

## MATERIAL SAFETY DATA SHEET

Product Trade Name: **HYG-3**

Revision Date: 02-Jan-2013

### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: HYG-3  
Synonyms: None  
Chemical Family: Organic acid  
Application: Additive

Manufacturer/Supplier: Halliburton Energy Services  
P.O. Box 1431  
Duncan, Oklahoma 73536-0431  
Emergency Telephone: (281) 575-5000

Prepared By: Chemical Compliance  
Telephone: 1-580-251-4335  
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### 2. COMPOSITION/INFORMATION ON INGREDIENTS

Substances	CAS Number	PERCENT	ACGIH TLV-TWA	OSHA PEL-TWA
Fumaric acid	110-17-8	60 - 100%	Not applicable	Not applicable

### 3. HAZARDS IDENTIFICATION

Hazard Overview: May cause eye and respiratory irritation.

### 4. FIRST AID MEASURES

**Inhalation**: If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

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

**Eyes**: In case of contact, or suspected contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention immediately after flushing.

**Ingestion**: Do not induce vomiting. Slowly dilute with 1-2 glasses of water or milk and seek medical attention. Never give anything by mouth to an unconscious person.

**Notes to Physician**: Not Applicable

## 5. FIRE FIGHTING MEASURES

Flash Point/Range (F):	300
Flash Point/Range (C):	148
Flash Point Method:	Not Determined
Autoignition Temperature (F):	740
Autoignition Temperature (C):	393
Flammability Limits in Air - Lower (%):	Not Determined
Flammability Limits in Air - Lower (oz./ft3):	3
Flammability Limits in Air - Upper (%):	Not Determined
Flammability Limits in Air - Upper (oz./ft3):	40

**Fire Extinguishing Media** Water fog, carbon dioxide, foam, dry chemical.

**Special Exposure Hazards** Decomposition in fire may produce toxic gases. Organic dust in the presence of an ignition source can be explosive in high concentrations. Good housekeeping practices are required to minimize this potential.

**Special Protective Equipment for Fire-Fighters** Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

**NFPA Ratings:** Health 1, Flammability 1, Reactivity 0  
**HMS Ratings:** Health 1, Flammability 1, Reactivity 0

## 6. ACCIDENTAL RELEASE MEASURES

**Personal Precautionary Measures** Use appropriate protective equipment. Avoid creating and breathing dust.

**Environmental Precautionary Measures** None known.

**Procedure for Cleaning / Absorption** Scoop up and remove.

## 7. HANDLING AND STORAGE

**Handling Precautions** Avoid contact with eyes, skin, or clothing. Avoid creating or inhaling dust.

**Storage Information** Store in a cool, dry location.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Engineering Controls** Use in a well ventilated area. Localized ventilation should be used to control dust levels.

**Respiratory Protection** HEPA Respirator.

**Hand Protection** Impervious rubber gloves.

**Skin Protection** Rubber apron.

**Eye Protection** Dust proof goggles.

**Other Precautions** Eyewash fountains and safety showers must be easily accessible.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Physical State:** Solid  
**Color:** White

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Odor:	Odorless
pH:	Not Determined
Specific Gravity @ 20 C (Water=1):	1.63
Density @ 20 C (lbs./gallon):	Not Determined
Bulk Density @ 20 C (lbs/ft <sup>3</sup> ):	50.32
Boiling Point/Range (F):	554
Boiling Point/Range (C):	290
Freezing Point/Range (F):	Not Determined
Freezing Point/Range (C):	Not Determined
Vapor Pressure @ 20 C (mmHg):	Not Determined
Vapor Density (Air=1):	Not Determined
Percent Volatiles:	Not Determined
Evaporation Rate (Butyl Acetate=1):	Not Determined
Solubility in Water (g/100ml):	0.5
Solubility in Solvents (g/100ml):	Not Determined
VOCs (lbs./gallon):	Not Determined
Viscosity, Dynamic @ 20 C (centipoise):	Not Determined
Viscosity, Kinematic @ 20 C (centistokes):	Not Determined
Partition Coefficient/n-Octanol/Water:	Not Determined
Molecular Weight (g/mole):	116.06

