

SAFETY DATA SHEET

according to Regulation (EC) No. 453/2010

HYFLO IV M SURFACTANT

Revision Date: 29-Oct-2013

Revision Number: 12

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product Identifier

Product Name HYFLO IV M SURFACTANT

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

Recommended Use	Surfactant
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

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

Emergency Phone Number: +44 1224 795277 or +1 281 575 5000

www.halliburton.com

For further information, please contact

E-Mail address: fdunexchem@halliburton.com

1.4 Emergency telephone number

+44 1224 795277 or +1 281 575 5000

Emergency telephone - §45 - (EC)1272/2008	
Europe	112
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
Spain	Poison Information Service (ES): +34 91 562 04 20
United Kingdom	NHS Direct (UK): +44 0845 46 47

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

REGULATION (EC) No 1272/2008

Skin Corrosion / irritation	Category 2 - H315
Serious Eye Damage / Eye Irritation	Category 2 - H319
Germ Cell Mutagenicity	Category 1B - H340
Carcinogenicity	Category 1B - H350
Specific Target Organ Toxicity - (Single Exposure)	Category 3 - H336
Flammable liquids.	Category 2 - H225

Classification according to EU Directives 67/548/EEC or 1999/45/EC

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

Classification

F - Highly Flammable.
T - Toxic.

Risk Phrases

R11 Highly flammable.
R45 May cause cancer.
R46 May cause heritable genetic damage.
R67 Vapours may cause drowsiness and dizziness.
R36/37/38 Irritating to eyes, respiratory system and skin.

2.2 Label Elements**Hazard Pictograms****Signal Word****Danger****Hazard Statements**

H340 - May cause genetic defects
H350 - May cause cancer
H315 - Causes skin irritation
H319 - Causes serious eye irritation
H336 - May cause drowsiness or dizziness
H225 - Highly flammable liquid and vapor

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

P280 - Wear protective gloves/eye protection/face protection
P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
P332 + P313 - If skin irritation occurs: Get medical advice/attention
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P337 + P313 - If eye irritation persists: Get medical advice/attention
P304 + P340 - IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing
P308 + P313 - IF exposed or concerned: Get medical advice/attention

Contains**Substances**

Naphtha, heavy catalytic reformed
Isopropanol
Organic polymer

CAS Number

64741-68-0
67-63-0
Proprietary

2.3 Other Hazards

None known

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substances	EINECS	CAS Number	PERCENT (w/w)	EEC Classification	EU - CLP Substance Classification	REACH No.
Naphtha, heavy catalytic reformed	265-070-9	64741-68-0	30 - 60%	Carc.Cat.2; R45 Muta.Cat.2; R46 Xn; R65	Muta. 1B (H340) Carc. 1B (H350) Asp. Tox. 1 (H304)	No data available
Isopropanol	200-661-7	67-63-0	10 - 30%	F; R11 Xi; R36 R67	Eye Irrit. 2 (H319) STOT SE 3 (H336) Flam. Liq. 2 (H225)	01-2119457558-25
Organic polymer	Not Listed	Proprietary	1 - 5%	Xi; R36/38	Skin Irrit. 2 (H315) Eye Irrit. 2 (H319)	No data available

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

4. FIRST AID MEASURES**4.1 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	Get medical attention! If vomiting occurs, keep head lower than hips to prevent aspiration.

4.2 Most Important symptoms and effects, both acute and delayed

May cause eye and skin irritation. May cause headache, dizziness, and other central nervous system effects. Potential carcinogen.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically

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**

May be ignited by heat, sparks or flames. Use water spray to cool fire exposed surfaces. Closed containers may explode in fire. Decomposition in fire may produce toxic gases. Vapors are heavier than air and may accumulate in low areas. Vapors may travel along the ground to be ignited at distant locations. 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.

6. ACCIDENTAL RELEASE MEASURES**6.1 Personal precautions, protective equipment and emergency procedures**

Use appropriate protective equipment. Wear self-contained breathing apparatus in enclosed areas.

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.

