APPALACHIAN DRILLING SERVICES

SAFETY DATA SHEET

Shale Inhibitor CS-47

1. IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND THE COMPANY

Product name: **Shale Inhibitor CS-47**

Distributor: APPALACHIAN DRILLING SERVICES
105 Industrial Park Road
Beech Creek, PA 16822
United States

Telephone: 570-907-0136

Telefax: 570-907-0146

Emergency telephone number: ChemTrec 800-424-9300

Product use: Shale Stabilizer

2. HAZARDS IDENTIFICATION

Form: Liquid

Color: Clear, colorless to light yellow

Odor: Slightly ammoniacal

Potential Health Effects:

Eye: Severely irritating. If not promptly removed, product will injure eye tissue, which may result in permanent damage.

Skin: May cause irritation. Allergic reactions are possible.

Inhalation: Prolonged inhalation may be harmful. May be irritating to mucous membranes and lung tissue.

Ingestion: This material may be harmful or fatal if swallowed. May be irritating to mucous membranes and lung tissue.

Chronic information: Overexposure may cause central nervous system, lung, kidney, or liver damage.

Primary routes of entry: Skin contact, inhalation, and eye contact.

Carcinogenicity: Not expected to be a carcinogen.

3. COMPOSITION / INFORMATION OF INGREDIENTS

Chemical Name	CAS Number	Weight %	PEL/TLV
Ethylene glycol	107-21-1	10-30%	ACGIH TLV-50 ppm STEL OSHAL PEL- 50 ppm CEILING

4. FIRST AID MEASURES

Inhalation: Remove victim to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get immediate medical attention.

Skin: Wash with soap and water. Get medical attention if irritation develops or persists.

Eye: Immediately flush eyes with plenty of water for at least 15 minutes while holding eyelids open. Get medical attention, if irritation persists.

Ingestion: If swallowed induce vomiting as directed by medical personnel. Never give anything by mouth to an unconscious person. Contact a poison control center or medical personnel immediately.

5. FIRE FIGHTING MEASURES

Extinguishing media: Alcohol foam, CO2, dry chemical, water fog.

Flash point: 350F (Tagliabue Closed Cup)

Autoignition temperature: Not determined.

Fire fighting instruction: Containers can build up pressure if exposed to heat (fire). As in any fire, wear a self-contained breathing apparatus pressure-demand (MSHA/NIOSH approved or equivalent) and full protective gear. Apply alcohol-type foam or all-purpose foam manufacturers recommended techniques for large fires. Use carbon dioxide or dry chemical for small fires. Use water spray to keep containers cool.

Fire and explosion hazards: Can release vapors that form explosive mixtures at temperatures above the flash point. Empty containers retain product residue (liquid and/or vapor) and can be dangerous.

6. ACCIDENTAL RELEASE MEASURES

Steps to be taken if material is released or spilled: Extinguish any possible ignition source until the area is determined to be free from fire or explosion hazard. Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container. (See exposure controls/personal protection section). Spilled materials should be disposed of according to applicable regulations.

7. HANDLING AND STORAGE

Handling: Handle all chemicals with care. Ground and bond containers when transferring materials.

Storage: Keep away from heat, sparks, and flames. Keep container closed when not in use. Store in a cool, dry, well ventilated place away from incompatible materials.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls: Local exhaust ventilation may be necessary to control any air contaminants to within their exposure limits.

Eye protection: Wear safety glasses with side shields or goggles.

Skin protection: When contact is likely wear chemical resistant gloves and boots.

Respiratory: No protection needed under normal use and conditions. Use a NOISH/MSHA approved air purifying respirator with an organic vapor cartridge when airborne concentrations are expected to exceed exposure limits. Protection by air purifying respirators is limited.

Hygiene practices: Wash hands before eating. Use only with adequate ventilation. Remove contaminated clothing and wash before reuse.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form: Liquid

Color: Clear, colorless to light yellow.

Odor: Slightly ammoniacal

pH: 6 to 8

Specific gravity @20C: 1.09

Boiling point (range): 286-387 F

Vapor pressure (mm Hg): Not determined.

Vapor Density: Not determined.

Solubility in water: Partial.

Flash point: 350F

Auto-ignition temperature: Not determined.

10. STABILITY AND REACTIVITY

Stability: This product is stable under normal storage conditions.

Hazardous polymerization: Will not occur under normal use and storage conditions.

Conditions to avoid: Avoid temperature extremes. Excessive heat causes the vapor pressure to increase rapidly.

Incompatibilities: Avoid contact with strong acids and oxidizers.

Decomposition products: Oxides of carbon and hydrogen.

11. TOXICOLOGICAL INFORMATION

No known applicable information.

12. ECOLOGICAL INFORMATION

No product information is available.

13. DISPOSAL CONSIDERATIONS

Waste disposal: Consult local, state or federal regulatory agencies for acceptable disposal procedures and disposal locations. Disposal in streams and sewers may be prohibited by federal, state, and local regulations.

RCRA status: None

14. TRANSPORTATION REGULATIONS

Not regulated.

15. REGULATORY INFORMATION

CERCLA-SARA Hazard Category
Section 311/312: This product has been reviewed according to the EPA 'Hazard Categories' promulgated under Sections 311 and 312 of the Superfund Amendments and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories.
Immediate health hazard, chronic health hazard

SARA Section 313: This product contains the following substances subject to the reporting requirements of the Sections 313 of the Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372

Component	CAS#	% By Weight
Ethylene Glycol	107-21-1	10-30%

TSCA Status: All components of this product are listed on the Toxic Substance Control Act Inventory or are excluded from the listing requirements.

International Regulations

Canadian WHMIS: This MSDS has been prepared in compliance with Controlled Product Regulations except the use of the 16 headings.

Canadian WHMIS Class: D-2B

Canadian Environmental Protection Act: All components of this product are listed on the Canadian Domestic Substance List (DSL).

16. OTHER INFORMATION

NFPA:

Health: 1
Flammability: 1
Instability: 0

Note: NFPA = National Fire Protection Agency

HMIS:

Health: 1
Flammability: 1
Reactivity: 0

The information is furnished without warranty, expressed or implied, except that it is accurate to the best knowledge of manufacturer. Users should consider these data only as a supplement to other information gathered by them and must make independent determinations of the suitability and completeness of information from all sources to assure proper use and disposal of these materials and the health of employees and customers.

Revised May 28, 2015, S. Bowser