



# Safety Data Sheet

## HiFlow 5

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### SECTION 1: Identification

#### 1.1 Product identifier

Product name HiFlow 5  
Product number HF5

#### 1.3 Recommended use of the chemical and restrictions on use

Friction Reducer

#### 1.4 Supplier's details

Name Downhole Chemical Solutions  
Address 7274 Elm Street  
Frisco, Texas 75034  
  
Telephone 469-466-1100

#### 1.5 Emergency phone number(s)

1-888-255-3924 US (ChemTel)  
1-813-248-0585 International (ChemTel)

### SECTION 2: Hazard identification

#### 2.1 Classification of the substance or mixture

**GHS classification in accordance with: (US) OSHA (29 CFR 1910.1200)**

- Skin corrosion/irritation, Cat. 2

#### 2.2 GHS label elements, including precautionary statements

##### Pictogram



##### Signal word

**Warning**

##### Hazard statement(s)

H315

Causes skin irritation

##### Precautionary statement(s)

P264

P280

P302+P352

P332+P313

P362+P364

Wash hands thoroughly after handling.

Wear protective gloves.

IF ON SKIN: Wash with plenty of water.

If skin irritation occurs: Get medical advice/attention.

Take off contaminated clothing and wash it before reuse.

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- 2.3 Other hazards which do not result in classification**  
Slip hazard from spills

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### SECTION 3: Composition/information on ingredients

#### 3.2 Mixtures

Hazardous components	
Distillates, petroleum, hydrotreated light (CAS no.: 64742-47-8; EC no.: 265-149-8)	16 - 18 % (weight)
Ammonium chloride (CAS no.: 12125-02-9; EC no.: 235-186-4; Index no.: 017-014-00-8)	1 - 1.5 % (weight)

**Trade secret statement (OSHA 1910.1200(i))**

\*The specific chemical identities and/or actual concentrations or actual concentration ranges for one or more listed components are being withheld as trade secrets under the US regulation 29 CFR 1910.1200(i).

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### SECTION 4: First-aid measures

#### 4.1 Description of necessary first-aid measures

General advice	Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of the dangerous area.
If inhaled	Remove the person to fresh air and keep comfortable for breathing. If breathing is difficult, give oxygen. Call a poison center or doctor if you feel unwell.
In case of skin, contact	Take off contaminated clothing and shoes immediately. Wash with plenty of water for at least 15 minutes. Call a poison center or doctor if irritation develops or persists. Take off contaminated clothing and wash it before reuse.
In case of eye contact	Rinse cautiously with water, especially under eyelids, for at least 15 minutes.
If swallowed	If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person.

#### 4.2 Most important symptoms/effects, acute and delayed

The most important known symptoms and effects are described in the labeling (see section 2) and/or in section 11

#### 4.3 Indication of immediate medical attention and special treatment needed, if necessary

All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred. Treat symptomatically.

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### SECTION 5: Fire-fighting measures

#### 5.1 Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide.

#### Unsuitable extinguishing media

solids water stream, water may be ineffective

#### 5.2 Specific hazards arising from the chemical

No information available

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### 5.3 Special protective actions for fire-fighters

Wear self-contained breathing apparatus and protective suit. Use NIOSH/MSHA approved respiratory protection.

#### Further information

Use water spray to cool unopened containers. Spills produce extremely slippery surfaces.

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## SECTION 6: Accidental release measures

### 6.1 Personal precautions, protective equipment, and emergency procedures

Where exposure level is not known, wear approved, positive pressure, self-contained respirator. Where the exposure level is known, wear an approved respirator suitable for the level of exposure. For personal protection see SDS section 8. Chemical resistant boots.

### 6.2 Environmental precautions

Do not contaminate water

### 6.3 Methods and materials for containment and cleaning up

Stop leak if you can do it without risk. Soak up with inert absorbent material (sand, silica gel, acid binder, universal binder, sawdust). Sweep up and shovel into suitable containers for disposal. After cleaning, flush away traces with water.

#### Reference to other sections

For disposal see section 13.

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## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

Surfaces are very slippery from this product. Do not swallow. Do not breathe mist, vapors, or spray. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. See Section 8 for information on Personal Protective Equipment.

### 7.2 Conditions for safe storage, including any incompatibilities

Store at room temperature. To avoid product degradation and equipment corrosion, do not use iron, copper, or aluminum containers or equipment. Flashpoint determination was performed using a Pensky Martens type closed cup method. The method indicates a flash point greater than 93.3°C (200°F). Although there was no flash point detected below 93.3°C (200°F) some flammable vapors were evolved during the test as evidenced by the enlargement of the flame. Therefore caution should be exercised during storage and handling.

#### Specific end use(s)

Apart from the uses mentioned in section 1, no other specific uses are stipulated.