7. HANDLING AND STORAGE

7.1 Precautions for Safe Handling

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

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. Product has a shelf life of 24 months.

7.3 Specific End Use(s)**Exposure Scenario**

No information available

Other Guidelines

No information available

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters**Exposure Limits**

Substances	CAS Number	EU	UK OEL	Netherlands	France OEL
Naphtha, heavy catalytic reformed	64741-68-0	Not applicable	Not applicable	Not applicable	Not applicable
Isopropanol	67-63-0	Not applicable	STEL: 500 ppm STEL: 1250 mg/m ³ TWA: 400 ppm TWA: 999 mg/m ³	Not applicable	Not applicable
Organic polymer	Proprietary	Not applicable	Not applicable	Not applicable	Not applicable

Substances	CAS Number	Germany MAK/TRK	Spain	Portugal	Finland
Naphtha, heavy catalytic reformed	64741-68-0	Not applicable	Not applicable	Not applicable	Not applicable
Isopropanol	67-63-0	TWA: 200 ppm TWA: 500 mg/m ³ MAK: 200 ppm MAK: 500 mg/m ³	500 ppm VLA-EC; 1250 mg/m ³ VLA-EC VLA-ED: 400 ppm VLA-ED: 998 mg/m ³	STEL: 400 ppm TWA: 200 ppm	STEL: 250 ppm STEL: 620 mg/m ³ TWA: 200 ppm TWA: 500 mg/m ³
Organic polymer	Proprietary	Not applicable	Not applicable	Not applicable	Not applicable

Substances	CAS Number	Austria	Ireland	Switzerland	Norway
Naphtha, heavy catalytic reformed	64741-68-0	Not applicable	Not applicable	Not applicable	Not applicable
Isopropanol	67-63-0	Not applicable	Not applicable	Not applicable	STEL: 150 ppm STEL: 306.25 mg/m ³ TWA: 100 ppm TWA: 245 mg/m ³
Organic polymer	Proprietary	Not applicable	Not applicable	Not applicable	Not applicable

Substances	CAS Number	Italy	Poland	Hungary	Czech Republic
Naphtha, heavy catalytic reformed	64741-68-0	Not applicable	Not applicable	Not applicable	Not applicable
Isopropanol	67-63-0	Not applicable	NDSch: 1200 mg/m ³ NDS: 900 mg/m ³	TWA: 500 mg/m ³ STEL: 2000 mg/m ³	TWA: 500 mg/m ³
Organic polymer	Proprietary	Not applicable	Not applicable	Not applicable	Not applicable

Substances	CAS Number	Denmark
Naphtha, heavy catalytic reformed	64741-68-0	Not applicable
Isopropanol	67-63-0	TWA: 200 ppm TWA: 490 mg/m ³
Organic polymer	Proprietary	Not applicable

Derived No Effect Level (DNEL)

No information available.

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
Isopropanol	500 mg/m ³	Not available	Not available	Not available	888 mg/kg bw/day	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
Isopropanol	89 mg/m ³	Not available	Not available	Not available	319 mg/kg bw/day	Not available	Not available	Not available	26 mg/kg bw/day	Not available	Not available

Predicted No Effect Concentration (PNEC)

No information available.

Substances	Freshwater	Marine water	Intermittent release	Sewage treatment plant	Sediment (freshwater)	Sediment (marine water)	Air	Soil	Secondary poisoning
Isopropanol	140.9 mg/L	140.9 mg/L	140.9 mg/L	2251 mg/L	552 mg/L	552 mg/L	Not available	28 mg/kg soil dw	160 mg/kg food

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**Respiratory Protection**

Organic vapor respirator.

In high concentrations, supplied air respirator or a self-contained breathing apparatus.

Hand Protection

Impervious rubber gloves.

Skin Protection

Rubber apron.

