

SAFETY DATA SHEET

according to Regulation (EC) No. 453/2010

FE-1 Blend

Revision Date: 08-Sep-2015

Revision Number: 3

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product Identifier

Product Name FE-1 Blend
Internal ID Code HM008027

1.2. Relevant identified uses of the substance or mixture and uses advised against

Recommended Use	Corrosion Inhibitor
Sector of use	SU2 - Mining, (including offshore industries)
Product category	PC20 - Products such as pH-regulators, flocculants, precipitants, neutralization agents, other unspecific
Process categories	PROC4 - Use in batch and other process (synthesis) where opportunity for exposure arises PROC8a - Transfer of substance or mixture (charging/discharging) from/to vessels/large containers at non dedicated facilities PROC 8b - Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC15 - Use as a laboratory reagent

1.3. Details of the supplier of the safety data sheet

Halliburton Energy Services
 Halliburton House, Howemoss Place
 Kirkhill Industrial Estate
 Dyce
 Aberdeen, AB21 0GN
 United Kingdom

www.halliburton.com

For further information, please contact

E-Mail address: fdunexchem@halliburton.com

1.4. Emergency telephone number

+44 8 08 189 0979 / 1-760-476-3961

Emergency telephone - \$45 - (EC)1272/2008	
Europe	112
Croatia	Centar za kontrolu otrovanja (CKO): (+385 1) 23-48-342 (Poison Control Center (PCC) - Institute for Medical Research and Occupational Health)
Cyprus	+210 7793777
Denmark	Poison Control Hotline (DK): +45 82 12 12 12
France	ORFILA (FR): + 01 45 42 59 59
Germany	Poison Center Berlin (DE): +49 030 30686 790
Italy	Poison Center, Milan (IT): +39 02 6610 1029
Netherlands	National Poisons Information Center (NL): +31 30 274 88 88 (NB: this service is only available to health professionals)
Norway	Poisons Information (NO):+ 47 22 591300
Poland	Poison Control and Information Centre, Warsaw (PL): +48 22 619 66 54; +48 22 619 08 97
Romania	+40 21 318 36 06
Spain	Poison Information Service (ES): +34 91 562 04 20
United Kingdom	NHS Direct (UK): +44 0845 46 47

SECTION 2: Hazards Identification

2.1. Classification of the substance or mixture

REGULATION (EC) No 1272/2008

Skin Corrosion / irritation	Category 1 B - H314
Serious Eye Damage / Eye Irritation	Category 1 - H318
Substances/mixtures corrosive to metal.	Category 1 - H290

2.2. Label Elements

Hazard Pictograms



Signal Word

Danger

Hazard Statements

H290 - May be corrosive to metals

H314 - Causes severe skin burns and eye damage

Precautionary Statements - EU (§28, 1272/2008)

P280 - Wear protective gloves/protective clothing/eye protection/face protection

P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting

P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower

P304 + P340 - IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing

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 CENTER or doctor/physician

Contains

Substances

Formic acid

Acetic acid

CAS Number

64-18-6

64-19-7

2.3. Other Hazards

This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT).

This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

SECTION 3: Composition/information on Ingredients

3.2. Mixtures

Mixture

Substances	EINECS	CAS Number	PERCENT (w/w)	EU - CLP Substance Classification	REACH No.
Formic acid	200-579-1	64-18-6	5 - 10%	Acute Tox. 4 (H302) Acute Tox. 3 (H331) Skin Corr. 1A (H314) Eye Corr. 1 (H318) STOT SE 3 (H335) Flam. Liq. 3 (H226) Met. Corr. 1 (H290)	01-2119491174-37
Acetic acid	200-580-7	64-19-7	10 - 30%	Skin Corr. 1A (H314) Eye Corr. 1 (H318) STOT SE 3 (H335) Flam. Liq. 3 (H226)	01-2119475328-30

For the full text of the H-phrases mentioned in this Section, see Section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation	If inhaled, move victim to fresh air and seek medical attention.
Eyes	Check for and remove contact lenses if present. 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 laundry before reuse.
Ingestion	Do not induce vomiting. Administer 2-3 tablespoons of activated charcoal. Burnt toast can be used if charcoal is unavailable. Obtain medical assistance immediately.

