

# Material Safety Data Sheet



## MDG Dense Fluid

### 1. Product and company identification

|                                    |  |
|------------------------------------|--|
| <b>Product name</b>                | : MDG Dense Fluid  |
| <b>Synonym</b>                     | : DENSE  |
| <b>Material uses</b>               | : Fog fluids for MDG fog generators: MM Series (Mini and Mega)   |
| <b>Supplier/Manufacturer</b>       | : MDG Fog Generators Ltd<br>10301 avenue Pelletier<br>Montréal, QC<br>Canada, H1H 3R2<br>Tel: 514-272-6040<br>Toll free: 1-800-663-3020<br>Fax: 514-722-3229<br>Email: info@mdgfog.com |
| <b>Code</b>                        | : DF-B2.5, DF-B5, DF-C20, DF-D205  |
| <b>MSDS authored by</b>            | : KMK Regulatory Services inc.   |
| <b><u>In case of emergency</u></b> | : +1 (800) 663-3020<br>+1 (514) 272-6040<br>info@mdgfog.com<br>Monday to Friday, 8:00 am to 5:00 pm  |
| <b>Product type</b>                | : Liquid.  |

### 2. Hazards identification

#### Emergency overview

|                          |  |
|--------------------------|--|
| <b>Color</b>             | : Colorless.   |
| <b>Physical state</b>    | : Liquid. [Clear.]   |
| <b>Odor</b>              | : Characteristic.  |
| <b>Signal word</b>       | : CAUTION!   |
| <b>Hazard statements</b> | : MAY CAUSE EYE AND SKIN IRRITATION.   |
| <b>Precautions</b>       | : Avoid contact with eyes. Avoid prolonged or repeated contact with skin. Wash thoroughly after handling.  |
| <b>OSHA/HCS status</b>   | : While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this MSDS contains valuable information critical to the safe handling and proper use of the product. This MSDS should be retained and available for employees and other users of this product. |
| <b>Routes of entry</b>   | : Dermal contact. Eye contact. Inhalation. Ingestion.  |

#### Potential acute health effects

|                   |   |
|-------------------|---|
| <b>Inhalation</b> | : No known significant effects or critical hazards. |
| <b>Ingestion</b>  | : No known significant effects or critical hazards. |
| <b>Skin</b>       | : Slightly irritating to the skin.                  |
| <b>Eyes</b>       | : Slightly irritating to the eyes.                  |

#### Potential chronic health effects

|                              |   |
|------------------------------|---|
| <b>Chronic effects</b>       | : No known significant effects or critical hazards. |
| <b>Carcinogenicity</b>       | : No known significant effects or critical hazards. |
| <b>Mutagenicity</b>          | : No known significant effects or critical hazards. |
| <b>Teratogenicity</b>        | : No known significant effects or critical hazards. |
| <b>Developmental effects</b> | : No known significant effects or critical hazards. |
| <b>Fertility effects</b>     | : No known significant effects or critical hazards. |

#### Over-exposure signs/symptoms

|                   |                     |
|-------------------|---------------------|
| <b>Inhalation</b> | : No specific data. |
|-------------------|---------------------|

## 2. Hazards identification

- Ingestion** : No specific data.
- Skin** : Adverse symptoms may include the following:  
irritation  
redness
- Eyes** : Adverse symptoms may include the following:  
irritation  
watering  
redness
- Medical conditions aggravated by over-exposure** : None known.

