HALLIBURTON

MATERIAL SAFETY DATA SHEET

Product Trade Name: **HII-124F INTENSIFIER**

Revision Date: 15-Oct-2013 **Revision Number:** 16

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier

Product Trade Name: HII-124F INTENSIFIER
Synonyms: None
Chemical Family: Organic acid
Internal ID Code HM000856

Product Use

Application: Intensifier

Manufacturer's Name and Contact Details

Name and Address Halliburton Energy Services
645 - 7th Ave SW Suite 2200
Calgary, AB
T2P 4G8
Canada

Emergency Telephone Number (281) 575-5000

Prepared By Chemical Compliance
Telephone: 1-580-251-4335
e-mail: fdunexchem@halliburton.com

2. HAZARD(S) IDENTIFICATION

WHIMIS Classification

WHMIS Hazard Class B3 Combustible Liquids
E Corrosive Material

WHMIS Symbol(s)

Summary of hazards of the product

Hazard Overview May cause eye, skin, and respiratory burns. May be harmful if swallowed. Flammable.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substances	CAS Number	PERCENT (w/w)	HMIRA Registry Number	Filing Date
Formic acid	64-18-6	60 - 100%	Not applicable	Not applicable

4. FIRST AID MEASURES

Description of first aid measures

Inhalation If inhaled, remove to fresh air. If not breathing give artificial respiration, preferably mouth-to-mouth. If breathing is difficult give oxygen. Get medical attention.

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.

Skin In case of contact, immediately flush skin with plenty of soap and water for at least 15 minutes. Get medical attention. Remove contaminated clothing and launder before reuse.

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.

Most important symptoms and effects, both acute and delayed

May cause eye and skin burns.

Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically

5. FIRE FIGHTING MEASURES

Extinguishing media

Suitable Extinguishing Media

Water fog, carbon dioxide, foam, dry chemical.

Extinguishing media which must not be used for safety reasons

None known.

Special hazards arising from the substance or mixture

Special Exposure Hazards

Decomposition in fire may produce toxic gases. Do not allow runoff to enter waterways.

Advice for firefighters

Special Protective Equipment for Fire-Fighters

Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

Hazardous combustion products

Carbon monoxide and carbon dioxide.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions and emergency producedures

Protective Equipment

Use appropriate protective equipment.

Environmental Precautionary Measures

Prevent from entering sewers, waterways, or low areas.

Procedure for Cleaning / Absorption

Isolate spill and stop leak where safe. Contain spill with sand or other inert materials. Neutralize to pH of 6-8. Scoop up and remove.

7. HANDLING AND STORAGE

Precautions for safe handling

Avoid contact with eyes, skin, or clothing. Avoid breathing vapors. Wash hands after use. Launder contaminated clothing before reuse.

Conditions for safe storage and Incompatible materials for storage

Store away from alkalis. Store away from oxidizers. Keep container closed when not in use. Product has a shelf life of 12 months.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Limits

Exposure Limits

Substances	CAS Number	ACGIH TLV-TWA	OSHA PEL-TWA
Formic acid	64-18-6	TWA: 5 ppm STEL: 10 ppm	5 ppm

Appropriate engineering controls

Engineering Controls Use in a well ventilated area. Local exhaust ventilation should be used in areas without good cross ventilation.

Personal Protective Equipment (PPE)

Respiratory Protection Acid gas respirator.

Hand Protection Impervious rubber gloves. Neoprene gloves. Polyvinylchloride gloves.
Skin Protection Full protective chemical resistant clothing.
Eye Protection Chemical goggles; also wear a face shield if splashing hazard exists.
Other Precautions Eyewash fountains and safety showers must be easily accessible.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical State: Liquid
Odor: Sharp
Color: Clear colorless
Odor Threshold: No information available

Property Remarks/ - Method	Values
pH:	1
pH Concentration of Solution:	No information available.
Freezing Point/Range	10 °C
Melting Point/Range	No information available
Boiling Point/Range (C):	101 °C
Flash Point/Range (C):	49 °C
Flash Point Method:	TCC
Autoignition Temperature (C):	601
Flammability Limits in Air - Lower (%):	18
Flammability Limits in Air - Upper (%):	57
Evaporation Rate (Butyl Acetate=1):	No information available.
Vapor Pressure @ 20 C (mmHg):	23
Vapor Density (Air=1):	No information available.
Specific Gravity @ 20 C (Water=1):	1.2
Solubility in Water (g/100ml):	Miscible
Solubility in other solvents	No information available.
Partition Coefficient/n-Octanol/Water:	No information available.
Decomposition Temperature (C):	No information available.
Viscosity	No information available
Explosive Properties	No information available
Oxidizing Properties	No information available

Other Information

Molecular Weight (g/mole):	46.03
VOC Content (%)	No information available

10. STABILITY AND REACTIVITY

Conditions of Reactivity

Conditions to Avoid None anticipated

Hazardous Polymerization: Will Not Occur

Chemical Stability
Stable

Sensitivity to Static Discharge
Not available

Sensitivity to Mechanical Impact
Not available

Incompatible materials
Strong alkalis. Strong oxidizers.

