MATERIAL SAFETY DATA SHEET

Advanced Geotechnical Soil Stabilization Ionic Clay Stabilizer (AGSS-ICS)

Section 1: Chemical Product and Company Identification

Product Name: Advanced Geotechnical Soil Stabilization Ionic Clay Stabilizer (AGSS-ICS)

Product Code: None established

Product Description: Changes the behavior of hard heavy clay soils

Formulae And Product Use: 100% organic solution derived from combined sulfur and buffered acid, combined as bi-sulfates and soluble sulfonated organic com•pounds containing both acid and base primers with the acid constitutes dominating. Resolving swelling of unsaturated clay problems beneath buildings and roads.

Synonyms: N/A

MSDS Date: September 2011

Manufacturer/Supplier:

Advanced Geotechnical Soil Stabilization
AGSS Nevada, LLC
5945 N. Grand Canyon Dr.
Las Vegas, NV 89149
702-275-8153 Cell
800-961-3907 Fax

Emergency Number:

800-242-9300 (CHEMTREC)
702-275-8153 (William R. Sublette, Ph.D.)

Non-Emergency Number: 250-656-1770 (Monday–Friday 8–5 PST)

Section 2: Composition and Information on Ingredients

Composition:

Mixture of sulfuric acid mixed with minor amounts of other additives (such as sulfur) at less than 0.1%.

NAME	CAS#	CONCENTRATION
Sulfuric Acid	7664-93-9	<50%

Section 3: Hazards Identification

Emergency Overview: Concentrated product is corrosive and can cause eye damage and skin burns. Mists or vapors of sulfuric acid can be harmful and cause respiratory irritation and pulmonary edema. Ingestion of sulfuric acid can cause burns to the mouth, throat, and stomach. Sulfuric acid will react with metals to liberate flammable hydrogen gas. Sulfuric acid will react with caustics. Sulfuric acid can decompose at high temperatures and release sulfur oxides.

NFPA Ratings:

Health: 3
Flammability: 0
Reactivity: 2
Other: Water Reactive

Routes of Entry: Inhalation, eye contact, skin contact, ingestion

Inhalation: Vapors or mist can cause irritation or corrosive burns to the upper respiratory system, including the nose, mouth, and throat. Sulfuric acid can cause pulmonary edema; symptoms include coughing and shortness of breath and can be delayed until hours or days after the exposure.

Skin Contact: Prolonged skin contact can cause minor burns and dermatitis.

Eye Contact: Vapors or mist can cause irritation or corneal burns.

Ingestion: Not a likely route of entry. Ingestion can cause irritation and corrosive burns to mouth, throat and stomach.

Carcinogenicity:

NTP: NTP has not listed this chemical in its report on carcinogens. However, the NTP has listed strong inorganic acid mists containing sulfuric acid as a known human carcinogen (2005 11th Report on Carcinogens).

IARC: IARC has not evaluated the carcinogenicity of this product or chemical. However, IARC has concluded there is sufficient evidence that occupational exposure to strong inorganic acid mists containing sulfuric acid is carcinogenic to humans (Group 1). IARC's classification is for inorganic acid mists containing sulfuric acid and does not apply to sulfuric acid or sulfuric acid solutions.

OSHA: Not listed.

ACGIH: The American Conference of Governmental Industrial Hygienists (ACGIH) has not assigned a carcinogenicity designation to this chemical. However, ACGIH has designated strong inorganic acid mists containing sulfuric acid as A2 (suspected human carcinogen).

Section 4: First Aid Measures

The following information is based on sulfuric acid which could be present in vapors or mists:

Inhalation: If irritation occurs, remove to fresh air. Seek medical attention if symptoms persist.

Skin: Wash thoroughly with soap and water consistent with good hygiene practice. Get medical advice if irritation or dermatitis occurs.

Eye: Immediately flush with copious amounts of water for 20-30 minutes, carefully lifting eyelid to expose the eye to contact with the water. Do not interrupt flushing. Remove contact lens, if present, and repeat flush. Get medical advice if any symptoms or irritation persist.

Ingestion: If ingested, give victim several glasses of water and then milk. Do not induce vomiting. Get medical advice.