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## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### CAS: 12125-02-9 (EC: 235-186-4)

Ammonium chloride

ACGIH: 20 mg/m<sup>3</sup> STEL inhalation; 10 mg/m<sup>3</sup> TWA inhalation; Cal/OSHA: 20 mg/m<sup>3</sup> PEL-ST inhalation; 10 mg/m<sup>3</sup> PEL-TWA inhalation; NIOSH: 20 mg/m<sup>3</sup> REL-ST inhalation; 10 mg/m<sup>3</sup> REL-TWA inhalation

#### CAS: 64742-47-8 (EC: 265-149-8)

Distillates, petroleum, hydrotreated light

ACGIH: 200 mg/m<sup>3</sup> TLV® inhalation

### 8.2 Appropriate engineering controls

Use ventilation adequate to keep exposures (airborne levels of dust, fume, vapor, gas, etc.) below recommended exposure limits.

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### 8.3 Individual protection measures, such as personal protective equipment (PPE)

#### Eye/face protection

Safety glasses with side shields or goggles. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

#### Skin protection

Wear protective gloves, such as PVC or other plastic material. Consult manufacturer specifications for further information.

#### Body protection

Wear protective clothing. Clothing with full-length sleeves and pants should be worn. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

#### Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with a multipurpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied-air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

#### Thermal hazards

No data is available.

#### Environmental exposure controls

Do not let the product enter drains.

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## SECTION 9: Physical and chemical properties

### Information on basic physical and chemical properties

Appearance/form (physical state, color, etc.)	Milky Emulsion
Odor	Mild petroleum odor
Odor threshold	No data available.
pH	6.0-8.0
Melting point/freezing point	< 20 °F
Initial boiling point and boiling range	> 201 °F
Flash point	>200 °F
Evaporation rate	< 1 (n-butyl acetate =1)
Flammability (solid, gas)	No data available.
Upper/lower flammability limits	No data available.
Upper/lower explosive limits	No data available.
Vapor pressure	10 (< 77 °F)
Vapor density	No data available.
Density	8.9-9.1
Relative density	1.06-1.08 (77 °F)
Solubility(ies)	Water: dispersible
Partition coefficient: n-octanol/water	No data available.
Auto-ignition temperature	No data available.
Decomposition temperature	No data available.
Viscosity	>20.5 mm <sup>2</sup> /s @ 40 °C
Explosive properties	No data available.
Charge	Anionic
Oxidizing properties	The substance or mixture is not classified as oxidizing

#### Other safety information

No data is available.

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### SECTION 10: Stability and reactivity

#### 10.1 Reactivity

Contact with incompatible materials. Sources of ignition. Exposure to heat.

#### 10.2 Chemical stability

Stable under normal storage conditions.

#### 10.3 Possibility of hazardous reactions

No data is available.

#### 10.4 Conditions to avoid

Heat, flames, and sparks. Incompatible products. Keep away from open flames, hot surfaces, and sources of ignition.

#### 10.5 Incompatible materials

Strong oxidizing agent

#### 10.6 Hazardous decomposition products

Thermal decomposition may produce: carbon oxides, ammonia, nitrogen oxides

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### SECTION 11: Toxicological information

#### Information on toxicological effects

##### Acute toxicity

Likely Routes of Exposure: Eye contact. Skin contact. Inhalation. Ingestion.

Information on the product as supplied:

LD50 Oral - Rat - > 5000 mg/kg (Estimated)

LD50 Skin - Rabbit - > 5000 mg/kg (Estimated)

LC50 Inhalation - The product is not expected to be toxic by inhalation

Components:

Ammonium chloride

LD50 Oral - Rat - 1,650 mg/kg

Distillates, petroleum, hydrotreated light:

LD50 Oral - Rat - > 5000 mg/kg

LD50 Skin - Rabbit - > 5,000 mg/kg

LC0 Inhalation - Rat - 4951 mg/m<sup>3</sup> - 4 h. Result: Based on results obtained from tests on analogous products

Symptoms (including delayed and immediate effects):

Inhalation: May cause respiratory irritation. Signs/symptoms may include cough, sneezing, nasal discharge, headache, hoarseness, nose, and throat pain.

Ingestion: May cause gastrointestinal irritation. Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting, and diarrhea.

##### Skin corrosion/irritation

Information on the product as supplied:

Causes skin irritation. Signs/symptoms may include localized redness, swelling, and itching.

Components:

Ammonium chloride

Rabbit/Non-irritating

Distillates, petroleum, hydrotreated light

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Irritating

### **Serious eye damage/irritation**

Information on the product as supplied:

May cause eye irritation. Signs/symptoms may include redness, swelling, pain, tearing, and blurred or hazy vision.

Components:

Ammonium chloride

Rabbit/ Irritating to eyes

Distillates, petroleum, hydrotreated light

Not irritating to eyes

### **Respiratory or skin sensitization**

Information on the product as supplied:

Not sensitizing

Components:

Ammonium chloride

Not sensitizing

Distillates, petroleum, hydrotreated light

The product is not expected to be sensitizing

### **Germ cell mutagenicity**

Information on the product as supplied:

Not mutagenic.

Components:

Ammonium chloride

No data available

Distillates, petroleum, hydrotreated light

Not mutagenic.