## 10. STABILITY AND REACTIVITY

Stability Data:	Stable
Hazardous Polymerization:	Will Not Occur
Conditions to Avoid	None anticipated
Incompatibility (Materials to Avoid)	Strong alkalis.
Hazardous Decomposition Products	Carbon monoxide and carbon dioxide.
Additional Guidelines	Not Applicable

## 11. TOXICOLOGICAL INFORMATION

Principle Route of Exposure	Eye or skin contact, inhalation.
Inhalation	May cause respiratory irritation.
Skin Contact	None known.
Eye Contact	May cause moderate eye irritation.
Ingestion	None known
Aggravated Medical Conditions	None known.
Chronic Effects/Carcinogenicity	No data available to indicate product or components present at greater than 1% are chronic health hazards.
Other Information	None known.
Toxicity Tests	
Oral Toxicity:	LD50: 10700 mg/kg (Rat)
Dermal Toxicity:	LD50: 20000 mg/kg (Rabbit)

**Inhalation Toxicity:** Not determined  
**Primary Irritation Effect:** Not determined  
**Carcinogenicity** Not determined  
**Genotoxicity:** Not determined  
**Reproductive / Developmental Toxicity:** Not determined

## 12. ECOLOGICAL INFORMATION

**Mobility (Water/Soil/Air)** Not determined  
**Persistence/Degradability** Readily biodegradable  
**Bio-accumulation** Not determined

### Ecotoxicological Information

**Acute Fish Toxicity:** Not determined  
**Acute Crustaceans Toxicity:** Not determined  
**Acute Algae Toxicity:** Not determined

**Chemical Fate Information** Not determined  
**Other Information** Not applicable

## 13. DISPOSAL CONSIDERATIONS

**Disposal Method** Bury in a licensed landfill according to federal, state, and local regulations.  
**Contaminated Packaging** Follow all applicable national or local regulations.

## 14. TRANSPORT INFORMATION

### Land Transportation

**DOT**  
Not restricted

**Canadian TDG**  
Not restricted

**ADR**  
Not restricted

### Air Transportation

**ICAO/IATA**  
Not restricted

### Sea Transportation

**IMDG**  
Not restricted

## Other Transportation Information

Labels: None

### 15. REGULATORY INFORMATION

#### US Regulations

<b>US TSCA Inventory</b>	All components listed on inventory or are exempt.
<b>EPA SARA Title III Extremely Hazardous Substances</b>	Not applicable
<b>EPA SARA (311,312) Hazard Class</b>	Acute Health Hazard
<b>EPA SARA (313) Chemicals</b>	This product does not contain a toxic chemical for routine annual "Toxic Chemical Release Reporting" under Section 313 (40 CFR 372).
<b>EPA CERCLA/Superfund Reportable Spill Quantity</b>	EPA Reportable Spill Quantity is 5000 Pounds based on Fumaric acid (CAS: 110-17-8).
<b>EPA RCRA Hazardous Waste Classification</b>	If product becomes a waste, it does NOT meet the criteria of a hazardous waste as defined by the US EPA.
<b>California Proposition 65</b>	All components listed do not apply to the California Proposition 65 Regulation.
<b>MA Right-to-Know Law</b>	One or more components listed.
<b>NJ Right-to-Know Law</b>	One or more components listed.
<b>PA Right-to-Know Law</b>	One or more components listed.
<b>Canadian Regulations</b>	
<b>Canadian DSL Inventory</b>	All components listed on inventory or are exempt.
<b>WHMIS Hazard Class</b>	D2B Toxic Materials

### 16. OTHER INFORMATION

#### The following sections have been revised since the last issue of this MSDS

Not applicable

**Additional Information** For additional information on the use of this product, contact your local Halliburton representative.

For questions about the Material Safety Data Sheet for this or other Halliburton products, contact Chemical Compliance at 1-580-251-4335.

#### Disclaimer Statement

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\*\*\*END OF MSDS\*\*\*