Hazardous Decomposition Products
Carbon monoxide and carbon dioxide.

11. TOXICOLOGICAL INFORMATION

Routes of entry
Eye or skin contact, inhalation.

Information on Toxicological Effects

Acute effects from exposure

Inhalation	Causes severe respiratory irritation. Causes severe respiratory burns.
Eye Contact	Causes severe eye burns.
Skin Contact	Causes severe burns.
Ingestion	Causes burns of the mouth, throat and stomach.

Chronic effects from exposure
Chronic Effects/Carcinogenicity Prolonged, excessive exposure may cause erosion of the teeth.

Irritancy of product
Irritation Corrosive to eyes
Corrosive to skin

Sensitization of product
Sensitization Not confirmed to cause skin or respiratory sensitization.

Mutagenicity
Mutagenic Effects Not regarded as mutagenic

Carcinogenicity
Carcinogenic Effects No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC, NTP, or OSHA.

Reproductive Toxicity
Reproductive Toxicity This product does not contain any known or suspected reproductive hazards

Teratogenicity/embryotoxicity
Teratogenic Not a teratogen or embroytoxin.

Toxicologically synergistic material Not available

Acute Toxicity

Substances	CAS Number	**LD50 Oral**	**LD50 Dermal**	**LC50 Inhalation**
Formic acid	64-18-6	730 mg/kg (Rat)	No data available	No data available

12. ECOLOGICAL INFORMATION

Toxicity
Ecotoxicity Effects

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Daphnia Magna (Water Flea)
Formic acid	64-18-6	EC50: 25 mg/L (Desmodesmus subspicatus)	LC50: 175 mg/L (Lepomis Macrochirus	No information available	EC50: 120 mg/L (Daphnia magna)

Persistence and Degradability
Readily biodegradable

Bioaccumlation potential
Does not bioaccumulate

Mobility in soil
No information available

Results of PBT and vPvB assessment
No information available.

Other adverse effects
Endocrine Disruptor Information
This product does not contain any known or suspected endocrine disruptors

13. DISPOSAL CONSIDERATIONS

Disposal Method Disposal should be made in accordance with federal, state, and local regulations.

Contaminated Packaging Follow all applicable national or local regulations.

14. TRANSPORT INFORMATION

Canadian TDG
UN Number: UN1779,
UN Proper Shipping Name: Formic Acid
Transport Hazard Class(es): , 8
Subsidiary Hazard: , (3)
Packing Group: , II
EMS: EmS F-A, S-B

IATA/ICAO
UN Number: UN1779,
UN Proper Shipping Name: Formic Acid
Transport Hazard Class(es): , 8
Subsidiary Hazard: , (3)
Packing Group: , II

IMDG/IMO
UN Number: UN1779,
UN Proper Shipping Name: Formic Acid
Transport Hazard Class(es): , 8
Subsidiary Hazard: , (3)
Packing Group: , II

EMS: EmS F-A, S-B

Special Precautions for User None

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

15. REGULATORY INFORMATION

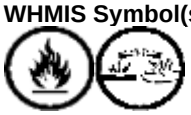
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

Canadian Regulations

Canadian DSL Inventory All components listed on inventory or are exempt.

WHMIS Hazard Class
B3 Combustible Liquids
E Corrosive Material

WHMIS Symbol(s)



US Regulations

US TSCA Inventory All components listed on inventory or are exempt.

16. OTHER INFORMATION

Preparation Information

Prepared By
Chemical Compliance
Telephone: 1-580-251-4335
e-mail: fdunexchem@halliburton.com

Revision Date: 15-Oct-2013

Not applicable

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

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

Key or legend to abbreviations and acronyms
WHMIS: Workplace Hazardous Materials Information System

Key literature references and sources for data
www.ChemADVISOR.com/

Disclaimer Statement
This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.

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