

X-OUT

SECTION 1. IDENTIFICATION

Product Identifier	X-OUT
Other Means of Identification	Carbon Dioxide Scavenger
Recommended Use	Drilling Fluid Additive.
Manufacturer / Supplier	AES Drilling Fluids, LLC, 11767 Katy Freeway, Suite 230, Houston, TX, 77079, Sales & Information, 281-556-5628
Emergency Phone No.	CHEMTREC, 1-800-424-9300, 24-hour Emergency
Date of Preparation	June 16, 2015

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

Corrosive to metals - Category 1; Acute toxicity (Oral) - Category 4; Acute toxicity (Dermal) - Category 4; Acute toxicity (Inhalation) - Category 4; Skin corrosion/irritation - Category 1B; Serious eye damage/eye irritation - Category 1; Specific target organ toxicity (repeated exposure) - Category 2; Aspiration hazard - Category 2

GHS Label Elements



Signal Word:

Danger

Hazard Statement(s):

H290	May be corrosive to metals.
H302	Harmful if swallowed.
H305	May be harmful if swallowed and enters airways.
H312	Harmful in contact with skin.
H314	Causes severe skin burns and eye damage.
H332	Harmful if inhaled.
H373	May cause damage to organs (kidneys, liver) through prolonged or repeated exposure.

Precautionary Statement(s):

Prevention:

P234	Keep only in original container.
P260	Do not breathe fume, gas, mist, vapours, spray.
P262	Do not get in eyes, on skin, or on clothing.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P264	Wash hands and skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.

Response:

P301 + P310	IF SWALLOWED: Immediately call a POISON CENTRE/doctor/
P331	Do NOT induce vomiting.
P303 + P361 + P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

P363 Wash contaminated clothing before reuse.
 P310 Immediately call a POISON CENTRE/doctor/
 P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P310 Immediately call a POISON CENTRE/doctor/
 P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
 P310 Immediately call a POISON CENTRE/doctor/
 Storage:
 P406 Store in corrosive resistant container with a resistant inner liner.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No.	%	Other Identifiers
Monoethanolamine	141-43-5	>=80	

SECTION 4. FIRST-AID MEASURES

First-aid Measures

Inhalation

Remove source of exposure or move to fresh air. If breathing is difficult, trained personnel should administer emergency oxygen if advised to do so by Poison Centre or doctor. Immediately call a Poison Centre or doctor.

Skin Contact

Take off immediately contaminated clothing, shoes and leather goods (e.g. watchbands, belts). Immediately wash gently and thoroughly with lukewarm, gently flowing water and mild soap for 15-20 minutes. Immediately call a Poison Centre or doctor. Thoroughly clean clothing, shoes and leather goods before reuse or dispose of safely.

Eye Contact

Immediately rinse the contaminated eye(s) with lukewarm, gently flowing water for 15-20 minutes, while holding the eyelid(s) open. Remove contact lenses, if present and easy to do. Immediately call a Poison Centre or doctor.

Ingestion

Rinse mouth with water. Immediately call a Poison Centre or doctor. Treatment is urgently required. Do not induce vomiting without medical advice. If vomiting occurs, have victim lean forward to reduce the risk of aspiration.

First-aid Comments

Symptoms of poisoning may only appear several hours later. Due to irritant properties, swallowing may result in burns/ulceration of the mouth, stomach and lower GI tract.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Carbon Dioxide, Dry chemical. Alcohol-resistant foams Water spray or fog, do not use a direct stream as this may spread the fire.

Specific Hazards Arising from the Chemical

Can ignite if strongly heated. Closed containers may rupture violently when heated releasing contents. Contact with some metals can rapidly generate hydrogen (magnesium, aluminum and galvanized zinc). Water run-off and vapour cloud may be corrosive. Dike and collect water used to fight fire for neutralization before release.
 Oxides of carbon oxides of nitrogen.

Special Protective Equipment and Precautions for Fire-fighters

Use water spray to cool containers/tanks. Dike and collect water used to fight fire. Protective gear and clothing should be thoroughly decontaminated before re-use.
 When fighting chemical fires, emergency responders should wear NIOSH approved self contained breathing apparatus and appropriate protective clothing.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment, and Emergency Procedures

Product Identifier: X-OUT

Date of Preparation: June 16, 2015

Page 02 of 07

Evacuate the area immediately. Isolate the hazard area. Keep out unnecessary and unprotected personnel. Ensure adequate ventilation in area. Eliminate all ignition sources. Use grounded, explosion-proof equipment. Use the personal protective equipment recommended in Section 8 of this safety data sheet.

Environmental Precautions

Do not allow into any sewer, on the ground or into any waterway. If the spill is inside a building, prevent product from entering drains, ventilation systems and confined areas.