Section 5: Fire and Explosion Data

Flash Point: N/A

Auto Ignition Temperature: N/A

Flammable Limits: N/A

Explosive Limits: N/A

Hazardous Combustion Products: During a fire, irritating/toxic sulfur oxides may be generated.

Fire and Explosion Hazard: Material is not flammable, but sulfuric acid contact with metals can cause generation of flammable hydrogen gas. Fire may also result from heat generated by contact of concen•trated product with combustible materials.

Extinguishing Media: For fire in close proximity, use standard fire-fighting practices.

Protective equipment and precautions for firefighters: Wear self-containged breathing apparatus and turnout gear consistent with standard practices. If water is used, avoid spraying on the concentrated product to prevent spattering.

Section 6: Accidental Release Measures

Spill or Leak Procedures: Don personal protection and stop the release. Isolate the release from incompatibles and drains. Neutralize the spill with sodium bicarbonate (baking soda), and allow adequate ventilation for the carbon dioxide to off-gas. Alternatively, contain spill with dry sand, clay, diatomaceous earth, or absorbent material that does not react with spilled material. Dilute small spills or leaks with plenty of water in a ration of 1 to 1000. Neutralize residue with an alkali such as soda ash or lime. Put the residue in a plastic container and rinse the area with water. See Section 8 for exposure controls and personal protection information.

Section 7: Handling and Storage

Handling and Storage Precautions: Avoid eyes, skin, and clothing. Avoid breathing vapors or mist. Use adequate ventilation. Never add water to a corrosive. Always add corrosives to water. When diluting with water for use, stir small amounts in slowly. Use cold water to prevent excessive heat generation. Protect container from physical damage. Store under cover. Protect container from sunlight. Do not allow freezing. See Section 8 for exposure controls and personal protection equipment.

Section 8: Exposure Controls/Personal Protection

Exposure Guidelines:

Component: Sulfuric acid

OSHA PEL TWA: 1 mg/m3; OSHA PEL STEL: NE; ACGIH TLV TWA: 0.2 mg/m3; ACGIH TLV STEL: NE; NIOSH REL TWA: 1 mg/m3

N.E. – Not Established. PPM – Parts Per Million. Mg/m3 – Milligrams per Cubic Meter.

Eye Protection: Wear safety goggles or face shield when handling or using this product.

Skin Protection: Wear recommended gloves when handling or using this product, such as butyl rubber, Natural Rubber, neoprene, polyethylene, polyvinyl chloride, Viton™, Viton™/Butyl rubber, Silver Shield/4H™ (polyethylene/ethylene vinyl alcohol), Responder™, Trellchem™ HPS, Tychem™ BR/LV, Tychem™ SL, Tychem™ TK. Recommendations are NOT valid for very thin Natural Rubber, Neoprene, Nitrile and PVC gloves (0.3 mm or less).

Respiratory Protection: Avoid breathing vapor or mist. Wear respiratory protection if exposure exceeds the OSHA PEL for sulfuric acid or mist is present:

If dust or fume concentration is greater than the OSHA PEL, but less than 10 times PEL, use a NIOSH approved half-mask respirator with acid-gas cartridge.

For concentrations above 10 times PEL, but less than 50 times PEL, use a NIOSH approved full-face respirator with acid-gas cartridge or a powered air-purifying respirator.

Where airborne concentrations may exceed 50 times PEL, use supplied-air.

Engineering Controls: Avoid generating mist. Use in well ventilated areas. No additional ventilation required if used outdoors. Additional ventilation recommended in enclosed storage areas. If ventilation fails to maintain concentrations below the PEL for sulfuric acid, respiratory protection is required by federal and/or state regulations.

General Hygiene Considerations: Wash thoroughly after handling and before eating or drinking. Do not eat, drink, or smoke in work areas. Remove contaminated clothing immediately. Discard or launder before re-wearing.