4.2. Most Important symptoms and effects, both acute and delayed

Causes severe skin burns and eye damage.

4.3. Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically

SECTION 5: Firefighting Measures

5.1. Extinguishing media

Suitable Extinguishing Media

Water fog, carbon dioxide, foam, dry chemical.

Extinguishing media which must not be used for safety reasons

None known.

5.2. Special hazards arising from the substance or mixture

Special Exposure Hazards

Decomposition in fire may produce harmful gases. Reaction with steel and certain other metals generates flammable hydrogen gas. Do not allow runoff to enter waterways.

5.3. Advice for firefighters

Special Protective Equipment for Fire-Fighters

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

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Use appropriate protective equipment. Avoid contact with skin, eyes and clothing. Avoid breathing vapors. Ensure adequate ventilation.

See Section 8 for additional information

6.2. Environmental precautions

Prevent from entering sewers, waterways, or low areas.

6.3. Methods and material for containment and cleaning up

Isolate spill and stop leak where safe. Remove ignition sources and work with non-sparking tools. Contain spill with sand or other inert materials. Scoop up and remove.

6.4. Reference to other sections

See Section 8 and 13 for additional information.

SECTION 7: Handling and Storage

7.1. Precautions for Safe Handling

Avoid contact with eyes, skin, or clothing. Avoid breathing vapors. Ensure adequate ventilation. Wash hands after use. Launder contaminated clothing before reuse. Use appropriate protective equipment.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Store away from oxidizers. Store in a cool well ventilated area. Keep container closed when not in use. Keep from heat,

sparks, and open flames. Product has a shelf life of 6 months.

7.3. Specific End Use(s)

Exposure Scenario

No information available

Other Guidelines

No information available

SECTION 8: Exposure Controls/Personal Protection

8.1. Control parameters

Exposure Limits

Substances	CAS Number	EU	UK	Netherlands	France
Formic acid	64-18-6	TWA: 5 ppm TWA: 9 mg/m ³	TWA: 5 ppm TWA: 9.6 mg/m ³ STEL: 15 ppm STEL: 28.8 mg/m ³	STEL: 5 mg/m ³	5 ppm
Acetic acid	64-19-7	10 ppm	Not applicable	Not applicable	10 ppm

Substances	CAS Number	Germany	Spain	Portugal	Finland
Formic acid	64-18-6	TWA: 5 ppm TWA: 9.5 mg/m ³	TWA: 5 ppm TWA: 9 mg/m ³	TWA: 5 ppm TWA: 9 mg/m ³ STEL: 10 ppm	TWA: 3 ppm TWA: 5 mg/m ³ STEL: 10 ppm STEL: 19 mg/m ³
Acetic acid	64-19-7	TWA: 10 ppm TWA: 25 mg/m ³	TWA: 10 ppm TWA: 25 mg/m ³ 15 ppm STEL [VLA-EC]; 37 mg/m ³ STEL [VLA-EC]	TWA: 10 ppm TWA: 25 mg/m ³ STEL: 15 ppm	TWA: 5 ppm TWA: 13 mg/m ³ STEL: 10 ppm STEL: 25 mg/m ³

Substances	CAS Number	Austria	Ireland	Switzerland	Norway
Formic acid	64-18-6	TWA: 5 ppm TWA: 9 mg/m ³ STEL" 5 ppm STEL" 9 mg/m ³	5 ppm TWA; 9 mg/m ³ TWA 15 ppm STEL (calculated); 27 mg/m ³ STEL (calculated)	TWA: 5 ppm TWA: 9.5 mg/m ³ STEL: 10 ppm STEL: 19 mg/m ³	TWA: 5 ppm TWA: 9 mg/m ³ STEL: 10 ppm STEL: 18 mg/m ³
Acetic acid	64-19-7	TWA: 10 ppm TWA: 25 mg/m ³ STEL" 20 ppm STEL" 50 mg/m ³	10 ppm TWA; 25 mg/m ³ TWA 15 ppm STEL; 37 mg/m ³ STEL	TWA: 10 ppm TWA: 25 mg/m ³ STEL: 20 ppm STEL: 50 mg/m ³	TWA: 10 ppm TWA: 25 mg/m ³ STEL: 20 ppm STEL: 37.5 mg/m ³

