegetation

PAM alone may also be applied in areas with high amounts of fine silt, clay, or colloidal soils. PAM alone is generally best suited for short-term stabilization. Consider using PAM alone on:

- Soil stockpiles
- Areas requiring temporary stabilization (manufacturer's specifications for the specific PAM product used will determine the length of time it can be expected to function)
- Slopes for temporary stabilization
- Staging areas
- Final graded soils that must be temporarily stabilized while awaiting final stabilization (e.g. paving, planting, mulching)

Handling and Loading Instructions:

- Comply with permit requirements prior to application (CGP Section 4.6 and MSGP Section 11.G.4.5)
- Remove any pre-existing rills and gullies before applying a PAM mulch slurry.
- Track-walking or some other soil imprinting device is recommended to roughen the slope before application.
- Physical control measures, such as rolled erosion control products, ditch check dams, or sediment basins should be applied prior to the application of PAM, if selected, and should be installed on steep slope contour perpendicular to the flow of water (CGP 4.6.2.2).
- Caution should be taken to avoid creating puddles or runoff. It is recommended that the slurry is sprayed from multiple directions and angles to ensure proper coverage.
- When applying a PAM product to soil ensure the product is not applied into nearby waters.
- Use setbacks when applying PAM near natural waterbodies.
- A polyacrylamide PAM additive (granular or liquid) shall not be applied to frozen soils or soils that have ice present.
- Treated areas shall not be disturbed after application.
- A PAM product, combined with water, is very slippery and can be a safety hazard. Care must be taken to prevent over spray from reaching pavement, as pavement will become slippery.

Disposal:

- PAM must *never* be disposed of directly into storm sewers or receiving waters.
- If a spill occurs with a granular PAM, or a liquid PAM, clean up promptly by scoop or vacuum.
- Rinse all PAM mixing and application equipment thoroughly with water to avoid formation of PAM residues.

Storage for liquid or granular PAM products:

- PAM product must be stored in a leak proof container under a storm-resistant cover or surrounded by secondary containment structures (CGP 4.6.2.4).
- Keep granular PAM stored out of the sun as it will lose its effectiveness if exposed to sunlight over a period of three months (depending on the PAM product).
- Store along with other soil amendments (fertilizer, mulch, etc.) with conventional seeding, mulching, or irrigation equipment.
- Store PAM product away from waterways.
- A polyacrylamide PAM additive either granular or liquid can be stored for 12 months and must be stored in a dry insulated location to avoid moisture and freezing.

PAM Safety Data Sheet (SDS) Information

- Anionic or nonionic PAM products are nontoxic to plant and animal life.
- The SDS can be found in the SWPPP Appendix P-*Treatment Chemical/Active Systems*.

PAM Safety Data Sheet

Note to Trainer: Hold up the SDS to explain the safety sections.

Section numbers to point out and discuss with group:

Generic Example (not the PAM label)



APPENDIX A



SWPPP Insert for:

Temporary Soil Stabilization
A Rain Event Action Plan (REAP) BMP

OR

Pad & Flat Area Winterization BMP

Definition: EarthGuard is a temporary erosion control system that stabilizes soil by maintaining existing soil structure and by settling out any fine sediment that may get dislodged by stormwater or wind.

The use of stabilizers for soil stabilization/erosion control does not require an Active Treatment Plan (ATS) according to the State Regional Water Quality Control Board.

Temporary Soil Stabilization A Rain Event Action Plan (REAP) BMP:

Function: EarthGuard is used is to immediately stabilize active and inactive construction sites, pads, roads, slopes and stockpiles for impending rain events. EarthGuard is specifically designed to work with all soil types to reduce soil movement and turbidity, helping maintain compliance with environmental regulations.

Recommended application rates:

Slope	EarthGuard (gal/ac)	Water (gal/ac)
≤ 4:1	3	<ul style="list-style-type: none"> • As required to properly cover 1 ac of area. • Spray Rig ≥ 1500 gal/ac • Water Truck ≥ 2000 gal/ac
3:1	4	
2:1	5	
1.5:1	6	
1:1	8	
Stockpiles	10	

Pad & Flat Area Winterization BMP:

Function: EarthGuard is used is to provide extended erosion control protection on inactive pads, flat areas and roadway cuts. EarthGuard is specifically designed to work with all soil types to reduce soil movement and turbidity, helping maintain compliance with environmental regulations.