Methods and Materials for Containment and Cleaning Up

Dike spilled product to prevent runoff. Remove or recover liquid using pumps or vacuum equipment. Contain and soak up spill using noncombustible material such as vermiculite, earth or sand. Flush spill area. Store recovered product or absorbent material in suitable containers for disposal according to local regulations. Contaminated absorbent poses the same hazard as the spilled product.

Other Information

Contact EH&S regarding spill as spills of certain products and certain quantities may require reporting to various authorities.

SECTION 7. HANDLING AND STORAGE

Precautions for Safe Handling

Do not breathe in this product. Do not get in eyes, on skin or on clothing. Do not ingest product. Only use where there is adequate ventilation. Do not eat, drink or smoke in areas where product is handled. Employees should wash hands after working with product and before going on breaks outside of the work area. Wear personal protective equipment to avoid direct contact with this chemical. See Section 8 for appropriate Personal Protective Equipment (PPE). Avoid generating vapours or mists. Avoid ignition sources. Ground and bond all transfer and storage equipment. Use corrosion-resistant tools and equipment. See Section 10 (Stability and Reactivity) for suitable materials. Keep containers tightly closed when not in use or empty. Do not puncture or incinerate container even when empty. Do not weld, cut or perform hot work on empty container until all traces of product have been removed.

Conditions for Safe Storage

Store in an area that is: cool, well-ventilated, dry, separate from incompatible materials (see Section 10: Stability and Reactivity). Away from open flames, excessive heat or sources of ignition. Keep containers tightly closed when not in use. Store in the original, labelled, shipping container. Empty containers may contain hazardous residue. Store separately. Keep closed. Follow all precautions given on this safety data sheet.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

Chemical Name	ACGIH® TLV®		OSHA PEL		AIHA® WEEL™	
	TWA	STEL [C]	TWA	Ceiling	8-hr TWA	Short-term TWA [C]
Monoethanolamine	3 ppm	6 ppm	3 ppm	6 ppm	Not established	Not established

ACGIH® = American Conference of Governmental Industrial Hygienists. TLV® = Threshold Limit Value. TWA = Time-Weighted Average. STEL = Short-term Exposure Limit. C = Ceiling limit. OSHA = US Occupational Safety and Health Administration. AIHA® = AIHA® Guideline Foundation. WEEL™ = Workplace Environmental Exposure Limit.

Appropriate Engineering Controls

Use local exhaust ventilation, if general ventilation is not adequate to control amount in the air. While working with the product an eyewash and safety shower should be within acceptable distance to the work area.

Individual Protection Measures

Eye/Face Protection

Wear chemical safety goggles and face shield when contact is possible.

Skin Protection

Wear gloves with appropriate chemical resistance, see manufacturers specifications for suitability. Wear long sleeves, long pants and appropriate footwear while working with product. If a splashing hazard exists wear chemical protective clothing e.g. gloves that extend up arms, aprons, boots.

Suitable materials are: nitrile rubber, neoprene rubber, polyvinyl alcohol, polyvinyl chloride.

Product Identifier: X-OUT

Date of Preparation: June 16, 2015

Page 03 of 07

Respiratory Protection

If conditions exist above the OEL wear a NIOSH approved respirator with an appropriate cartridge.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Basic Physical and Chemical Properties

Appearance	Colourless liquid.
Odour	Ammonia-like
Odour Threshold	Not available
pH	12
Melting Point/Freezing Point	Not available (melting); Not available (freezing)
Initial Boiling Point/Range	330 °F (166 °C) (estimated)
Flash Point	218 °F (103 °C)
Evaporation Rate	Not available
Upper/Lower Flammability or Explosive Limit	17% (upper); 5.5% (lower)
Vapour Pressure	< 1 mm Hg
Vapour Density (air = 1)	< 1
Relative Density (water = 1)	1.02
Solubility	Soluble in all proportions in water
Auto-ignition Temperature	770 °F (410 °C)
Decomposition Temperature	Not available
Other Information	
Physical State	Liquid

SECTION 10. STABILITY AND REACTIVITY

Reactivity

Not reactive under normal conditions of use.

Chemical Stability

Stable under normal conditions.

Possibility of Hazardous Reactions

None expected under normal conditions of storage and use.

Conditions to Avoid

Open flames, sparks, static discharge, heat and other ignition sources.

Incompatible Materials

Inorganic acids (e.g. hydrofluoric acid), organic acids (e.g. acetic acid), acid anhydrides (e.g. acetic anhydride), aluminum, copper, copper alloys, galvanized iron, acrolein, acrylonitrile, beta-propiolactone, epichlorohydrin, mesityl oxide, oleum, vinyl acetate. Product may react with aluminum generating flammable hydrogen gas.

Hazardous Decomposition Products

Oxides of carbon, oxides of nitrogen.

SECTION 11. TOXICOLOGICAL INFORMATION

Likely Routes of Exposure

Inhalation; skin contact; skin absorption; eye contact; ingestion.