Substances	CAS Number	Italy	Poland	Hungary	Czech Republic
Formic acid	64-18-6	TWA: 5 ppm TWA: 9 mg/m ³	TWA: 5 mg/m ³ STEL: 15 mg/m ³	TWA: 9 mg/m ³	TWA: 9 mg/m ³
Acetic acid	64-19-7	10 ppm	TWA: 15 mg/m ³ STEL: 30 mg/m ³	TWA: 25 mg/m ³ STEL: 25 mg/m ³	TWA: 25 mg/m ³

Substances	CAS Number	Denmark	Romania	Croatia	Cyprus
Formic acid	64-18-6	TWA: 5 ppm TWA: 9 mg/m ³	TWA: 5 ppm TWA: 9 mg/m ³	TWA: 5 ppm TWA: 9 mg/m ³	TWA: 5 ppm TWA: 9 mg/m ³
Acetic acid	64-19-7	TWA: 10 ppm TWA: 25 mg/m ³	TWA: 10 ppm TWA: 25 mg/m ³	TWA: 10 ppm TWA: 25 mg/m ³	TWA: 10 ppm TWA: 25 mg/m ³

Derived No Effect Level (DNEL)

Worker

Substances	Long-term exposure - systemic effects, Inhalation	Acute / short term exposure - systemic effects, Inhalation	Long-term exposure - local effects, Inhalation	Acute / short term exposure - local effects, Inhalation	Long-term exposure - systemic effects, Dermal	Acute / short term exposure - systemic effects, Dermal	Long-term exposure - local effects, Dermal	Acute / short term exposure - local effects, Dermal	Hazards for the eyes - local effects
Formic acid	Not available	Not available	9.5 mg/m ³	19 mg/m ³	Not available	Not available	Not available	Not available	Not available
Acetic acid	Not available	Not available	25 mg/m ³	25 mg/m ³	Not available	Not available	Not available	Not available	Not available

General Population

Substances	Long-term exposure - systemic effects, Inhalation	Acute / short term exposure - systemic effects, Inhalation	Long-term exposure - local effects, Inhalation	Acute / short term exposure - local effects, Inhalation	Long-term exposure - systemic effects, Dermal	Acute / short term exposure - systemic effects, Dermal	Long-term exposure - local effects, Dermal	Acute / short term exposure - local effects, Dermal	Long-term exposure - systemic effects, Oral	Acute / short term exposure - local effects, Oral	Hazards for the eyes - local effects
Formic acid	Not	Not	3 mg/m ³	9.5 mg/m ³	Not	Not	Not	Not	Not	Not	Not

	available	available			available	available	available	available	available	available	available
Acetic acid	Not available	Not available	25 mg/m ³	25 mg/m ³	Not available	Not available	Not available	Not available	Not available	Not available	Not available

Predicted No Effect Concentration (PNEC)

Substances	Freshwater	Marine water	Intermittent release	Sewage treatment plant	Sediment (freshwater)	Sediment (marine water)	Air	Soil	Secondary poisoning
Formic acid	2 mg/L	0.2 mg/L	1 mg/L	7.2 mg/L	13.4 mg/kg sediment dw	1.34 mg/kg sediment dw	Not available	1.5 mg/kg soil dw	Not available
Acetic acid	3.06 mg/l	0.306 mg/l	30.58 mg/l	85 mg/l	11.4 mg/kg	1.14 mg/kg	Not available	0.478 mg/kg	Not available

8.2. Exposure controls**Engineering Controls**

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

Personal protective equipment

If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.