Recommended application rates:

Time (months)	EarthGuard (gal/ac)	Water (gal/ac)
1-2	3-5	<ul style="list-style-type: none"> • As required to properly cover 1 ac of area. • Spray Rig ≥ 1500 gal/ac • Water Truck ≥ 2000 gal/ac
2-3	5-8	
3-6	8-10	
6-12	10-15	
+ Application Rates dependent on anticipated precipitation throughout duration of required protection		

Installation Instructions: Soil preparation is not required and EarthGuard can be applied over existing vegetation. Simply add EarthGuard to a water truck, hydroseeder or spray rig and apply to disturbed soil for immediate erosion protection. Make multiple applications if necessary to avoid over saturation and the creation of run-off. EarthGuard is active immediately and will not harm equipment.



For technical services or to locate your nearest EarthGuard® dealer: call 1-888-843-1029
Visit Terra Novo online at: earthguard.com
Terra Novo is located at: 2930 Patton Way, Bakersfield, CA 93308





Terra Novo.
Innovative Solutions For The Greener Good



EarthGuard Liquid Application Rates

		Minimum Dilution Rate: 1 gal of EarthGuard/600 gals of Water				Minimum Mixture Solution Required to Cover 1 Acre: 3000 gal/ac			
		SINGLE APPLICATION		SINGLE APPLICATION		SINGLE APPLICATION		SINGLE APPLICATION	
Water Truck Tank Size (gal)	EarthGuard Application Rate (gal/ac)	EarthGuard (gal/load)	Area Covered per Load (sq ft)	EarthGuard Application Rate (gal/ac)	EarthGuard (gal/load)	Area Covered per Load (sq ft)	EarthGuard Application Rate (gal/ac)	EarthGuard (gal/load)	Area Covered per Load (sq ft)
1,500	3	1.5	21,780	4	2.0	21,780	5	2.5	21,780
2,000	3	2.0	29,040	4	2.7	29,040	5	3.3	29,040
2,500	3	2.5	36,300	4	3.3	36,300	5	4.2	36,300
3,000	3	3.0	43,560	4	4.0	43,560	5	5.0	43,560
3,500	3	3.5	50,820	4	4.7	50,820	5	5.8	50,820
4,000	3	4.0	58,080	4	5.3	58,080	5	6.7	58,080
4,500	3	4.5	65,340	4	6.0	65,340	5	7.5	65,340
5,000	3	5.0	72,600	4	6.7	72,600	5	8.3	72,600
5,500	3	5.5	79,860	4	7.3	79,860	5	9.2	79,860
6,000	3	6.0	87,120	4	8.0	87,120	5	10.0	87,120

		REQUIRES DUAL APPLICATION					
Water Truck Tank Size (gal)	EarthGuard Application Rate (gal/ac)	EarthGuard (gal/load)	Area Covered per Load (sq ft)	EarthGuard Application Rate (gal/ac)	EarthGuard: Load 1 (gal/tank)	EarthGuard: Load 2 (gal/tank)	Area Covered per Load (sq ft)
1,500	5	2.5	21,780	6 to 10	1/2 Application Rate	1/2 Application Rate	21,780
2,000	5	3.3	29,040	6 to 10	1/2 Application Rate	1/2 Application Rate	29,040
2,500	5	4.2	36,300	6 to 10	1/2 Application Rate	1/2 Application Rate	36,300
3,000	5	5.0	43,560	6 to 10	1/2 Application Rate	1/2 Application Rate	43,560
3,500	5	5.8	50,820	6 to 10	1/2 Application Rate	1/2 Application Rate	50,820
4,000	5	6.7	58,080	6 to 10	1/2 Application Rate	1/2 Application Rate	58,080
4,500	5	7.5	65,340	6 to 10	1/2 Application Rate	1/2 Application Rate	65,340
5,000	5	8.3	72,600	6 to 10	1/2 Application Rate	1/2 Application Rate	72,600
5,500	5	9.2	79,860	6 to 10	1/2 Application Rate	1/2 Application Rate	79,860
6,000	5	10.0	87,120	6 to 10	1/2 Application Rate	1/2 Application Rate	87,120