Section 9: Physical and Chemical Properties

Physical State: Product: Liquid

Appearance: Product: Mildly green

Odor: Product: Hydrocarbon-aqueous

Boiling Point: 77.7% Sulfuric Acid: 193° C (380° F)

Melting Point: 77.7% Sulfuric Acid: -12° C (10° F)

pH: Product: Approximately 1

Solubility in Water: Product: Completely hydroscopic

Specific Gravity: Product: 1.15 (water=1)

Vapor Pressure: Sulfuric Acid: Less than 0.04 kPa (0.3 mm Hg) at 25° C

Vapor Density: Sulfuric Acid: 3.4 (air=1)

Section 10: Reactivity and Stability Data

Stability: Product stable at normal ambient temperature and pressure (70° F and 760 mm Hg) or anticipated storage and handling conditions.

Conditions to Avoid: Avoid incompatible materials. Prolonged temperatures above 300°C will eventually evaporate water and sulfur trioxide could be generated.

Hazardous Polymerization: Does not occur.

Incompatibilities: Contact with reactive metals such as zinc will result in generation of flammable/explosive hydrogen gas.

Decomposition Products: Hydrogen gas, carbon dioxide, and sulfur trioxide, as described above. Sulfuric acid decomposes to sulfur dioxide and sulfur trioxide.

Section 11: Toxicological Information

Several human studies and numerous animal studies were available for sulfuric acid. Toxicological studies for sulfuric acid are summarized in the Agency for Toxic Substances and Disease Registry (ATSDR) Toxicological Profile.

Acute Dose Effects: Sulfuric acid can cause skin, eye, and lung irritation, burns, aggravation of asthma, or severe lung damage with a life-threatening accumulation of fluid (pulmonary edema). Long term lung damage may result from a severe short term exposure. Extensive acid burns can result in death. The severity of injury depends on the concentration of the sulfuric acid solution and the duration of exposure.

Repeated Dose Effects: Long-term exposure to sulfuric acid mists or aerosols could cause symptoms of respiratory irritation such as bronchial hyperreactivity. Exposures to high concentrations cause dental erosion.

Irritation: Corrosive to the eyes, skin and respiratory tract. Breathing sulfuric acid droplets may affect the ability of the respiratory tract to remove other small particles that have been inhaled.

Sensitization: None listed.

Carcinogenicity: See Section 3. Studies in people who breathed high concentrations of sulfuric acid at work have shown an increase in cancers of the larynx. However, most of the cancers were in smokers who were also exposed to other acids and other chemicals.

Genetic Effects: No human information is available. One animal study indicated that sulfuric acid is not teratogenic, even at maternally toxic doses.

Reproductive Toxicity: No human or animal information is available.

Developmental Effects: No conclusions can be drawn based on one available study.

Section 12: Ecological Information

Not harmful to aquatic life in directed use.

Section 13: Disposal Considerations

If this produce as supplied becomes a waste, it may meet the criteria of a hazardous waste as defined under the Resource Conservation and Recovery Act (RCRA) 40 CRF 261. It is possible to dilute or neutralize and irrigate the material per manufacturer instructions for application if approved by local authorities. Dispose of according to local, state/provincial, and federal regulations.

EPA Waste Codes: N/A for product.

Section 14: Transport Information

D.O.T. Shipping Name: Sulfuric acid with not more than 51% acid

Technical Shipping Name: Sulfuric acid with not more than 51% acid

D.O.T. Hazard Class: Class 8 Packing Group II

U.N./N.A. Number: 2796

Special Shipping Info: N/A

Section 15: Regulatory Information

Users should comply with applicable OSHA and other state and federal regulations, including (but not limited to) 29 CFR 1910.1000 (air contaminants) and 29 CFR 1910.1200 (hazard communication.

TSCA Inventory Status: Product excluded from the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.

SARA Title III Sect. 302 (EHS) / CERCLA Hazardous Substances: Hydrogen Sulfide Reportable Quantity: 100 lbs.

SARA Title III Sect. 311/312 Hazard Classes: Statutory source for designation of sulfuric acid under CERCLA is CWA Section 311(b)(4).

SARA Title III Sect. 313 Toxic Chemicals: Not Applicable.

Hydrogen sulfide is listed on the Massachusetts Right-to-Know Sunstance List, Minnesota Hazardous Substance List, New Jersey Right-to-Know List, Pennsylvania Right-to-Know List, and Rhode Island Hazardous Substance List.

Section 16: Other Information

MSDS Status / Revision Number: Final Version / 1.0

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