Respiratory Protection

If engineering controls and work practices cannot keep exposure below occupational exposure limits or if exposure is unknown, wear a NIOSH certified, European Standard EN 149, AS/NZS 1715:2009, or equivalent respirator when using this product. Selection of and instruction on using all personal protective equipment, including respirators, should be performed by an Industrial Hygienist or other qualified professional. Organic vapor respirators have a short service life. Positive pressure self-contained breathing apparatus if methanol is released.

Hand Protection

Chemical-resistant protective gloves (EN 374) Suitable materials for longer, direct contact (recommended: protection index 6, corresponding to > 480 minutes permeation time as per EN 374): Nitrile gloves. (>= 0.35 mm thickness)
This information is based on literature references and on information provided by glove manufacturers, or is derived by analogy with similar substances. Please note that in practice the working life of chemical-resistant protective gloves may be considerably shorter than the permeation time determined in accordance with EN 374 as a result of the many influencing factors (e.g. temperature). If signs of wear and tear are noticed then the gloves should be replaced. Manufacturer's directions for use should be observed because of great diversity of types.

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.

Environmental Exposure Controls Do not allow material to contaminate ground water system

SECTION 9: Physical and Chemical Properties**9.1. Information on basic physical and chemical properties**

Physical State: Liquid
Odor: Pungent

Color: Not determined
Odor Threshold: No information available

PropertyValues

Remarks/ - Method

pH:

No data available

Freezing Point/Range

No data available

Melting Point/Range

No data available

Boiling Point/Range

No data available

Flash Point

No data available

Flammability (solid, gas)

No data available

upper flammability limit

No data available

lower flammability limit

No data available

Evaporation rate

No data available

Vapor Pressure

No data available

Vapor Density

No data available

Specific Gravity

1.03

Water Solubility

Miscible with water

Solubility in other solvents

No data available

Partition coefficient: n-octanol/water

No data available

Autoignition Temperature

No data available

Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No information available
Oxidizing Properties	No information available

9.2. Other information

VOC Content (%)	No data available
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SECTION 10: Stability and Reactivity

10.1. Reactivity

Not expected to be reactive.

10.2. Chemical Stability

Stable

10.3. Possibility of Hazardous Reactions

Will Not Occur

10.4. Conditions to Avoid

Keep away from heat, sparks and flame.

10.5. Incompatible Materials

Strong oxidizers.

10.6. Hazardous Decomposition Products

Carbon monoxide and carbon dioxide. Oxides of sulfur. Oxides of nitrogen.

SECTION 11: Toxicological Information

11.1. Information on Toxicological Effects**Acute Toxicity****Inhalation**

May cause mild respiratory irritation.

Eye Contact

Causes eye burns.

Skin Contact

Causes severe burns.

Ingestion

Causes burns of the mouth, throat and stomach.

Chronic Effects/Carcinogenicity

Prolonged, excessive exposure may cause erosion of the teeth.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Formic acid	64-18-6	730 mg/kg (Rat)	> 2000 mg/kg (Rat) (Similar substance)	7.4 mg/L (Rat) 4h 15 mg/L (Rat) 15m
Acetic acid	64-19-7	3310 mg/kg (Rat) 600 mg/kg (Rabbit) 4960 mg/kg (Mouse)	1060 mg/kg (Rabbit)	11.4 mg/L (Rat) 4h

Substances	CAS Number	Skin corrosion/irritation
Formic acid	64-18-6	Corrosive to skin (Rabbit)
Acetic acid	64-19-7	Corrosive to skin

Substances	CAS Number	Eye damage/irritation
Formic acid	64-18-6	Corrosive to eyes (Rabbit)
Acetic acid	64-19-7	Corrosive to eyes

Substances	CAS Number	Skin Sensitization
Formic acid	64-18-6	Did not cause sensitization on laboratory animals (guinea pig)
Acetic acid	64-19-7	Not regarded as a sensitizer.