Loading Instructions

- 1) Find Appropriate Application Rate (gal/ac) for Erosion Control Protection Service Life Required from Brochure.
- 2) From charts above, determine if a "Single Application" or "Dual Application" is required.
- 3) Begin filling tank with water.
- 4) Continue filling tank with water while slowly pouring in required amount of EarthGuard (gal/load) into incoming water stream to enhance mixing.
- 5) Once full, recirculate mixture in tank if possible to further enhance mixing.
- 6) Mark-out "Area Covered per Load" on area to be treated.
- 7) Apply mixture at rate to sufficiently cover area.
- 8) Allow area to dry so that any water puddles have dried, add second application.



ENVIRONMENTAL
PRODUCTS, LLC TM

EarthGuard Soil Stabilizer Certificate of Compliance to Alaska's Construction General Permit

- 1) (4.6.1.1) EarthGuard soil stabilizer is effective and can be used on all soil types.
- 2) (4.6.1.2) EarthGuard Safety Data Sheet included below
- 3) (4.6.1.3) All components in EarthGuard are NSF certified and G.R.A.S affirmed
- 4) (4.6.1.4) EarthGuard is approved for use for controlling erosion and sediment runoff from agricultural land and/or construction projects in CA, MM, OR, WA, WI (and many more states).
- 5) (4.6.1.5) EarthGuard is non-toxic to aquatic organisms when applied following manufacturers recommended method of use and rate applications:
 - US EPA 96 hr Acute Toxicity Test: Rainbow Trout *Non-Toxic*
 - US EPA 96 hr Acute Toxicity Test: Pimephales, Promelas and Ceriodaphnia Dubia *Non-Toxic*
 - California Title 22 Acute Bioassay Test Fat Head Minnow *Non-Toxic*
 - EPA SW 846 Method 6010b Metal and Solvents *Non-toxic*
- 6) (4.6.1.6) EarthGuard in an anionic polyacrylamide
- 7) (4.6.1.7, 4.6.2.3.3) Use and applying of EarthGuard requires no special training. See attached application chart.

2183 Pennsylvania Avenue, Apalachin, NY 13732



Safety Data Sheet- EarthGuard

Section 1: Identification

Product name:	EarthGuard 
Product use:	Processing aid for industrial application
Company:	LSC Environmental Products, LLC 2183 Pennsylvania Ave., Apalachin, NY 13732 800-800-7671
Emergency contact:	CHEMTREC 1-800-424-9300

Section 2: Hazard(s) Identification

Chemical classification:	Not applicable.
Potential health effects:	Eye: May cause eye irritation with susceptible persons. Skin: slightly irritating
Potential physical/chemical effects:	Spills produce extremely slippery surfaces.

Section 3: Composition / Information on Ingredients

Chemical name:	Anionic water-soluble polymer in emulsion.
CAS number:	Not applicable.
Regulated components:	None

Section 4: First-Aid Measures

Inhalation:	Move to fresh air immediately. No hazards which require
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	special first-aid measures.
Skin contact:	Wash off immediately with soap and plenty of water. Seek medical attention if irritation develops and persists.
Eye contact:	Rinse thoroughly with plenty of water, also under eyelids. Seek medical attention if irritation develops and persists.
Ingestion:	Rinse mouth with water. Do not induce vomiting. Seek medical attention immediately.

Section 5: Fire-Fighting Measures

Suitable extinguishing media:	Water. Water Spray. Foam. Carbon dioxide (CO ₂). Dry powder.
Precautions:	Spills produce extremely slippery surfaces.
Special protective equipment:	No special protective equipment required.
Flash point (°C):	Does not flash.
Auto ignition temperature (°C):	Does not ignite.