Acute Toxicity

Chemical Name	LC50	LD50 (oral)	LD50 (dermal)
Monoethanolamine	Not available	1720 mg/kg (rat)	1000 mg/kg (rabbit)

Product Identifier: X-OUT

Date of Preparation: June 16, 2015

Page 04 of 07

Skin Corrosion/Irritation

May cause severe skin irritation. Skin contact causes irritation and may cause burns. Symptoms may include drying and cracking of the skin (dermatitis).

Serious Eye Damage/Irritation

Contact causes severe burns with redness, swelling, pain and blurred vision. Permanent damage including blindness can result. High vapour concentrations may also cause irritation, tearing and burning.

STOT (Specific Target Organ Toxicity) - Single Exposure

Inhalation

Product may cause burns in the respiratory tract. At high concentrations causes depression of the central nervous system. Symptoms may include headache, nausea, dizziness, drowsiness and confusion. A severe exposure can cause unconsciousness.

Skin Absorption

Ingredients of this product may be absorbed through the skin.

Ingestion

May cause severe irritation or burns to the mouth, throat and stomach, irritation of the gastrointestinal tract, headache, nausea, vomiting, diarrhea. Permanent damage can result.

Aspiration Hazard

Liquid may be aspirated into the lungs during ingestion or vomiting resulting in lung injury. Aspiration may lead to pulmonary edema.

STOT (Specific Target Organ Toxicity) - Repeated Exposure

Prolonged exposures to high vapour concentrations can cause headache, dizziness, nausea, blurred vision and depression of central nervous system. May cause liver and kidney damage. Effects may be delayed.

Respiratory and/or Skin Sensitization

Not known to be a respiratory sensitizer. Not known to be a skin sensitizer.

Carcinogenicity

Chemical Name	IARC	ACGIH®	NTP	OSHA
Monoethanolamine	Not Listed	Not Listed	Not Listed	Not Listed

Not known to cause cancer.

Key to Abbreviations

IARC = International Agency for Research on Cancer. ACGIH® = American Conference of Governmental Industrial Hygienists. NTP = National Toxicology Program. OSHA = US Occupational Safety and Health Administration.

Reproductive Toxicity

Development of Offspring

Animal studies show effects on the offspring.

Sexual Function and Fertility

No information was located.

Effects on or via Lactation

No information was located.

Germ Cell Mutagenicity

No information was located.

Interactive Effects

No information was located.

SECTION 12. ECOLOGICAL INFORMATION

Do not allow product to contaminate domestic or irrigation water supplies, lakes, streams, ponds or rivers.

Toxicity

No information was located.

Acute Aquatic Toxicity

Product Identifier: X-OUT

Date of Preparation: June 16, 2015

Page 05 of 07

Chemical Name	LC50 Fish	EC50 Crustacea	ErC50 Aquatic Plants	ErC50 Algae
Monoethanolamine	114-196 mg/L (Oncorhynchus mykiss (rainbow trout); 96-hour; fresh water)	Not available	Not available	15 mg/L (Desmodesmus subspicatus (algae); 72-hour)

Persistence and Degradability

No ingredient of this product or its degradation products is known to be highly persistent.

Bioaccumulative Potential

This product and its degradation products are not expected to bioaccumulate.

Mobility in Soil

No information was located.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal Methods

Dispose of in accordance with all local, state and federal regulations. Not classified as RCRA Hazardous. RCRA WASTE NUMBER: Not Applicable.

SECTION 14. TRANSPORT INFORMATION

Regulation	UN No.	Proper Shipping Name	Transport Hazard Class(es)	Packing Group
Canadian TDG	2491	Ethanolamine Solution (Monoethanolamine)	8	III
US DOT	2491	Ethanolamine Solution (Monoethanolamine)	8	III

SECTION 15. REGULATORY INFORMATION

Safety, Health and Environmental Regulations

USA

Toxic Substances Control Act (TSCA) Section 8(b)

All ingredients are on the TSCA Inventory or exempt from the TSCA.

Additional USA Regulatory Lists

CERCLA: Product does not contain any chemicals subject to the reporting requirement of CERCLA.

SARA Title III - Section 302: None

SARA Title III - Section 311/312: Immediate Health Hazard Chronic Health Hazard.

SARA Title III - Section 313: No chemicals are reportable under Section 313.

SECTION 16. OTHER INFORMATION

NFPA Rating **Health - 2** **Flammability - 1** **Instability - 0**

SDS Prepared By AES Drilling Fluids

Phone No. 281-556-5628

Date of Preparation June 16, 2015

Disclaimer Do not handle or use until precautions on MSDS are read and understood. The information on this form is furnished solely for the purpose of enabling those who transport, handle or use our products to ensure the safety and health of their employees and to comply with various laws and regulations (federal, state and local). We believe the statements, technical information and recommendations contained herein are reliable but, they are given without warranty or guarantee of any kind, express or implied and we assume no responsibility for any loss,

Product Identifier: X-OUT

Date of Preparation: June 16, 2015

Page 06 of 07

damage, direct or consequential, arising out of their use.