Substances	CAS Number	Respiratory Sensitization
Formic acid	64-18-6	No information available
Acetic acid	64-19-7	No information available

Substances	CAS Number	Mutagenic Effects
Formic acid	64-18-6	In vitro tests did not show mutagenic effects In vivo tests did not show mutagenic effects.
Acetic acid	64-19-7	In vivo tests did not show mutagenic effects. In vitro tests did not show mutagenic effects

Substances	CAS Number	Carcinogenic Effects
Formic acid	64-18-6	Did not show carcinogenic effects in animal experiments (similar substances)
Acetic acid	64-19-7	Did not show carcinogenic effects in animal experiments

Substances	CAS Number	Reproductive toxicity
Formic acid	64-18-6	Did not show teratogenic effects in animal experiments. (similar substances) Animal testing did not show any effects on fertility.
Acetic acid	64-19-7	Did not show teratogenic effects in animal experiments. Animal testing did not show any effects on fertility.

Substances	CAS Number	STOT - single exposure
Formic acid	64-18-6	May cause respiratory irritation.
Acetic acid	64-19-7	May cause respiratory irritation.

Substances	CAS Number	STOT - repeated exposure
Formic acid	64-18-6	No significant toxicity observed in animal studies at concentration requiring classification.
Acetic acid	64-19-7	Not applicable due to corrosivity of the substance.

Substances	CAS Number	Aspiration hazard
Formic acid	64-18-6	Not applicable
Acetic acid	64-19-7	Not applicable

SECTION 12: Ecological Information

12.1. Toxicity Ecotoxicity Effects

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Formic acid	64-18-6	EC50 25 mg/L (Desmodesmus subspicatus) EC50 (72h) 1240 mg/L (growth rate) (Pseudokirchnerella subcapitata) (Similar substance)	LC50 (96h) 175 mg/L (Lepomis Macrochirus) LC50 (96h) 130 mg/L (Danio rerio) (Similar substance) LC50 (96h) 1720 mg/L (Scophthalmus maximus) (Similar substance) LC50 (96h) 3500 mg/L (Oncorhynchus mykiss) (similar substance)	NOEC (13d) 72 mg/L (activated sludge, domestic)	EC50 (48h) 120 mg/L (Daphnia magna) EC50 (48h) 450 mg/L (Daphnia magna) (similar substance) EC50 (48h) 365 mg/L (Daphnia magna) (Similar substance) LC50 (96h) 1308 mg/L (Crangon crangon) (Similar substance) NOEC (21d) >= 100 mg/L (Daphnia magna)
Acetic acid	64-19-7	EC50 90 mg/L (Microcystis aeruginosa) EC50 (72h) > 1000 mg/L (>300.82 mg/L – acetate ion) (Skeletonema costatum)	LC50 79 mg/L (Pimephales promelas) LC50 75 mg/L (Pimephales promelas) LC50 (96h) > 1000 mg/L (>300.82 mg/L – acetate ion) (Oncorhynchus mykiss)	NOEC (16h) 1150 mg/L (Pseudomonas putida)	EC50 47 mg/L (Daphnia magna) LC50 32 mg/L (Artemia salina) EC50 (48h) > 1000 mg/L (>300.82 mg/L – acetate ion) (Daphnia magna) NOEC (21d) 31.4 - 37.9 mg/L (Daphnia magna) (reproduction)

12.2. Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Formic acid	64-18-6	Readily biodegradable (100 @ 14d)
Acetic acid	64-19-7	Readily biodegradable (99% @ 7d)

12.3. Bioaccumulative potential

Substances	CAS Number	Log Pow
Formic acid	64-18-6	-2.1

Acetic acid	64-19-7	-0.17 BCF = 3.16 (Calculated)
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12.4. Mobility in soil

Substances	CAS Number	Mobility
Formic acid	64-18-6	KOC = 31
Acetic acid	64-19-7	No information available

12.5. Results of PBT and vPvB assessment

This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT). This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

Substances	PBT and vPvB assessment
Formic acid	Not PBT/vPvB
Acetic acid	Not PBT/vPvB

12.6. Other adverse effects**Endocrine Disruptor Information**

This product does not contain any known or suspected endocrine disruptors

SECTION 13: Disposal Considerations
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13.1. Waste treatment methods**Disposal Method**

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

Contaminated Packaging

Follow all applicable national or local regulations.