Section 6: Accidental Release Measures

Personal precautions:	No special precautions required. Wear adequate personal protective equipment (see Section 8: Exposure controls/personal protection). Keep people away from spill/leak.
Environmental precautions:	As with all chemical products, do not flush into surface water.
Methods for cleaning up:	Do not flush with water. Dam up. Soak up water with inert absorbent material. If liquid has been spilled in large quantities, clean up promptly by scoop or vacuum. Keep suitable and closed containers for disposal. <u>After cleaning, flush away traces with water.</u>



Section 7: Handling and Storage

Handling:	Safe Handling advice: Avoid contact with skin and eyes. When preparing the working solutions ensure there is adequate ventilation. When using do not smoke.
Storage:	Keep in a cool, dry place (0 – 30 °C). Keep away from heat and sources of ignition. Freezing will affect the physical condition and may damage the material.

Section 8: Exposure Controls / Personal Protection

Hygiene measures:	Handle in accordance with good industrial hygiene and safety practice. When using do not eat, drink or smoke. Wash hands before breaks and at the end of workday.
Engineering measures:	Use local exhaust if misting occurs. Natural ventilation is adequate in absence of mists.
Personal protective equipment:	Respiratory protection: Not required; except in case of aerosol formation. Hand protection: PVC or other plastic material gloves. Eye protection: Safety glasses with side-shields. Do not wear contact lenses where this product is used. Skin and body protection: Chemical resistant apron or protective suit if splashing or repeated contact with solution is likely.

Section 9: Physical and Chemical Properties

Form:	Viscous liquid
Color:	Milky
Odor:	Aliphatic
pH:	6 – 8 @ 5 g/1
Specific Gravity:	1.05



Melting point/range:	Not applicable
Flash point:	Not applicable
Auto ignition temperature (°C):	Not applicable
Vapor pressure (mm Hg):	0,002 @ 20°C
Bulk viscosity:	1200
Kinematic viscosity @ 40°C (mm² / s):	>>20.5

Section 10: Stability and Reactivity

Stability:	Hazardous polymerization does not occur. Stable.
Materials to avoid:	Oxidizing agents may cause exothermic reactions.
Hazardous decomposition products:	Thermal decomposition may produce. Nitrogen oxides (NO _x). Carbon dioxides (CO _x).

Section 11: Toxicological Information

Acute toxicity:	Oral: LD50 / oral / rat > 5000 mg/kg. Dermal: LD50 / dermal / rat > 5000 mg/kg.
Inhalation:	The product is not expected to be toxic by inhalation.
Irritation:	Skin: Slightly irritating. Eyes: May cause eye irritation with susceptible persons.
Sensitization:	Not sensitizing.
Chronic toxicity:	No chronic effects.

Section 12: Ecological Information



Aquatic toxicity:	
Toxicity to fish:	LC50/Danio rerio (Zebra fish)/96 hours > 100 mg/L (OECD 203). /96 hours > 100 mg/l, (OECD 203).
Toxicity to daphnia:	EC50/Daphnia magna (Water flea)/48 hours > 100 mg/L (OECD 202).
Toxicity to algae:	EC50/Scenedesmus subspicatus (Green algae)/72 hours > 100 mg/L (OECD201).
Persistence and degradability:	Not readily biodegradable.
Hydrolysis:	Does not hydrolyze.

Section 13: Disposal Considerations

Disposal:	Dispose of in accordance with local, state and federal regulations.
Container:	Rinse empty containers with water and use the rinse water to prepare the working solution. Can be landfilled or incinerated, when in compliance with local, state and federal regulations.

Section 14: Transportation Information

DOT:	Remarks: Not classified as dangerous in the meaning of DOT regulations.
IMDG/IMO:	Remarks: Not classified as dangerous in the meaning of IMO/IMDG regulations.
ICAO/IATA:	Remarks: Not classified as dangerous in the meaning of ICAO/IATA regulations.

Section 15: Regulatory Information



US SARA Reporting Requirements:	SARA (Section 311/312) hazard class: Not concerned.
International Inventories USA (TSCA):	All components of this product are either listed on the inventory or are exempt from listing.
Canada (DSL):	All components of this product are either listed on the inventory or are exempt from listing.