### **Carcinogenicity**

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

### **Reproductive toxicity**

Information on the product as supplied:

Not toxic for reproduction

### **STOT-single exposure**

Information on the product as supplied:

No data available

Components:

Ammonium chloride

No data available

Distillates, petroleum, hydrotreated light

May cause drowsiness or dizziness. - Central nervous system

### **STOT-repeated exposure**

Information on the product as supplied:

No known effects

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### Components:

Ammonium chloride

No data available

Distillates, petroleum, hydrotreated light

No data available

### Aspiration hazard

Information on the product as supplied:

Due to viscosity, this product does not present an aspiration hazard

### Components:

Distillates, petroleum, hydrotreated light

May be fatal if swallowed and enters airways.

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## SECTION 12: Ecological information

### Toxicity

Information on the product as supplied:

LC50 - Pimephales promelas (fathead minnow) - 10-100 mg/l - 96 h (Estimated from similar product)

EC50 - Ceriodaphnia dubia (Water flea) - 10-100 mg/l - 48 h (Estimated from a similar product)

### Components:

Ammonium chloride

LC50 - Oncorhynchus mykiss (rainbow trout) - 3.98 mg/l - 96 h

NOEC - Oncorhynchus mykiss (rainbow trout) - 57 mg/l - 96 h

EC50 - Daphnia magna (water flea) - 161 mg/l - 48 h

NOEC - Daphnia magna (water flea) - 0.1 mg/l - 216 h

Distillates, petroleum, hydrotreated light

LC0 - Oncorhynchus mykiss (rainbow trout) - >1000 mg/l - 96 h

EC0 - Daphnia magna (water flea) - >1000 mg/l - 48 h

IC0 - Pseudokirchneriella subcapitata (green algae) - >1000 mg/l - 72 h

NOEC - Oncorhynchus mykiss (rainbow trout) - >1000 mg/l - 28 d

EC50 - Tetrahymena pyriformis - >1000 mg/l - 48 h

NOEC - Daphnia magna (water flea) - >1000 mg/l - 21 d

### Persistence and degradability

Information on the product as supplied

Not readily biodegradable. Does not hydrolyze.

### Components:

Ammonium chloride

No data available

Distillates, petroleum, hydrotreated light

Readily biodegradable. Does not hydrolyze

The polymeric ingredient is not readily biodegradable.

### Bioaccumulative potential

Information on the product as supplied:

Because of the high molecular weight of the polymer diffusion through biological membranes is very small. Bioaccumulation is unlikely.

### Components:

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Ammonium chloride  
No data available

Distillates, petroleum, hydrotreated light  
Bioconcentration factor (BCF): no data available. Partition co-efficient (Log Pow): 3-6

### Mobility in soil

Information on the product as supplied  
No data available on the product

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## SECTION 13: Disposal considerations

### Disposal of the product

The disposal should be in accordance with applicable Federal, State, and local laws and regulations. Local regulations may be more stringent than State or Federal requirements. EPA Hazardous Waste: NO

### Disposal of contaminated packaging

Dispose of as unused product.

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## SECTION 14: Transport information

### DOT (US)

Not classified as dangerous in the meaning of transport regulation.  
Store between 5-30°C  
Protect from frost.  
Keep away from direct sunlight

### IMDG

Not classified as dangerous in the meaning of transport regulation.

### IATA

Not classified as dangerous in the meaning of transport regulation.

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## SECTION 15: Regulatory information

### 15.1 Safety, health, and environmental regulations specific to the product in question

#### SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

#### SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

#### SARA 311/312 Hazards

Acute Health Hazard: YES

#### Massachusetts Right To Know Components

Distillates, petroleum, hydrotreated light  
CAS-No. 64742-47-8

Chemical name: Ammonium chloride  
CAS number: 12125-02-9

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### Pennsylvania Right To Know Components

Distillates, petroleum, hydrotreated light  
CAS-No. 64742-47-8

Chemical Name: Ammonium chloride  
CAS number: 12125-02-9

### New Jersey Right To Know Components

Distillates, petroleum, hydrotreated light  
CAS-No. 64742-47-8

Common name: Ammonium chloride  
CAS number: 12125-02-9

### California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

Chemical name: Acrylamide  
CAS number: 79-06-1 (< 0.1%)

WARNING! This product contains a chemical known to the State of California to cause cancer.

Chemical name: Acrylamide  
CAS number: 79-06-1 (< 0.1%)

### HMIS Rating

HMIS RATINGS (Hazardous Materials Identification System)	
HEALTH	1
FLAMMABILITY	1
REACTIVITY	0
PERSONAL PROTECTION	B

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## SECTION 16: Other information

### 16.1 Further information/disclaimer

DISCLAIMER: The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigation to determine the suitability of the information for their particular purposes. In no event shall Downhole Chemical Solutions be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential, or exemplary damages, whatsoever arising, even if Downhole Chemical Solutions has been advised of the possibility of such damages.

### Revision History

V3: Company address updated - no other content changes