SECTION 14: Transport Information
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IMDG/IMO

UN Number: UN3265
UN Proper Shipping Name: Corrosive Liquid, Acidic, Organic, N.O.S. (Contains Formic Acid, Acetic Acid)
Transport Hazard Class(es): 8
Packing Group: III
Environmental Hazards: Not applicable

RID

UN Number: UN3265
UN Proper Shipping Name: Corrosive Liquid, Acidic, Organic, N.O.S. (Contains Formic Acid, Acetic Acid)
Transport Hazard Class(es): 8
Packing Group: III
Environmental Hazards: Not applicable

ADR

UN Number: UN3265
UN Proper Shipping Name: Corrosive Liquid, Acidic, Organic, N.O.S. (Contains Formic Acid, Acetic Acid)
Transport Hazard Class(es): 8
Packing Group: III
Environmental Hazards: Not applicable

IATA/ICAO

UN Number: UN3265
UN Proper Shipping Name: Corrosive Liquid, Acidic, Organic, N.O.S. (Contains Formic Acid, Acetic Acid)
Transport Hazard Class(es): 8
Packing Group: III
Environmental Hazards: Not applicable

14.1. UN Number: UN3265

14.2. UN Proper Shipping Name: Corrosive Liquid, Acidic, Organic, N.O.S. (Contains Formic Acid, Acetic Acid)

14.3. Transport Hazard Class(es): 8

14.4. Packing Group: III

14.5. Environmental Hazards: Not applicable

14.6. Special Precautions for User: None

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: Not applicable

SECTION 15: Regulatory Information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

International Inventories

EINECS Inventory

This product does not comply with EINECS

US TSCA Inventory

All components listed on inventory or are exempt.

Canadian DSL Inventory

All components listed on inventory or are exempt.

Legend

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

DSL/NDL - Canadian Domestic Substances List/Non-Domestic Substances List

Germany, Water Endangering

WGK 1: Low hazard to waters.

Classes (WGK)

List of the carcinogenic, mutagenic and toxic for reproduction substances SZW

Methanol

15.2. Chemical Safety Assessment

No information available

SECTION 16: Other Information

Full text of H-Statements referred to under sections 2 and 3

H290 - May be corrosive to metals

H226 - Flammable liquid and vapor

H302 - Harmful if swallowed

H314 - Causes severe skin burns and eye damage

H318 - Causes serious eye damage

H331 - Toxic if inhaled

H335 - May cause respiratory irritation

Key or legend to abbreviations and acronyms

bw – body weight

CAS – Chemical Abstracts Service

CLP – REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on Classification, Labelling and Packaging of substances and mixtures

EC – European Commission

EC10 – Effective Concentration 10%

EC50 – Effective Concentration 50%

EEC – European Economic Community

ErC50 – Effective Concentration growth rate 50%

IBC Code – International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk

LC50 – Lethal Concentration 50%

LD50 – Lethal Dose 50%

LL0 – Lethal Loading 0%

LL50 – Lethal Loading 50%

MARPOL – International Convention for the Prevention of Pollution from Ships

mg/kg – milligram/kilogram

mg/L – milligram/liter

NIOSH – National Institute for Occupational Safety and Health

NOEC – No Observed Effect Concentration

NTP – National Toxicology Program

OEL – Occupational Exposure Limit

PBT – Persistent Bioaccumulative and Toxic

PC – Chemical Product category

PEL – Permissible Exposure Limit

ppm – parts per million

PROC – Process category

REACH – REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals

STEL – Short Term Exposure Limit

SU – Sector of Use category

Key literature references and sources for data

www.ChemADVISOR.com/

Revision Date: 08-Sep-2015

Revision Note

SDS sections updated: 1

This safety data sheet complies with the requirements of Regulation (EC) No. 453/2010

Disclaimer Statement

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End of Safety Data Sheet