Section 16: Other Information

Date of any revisions of changes:	SDS created on 11/14/13 SDS modified on 4/21/16
NFPA and HMIS Ratings:	A diamond-shaped hazard diamond with four colored quadrants: top (red) contains the number 1, left (blue) contains the number 1, right (yellow) contains the number 0, and bottom (white) is empty.
NFPA:	Health: 1 Flammability: 1 Instability: 0
HMIS:	Health: 1 Flammability: 1 Physical Hazard: 0



EarthGuard: Eco-Guardian and Eco-Friendly

EarthGuard® is a spray-on erosion control/re-vegetation product designed to work on the atomic level with soil to maintain its stability by both preserving its structure and conjoining individual aggregates along the surface. **EarthGuard** prevents the damaging effects of erosion from impacting watersheds downstream while being non-toxic and eco-friendly to the environment.

Various studies on the efficacy and eco-friendliness have been conducted on **EarthGuard**. These studies include:

Study	Results
Texas DOT Erosion Control Testing	99.8% Effective after 5.25" of rain in 90 min. C Factor = 0.002
AASHTO Large Scale Erosion Control Testing	99.9% Effective after 20 min 2" rain event followed by 20 min of a 4" rain event and then by 20 min of a 6" rain event. C Factor = .001
California DOT Erosion Control Testing	99.5% Effective after 4" of rain in 200 min. C Factor = 0.005
Germination Enhancement: ASTM D 7322	657% in growth over bare soil plot.
California DOT Environmental Field Study	No product related export found in effluent.
California DOT Water Quality Handbook	EarthGuard does not discharge pollutants and water quality sampling and analysis is not required.
Water Holding Capacity: ASTM D 7367	1349
US EPA 2012 Construction General Permit	The use of PAM (EarthGuard) has shown minimal toxicity even at 10 times the normal erosion control concentration, 10 ppm or 100 ppm. EarthGuard at its heaviest application rate is 1 ppm
US EPA 96-hr Acute Toxicity Test: Rainbow Trout	Non-toxic
US EPA 96-hr Acute Toxicity Test: Pimephales Promelas and Ceriodaphnia Dubia	Non-toxic
California Title 22 Acute Bioassay Test: Fathead Minnow	Non-toxic
EPA SW 846 Method 6010b Metals and Solvents	Non-toxic
NSF Drinking Water Standards	All components of EarthGuard meet the National Sanitation Foundation Standards for use in drinking water clarification.
Cure Time	Active Immediately
Biodegradability	100% Biodegradable
USDA Application Recommendations	The use of PAM (EarthGuard) should be limited to 200 lb/ac/yr. EarthGuard at its heaviest application rate is equates to 25 lb/ac/yr.



REAP

Rain Event Action Plan

EarthGuard's advantage.

- Actively controls turbidity
- Inexpensive application
- Environmentally friendly
- Can be applied over existing vegetation
- Low application rates: 3-10 gal per acre
- Easy handling and storage
- Packaged in 5 gallon pails

Rain Event Action Plan

Recommended Application Rates:

SLOPE	gal/acre
Flat- 4:1	3
3:1	4
2:1	5
1.5:1	6
1:1	8
Stockpiles	10

Also consider EarthGuard for full season pad winterization.

Apply 8-10 gallons per acre for the fastest and most economical way to stabilize pads.

Meets CASQA specifications for:

Soil Binder EC-5

Stockpile Management WM-3

Wind Erosion Control WE-1

For Hydraulic Mulch – EC 3 and Hydroseeding – EC 4 use EarthGuard Fiber Matrix

Simple, Effective & Affordable

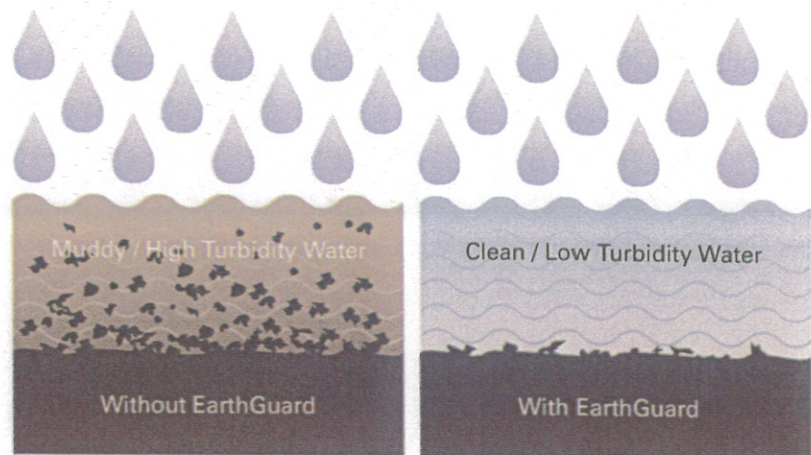
EarthGuard can help satisfy new construction permit requirements by keeping stormwater clean.



EarthGuard is your solution to your Rain Event Action Plan (REAP) BMP and site winterization. Simply apply EarthGuard mixed with water to exposed soils to control erosion, dust and turbidity. **It's active immediately, even during a rain event.**

Caltrans Erosion Control Testing	79% effective
Controls Turbidity	YES
Active Immediately	YES

- No specialized equipment needed: apply with a water truck, hydroseeder or any spray rig
- Immediately active – even during a rain event
- Does not impede construction activity
- Use to treat active construction areas
- Does not require an active treatment plan or monitoring
- Reduces turbidity by settling dislodged sediment
- Safe for equipment - easy clean out





Terra Novo, Inc. EarthGuard

MATERIAL SAFETY DATA

Revision Date: 10/3/2012

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY

PRODUCT NAME: EarthGuard

COMPANY: Terra Novo, Inc.,
2930 Patton Way
BAKERSFIELD, CA 93308, USA

TELEPHONE: 661.587.5716
EMERGENCY PHONE: CHEMTREC 800.424.9300

PRODUCT USE: Processing aid for industrial application

2. HAZARDS IDENTIFICATION

Appearance and Odor:

Form: Viscous liquid

Color: Milky

Odor: Aliphatic

Potential Health Effects:

Eye: May cause eye irritation with susceptible persons.

Skin: Slightly irritating.

Potential Physical/Chemical Effects: Spills produce extremely slippery surfaces.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Identification: Anionic water-soluble polymer in emulsion.

Regulated Components: None.

4. FIRST AID MEASURES

Inhalation: Move to fresh air immediately. No hazards which require special first aid measures.

Skin contact: Wash off immediately with soap and plenty of water. Get medical attention if irritation develops and persists.

Eye contact: Rinse thoroughly with plenty of water, also under the eyelids. Get medical attention if irritation develops and persists.



Terra Novo, Inc. EarthGuard

MATERIAL SAFETY DATA

Revision Date: 10/3/2012

Ingestion: Rinse mouth with water. Do not induce vomiting. Get medical attention immediately.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media: Water. Water spray. Foam. Carbon dioxide (CO₂). Dry powder.

Precautions: Spills produce extremely slippery surfaces.

Special protective equipment for firefighters: No special protective equipment required.

Flash point (°C): Does not flash.

Autoignition temperature (°C): Does not ignite.

Flash point : Not applicable.

Autoignition temperature (°C): Not applicable.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions : No special precautions required. Wear adequate personal protective equipment (see Section 8 Exposure Controls/Personal Protection). Keep people away from spill/leak.

Environmental precautions : As with all chemical products, do not flush into surface water.

Methods for cleaning up : Do not flush with water. Dam up. Soak up with inert absorbent material. If liquid has been spilled in large quantities, clean up promptly by scoop or vacuum. Keep is suitable and closed containers for disposal. After cleaning, flush away traces with water.

7. HANDLING AND STORAGE

Handling

Safe handling advice : Avoid contact with skin and eyes. When preparing the working solutions ensure there is adequate ventilation. When using do not smoke.