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

No information available

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties**Physical State:** Liquid**Color:** Amber**Odor:** Hydrocarbon**Odor Threshold:** No information availablePropertyValuesRemarks/ - Method**pH:**

4-6

Freezing Point/Range

No data available

Melting Point/Range

No data available

Boiling Point/Range

No data available

Flash Point

12.8 °C PMCC

upper flammability limit

12.7

lower flammability limit

2

Evaporation rate

No data available

Vapor Pressure

No data available

Vapor Density

No data available

Specific Gravity

0.91

Water Solubility

Insoluble in 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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10. STABILITY AND REACTIVITY

10.1 Reactivity

Not applicable

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

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

11. TOXICOLOGICAL INFORMATION

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

May cause respiratory irritation. This material is an anesthetic. May cause central nervous system depression including headache, dizziness, drowsiness, incoordination, slowed reaction time, slurred speech, giddiness and unconsciousness.

Eye Contact

May cause moderate eye irritation.

Skin Contact

May cause skin irritation.

Ingestion

Irritation of the mouth, throat, and stomach. May cause abdominal pain, vomiting, nausea, and diarrhea. May produce nervous system effects such as feeling of weakness, unsteady walk, and dilation of blood vessels. Aspiration into the lungs may cause chemical pneumonitis including coughing, difficulty breathing, wheezing, coughing up blood and pneumonia, which can be fatal.

Chronic Effects/Carcinogenicity Repeated overexposure may cause liver and kidney effects. Contains petroleum distillates which have been shown to cause skin cancer in laboratory animals.

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Naphtha, heavy catalytic reformed	64741-68-0	4800 mg/kg (Rat)	2000 mg/kg (Rabbit)	5.04 mg/L (Rat) 4 h
Isopropanol	67-63-0	4396 mg/kg (Rat) 3600 mg/kg (mouse)	12800 mg/kg (Rat) 12870 mg/kg (Rabbit)	72.6 mg/L (Rat) 4 h
Organic polymer	Proprietary	No data available	No data available	No data available

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Ecotoxicity Effects

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Daphnia Magna (Water Flea)
Naphtha, heavy catalytic reformed	64741-68-0	No information available	No information available	No information available	No information available
Isopropanol	67-63-0	EC50: > 1000 mg/l(Desmodesmus subspicatus)	LC50: 9640 mg/l (Pimephales promelas)	No information available	EC50: 13299 mg/l (Daphnia magna)
Organic polymer	Proprietary	No information available	No information available	No information available	No information available

12.2 Persistence and degradability

No information available

12.3 Bioaccumulative potential

No information available

12.4 Mobility in soil

No information available

12.5 Results of PBT and vPvB assessment

No information available.

12.6 Other adverse effects

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

13. DISPOSAL CONSIDERATIONS

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.

14. TRANSPORT INFORMATION

IMDG/IMO

UN Number: UN1993,
 UN Proper Shipping Name: Flammable Liquid, N.O.S.
 Transport Hazard Class(es): , 3
 Packing Group: , II
 EMS: EmS F-E, S-E

RID

UN Number: UN1993,
 UN Proper Shipping Name: Flammable Liquid, N.O.S.
 Transport Hazard Class(es): , 3
 Packing Group: , II

ADR

UN Number: UN1993,
 UN Proper Shipping Name: Flammable Liquid, N.O.S.
 Transport Hazard Class(es): , 3
 Packing Group: , II

IATA/ICAO

UN Number: UN1993,
 UN Proper Shipping Name: Flammable Liquid, N.O.S.
 Transport Hazard Class(es): , 3
 Packing Group: , II

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

Not applicable

15. REGULATORY INFORMATION

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

International Inventories

All of the components in the product are on the following Inventory lists: All of the components in the product are on the following Inventory lists:.

EINECS Inventory	This product, and all its components, complies 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 Classes (WGK)	Not determined.
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15.2 Chemical Safety Assessment

No information available

16. OTHER INFORMATION

Full text of R-phrases referred to under Sections 2 and 3

R11 Highly flammable.
R45 May cause cancer.
R46 May cause heritable genetic damage.
R67 Vapours may cause drowsiness and dizziness.
R36/37/38 Irritating to eyes, respiratory system and skin.

Key literature references and sources for data

www.ChemADVISOR.com/

Revision Date: 29-Oct-2013

Revision Note

Not applicable

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