Storage

Keep in a cool, dry place (0 - 30 °C). Keep away from heat and sources of ignition. Freezing will affect the physical condition and may damage the material.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering measures



Terra Novo, Inc. EarthGuard

MATERIAL SAFETY DATA

Revision Date: 10/3/2012

Use local exhaust if misting occurs. Natural ventilation is adequate in absence of mists.

Personal protective equipment

Respiratory protection : Not required ; except in case of aerosol formation

Hand protection : PVC or other plastic material gloves

Eye protection : Safety glasses with side-shields. Do not wear contact lenses where this product is used.

Skin and body protection : Chemical resistant apron or protective suit if splashing or repeated contact with solution is likely.

Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. When using do not eat, drink or smoke. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form : Viscous liquid

Color : Milky

Odor : Aliphatic

pH: 6 - 8 @ 5 g/l

Specific Gravity: 1.05

Melting point/range : Not applicable

Flash point : Not applicable

Autoignition temperature (°C): Not applicable

Vapor pressure (mm Hg): 0,002 @ 20°C

Bulk viscosity (cps): 1200

Kinematic viscosity @ 40°C (mm²/s): >>20.5

10. STABILITY AND REACTIVITY

Stability : Hazardous polymerization does not occur. Stable.



Terra Novo, Inc. EarthGuard

MATERIAL SAFETY DATA

Revision Date: 10/3/2012

Materials to avoid : Oxidizing agents may cause exothermic reactions.

Hazardous decomposition products : Thermal decomposition may produce. Nitrogen oxides (NO_x).

Carbon oxides (CO_x).

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Oral : LD50/oral/rat > 5000 mg/kg.

Dermal : LD50/dermal/rat > 5000 mg/kg.

Inhalation : The product is not expected to be toxic by inhalation.

Irritation

Skin : Slightly irritating

Eyes : May cause eye irritation with susceptible persons

Sensitization :

Not sensitizing.

Chronic toxicity :

No Chronic effects

12. ECOLOGICAL INFORMATION

Aquatic toxicity

Toxicity to fish : LC50/Danio rerio (Zebra fish)/96 hours > 100 mg/L (OECD 203)./96 hours > 100 mg/l, (OECD 203).

Toxicity to daphnia : EC50/Daphnia magna (Water flea)/48 hours > 100 mg/L (OECD 202).

Toxicity to algae : EC50/Scenedesmus subspicatus (Green algae)/72 hours > 100 mg/L (OECD 201).

Persistence and degradability : Not readily biodegradable.

Hydrolysis : Does not hydrolyze.



Terra Novo, Inc. EarthGuard

MATERIAL SAFETY DATA

Revision Date: 10/3/2012

13. DISPOSAL CONSIDERATIONS

Disposal : Dispose of in accordance with local, state and federal regulations.

Container : Rinse empty containers with water and use the rinse water to prepare the working solution. Can be landfilled or incinerated, when in compliance with local, state and federal regulations.

14. TRANSPORT INFORMATION

DOT

Remarks : Not classified as dangerous in the meaning of DOT regulations.

IMDG/IMO

Remarks : Not classified as dangerous in the meaning of IMO/IMDG regulations.

ICAO/IATA

Remarks : Not classified as dangerous in the meaning of ICAO/IATA regulations

15. REGULATORY INFORMATION

US SARA Reporting Requirements:

SARA (Section 311/312) hazard class: Not concerned.

International Inventories USA (TSCA): All components of this product are either listed on the inventory or are exempt from listing.

Canada (DSL) : All components of this product are either listed on the inventory or are exempt from listing.



Terra Novo, Inc. EarthGuard

MATERIAL SAFETY DATA

Revision Date: 10/3/2012

16. OTHER INFORMATION

NFPA and HMIS Ratings :



NFPA :

Health : 1 Flammability : 1 Instability : 0

HMIS :

Health : 1 Flammability : 1 Physical Hazard : 0 **MSDS was prepared in accordance with the following :**

ISO 11014-1: Material Safety Data Sheet for Chemical Products ANSI Z400.1-2004; Material Safety Data Sheets - Preparation

Contact : 661.587.5716

The data in this Material Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process. This information is based upon technical information believed to be reliable. It is subject to revision as additional knowledge and experience is gained.