See toxicological information (section 11)

## 3. Composition/information on ingredients

### United States

| Name                          | CAS number | %        |
|-------------------------------|------------|----------|
| Propylene glycol              | 57-55-6    | 60 - 100 |
| 2,2'-(ethylenedioxy)diethanol | 112-27-6   | 10 - 30  |

### Canada

| Name                          | CAS number | %        |
|-------------------------------|------------|----------|
| Propylene glycol              | 57-55-6    | 60 - 100 |
| 2,2'-(ethylenedioxy)diethanol | 112-27-6   | 10 - 30  |

**There are no ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.**

## 4. First aid measures

- Eye contact** : Immediately flush eyes with plenty of water for at least 20 minutes, occasionally lifting the upper and lower eyelids. Get medical attention.
- Skin contact** : In case of contact, immediately flush skin with plenty of water for at least 20 minutes. Get medical attention.
- Inhalation** : Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Get medical attention.
- Ingestion** : Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.
- Notes to physician** : No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

## 5. Fire-fighting measures

- Flammability of the product** : No specific fire or explosion hazard.
- Extinguishing media**
- Suitable** : Use an extinguishing agent suitable for the surrounding fire.
- Not suitable** : None known.
- Hazardous thermal decomposition products** : Decomposition products may include the following materials:  
carbon dioxide  
carbon monoxide
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

## 6. Accidental release measures

- Personal precautions** : Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see section 8).
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
- Methods for cleaning up**
- Small spill** : Dilute with water and mop up if water-soluble or absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
- Large spill** : Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 for emergency contact information and section 13 for waste disposal.

## 7. Handling and storage

- Handling** : Put on appropriate personal protective equipment (see section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed.
- Storage** : Store in accordance with local regulations.

## 8. Exposure controls/personal protection

### United States

| Ingredient       | Exposure limits  |
|------------------|--|
| Propylene glycol | AIHA WEEL (United States, 1/2008).<br>TWA: 10 mg/m <sup>3</sup> 8 hour(s). |

### Canada

| Occupational exposure limits |                | TWA (8 hours) |                   |       | STEL (15 mins) |                   |       | Ceiling |                   |       | Notations |
|------------------------------|----------------|---------------|-------------------|-------|----------------|-------------------|-------|---------|-------------------|-------|-----------|
| Ingredient                   | List name      | ppm           | mg/m <sup>3</sup> | Other | ppm            | mg/m <sup>3</sup> | Other | ppm     | mg/m <sup>3</sup> | Other |           |
| Propylene glycol             | ON 6/2008      | -             | 10                | -     | -              | -                 | -     | -       | -                 | -     | [a]       |
|                              | US AIHA 1/2008 | 50            | 155               | -     | -              | -                 | -     | -       | -                 | -     | [b]       |

Form: [a]aerosol [b]total vapour and aerosol

### Consult local authorities for acceptable exposure limits.

- Recommended monitoring procedures** : Personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.
- Engineering measures** : Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits.
- Hygiene measures** : Ensure that eyewash stations and safety showers are close to the workstation location. Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period.
- Personal protection**
- Respiratory** : Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. Recommended: Wear an appropriate NIOSH approved respirator if concentration levels exceed the safe exposure limits.
- Hands** : Disposable vinyl gloves.

## 8. Exposure controls/personal protection

- Eyes** : Safety eyewear should be used when there is a likelihood of exposure. Recommended: Safety glasses.
- Skin** : Recommended: Lab coat.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.

## 9. Physical and chemical properties

- Physical state** : Liquid. [Clear.]
- Flash point** : Closed cup: >104°C (219.2°F) [Pensky-Martens.]
- Color** : Colorless.
- Odor** : Characteristic.
- pH** : 7.7 [Conc. (% w/w): 10%]
- Boiling/condensation point** : 122°C (251.6°F)
- Melting/freezing point** : <-51°C (<-59.8°F)
- Specific gravity** : 1.05 g/cm<sup>3</sup> [25°C (77°F)]
- Relative density** : 1.05
- Vapor density** : >1 [Air = 1]
- Volatility** : 100% (v/v), 100% (w/w)
- VOC** : 70-90 % (w/w)
- Viscosity** : Dynamic: 19 mPa·s (19 cP)
- Ionicity (in water)** : Non-ionic.
- Solubility** : Miscible in water.

## 10. Stability and reactivity

- Chemical stability** : The product is stable.
- Conditions to avoid** : No specific data.
- Materials to avoid** : Reactive or incompatible with the following materials: oxidizing materials and acids.
- Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.
- Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.
- Hazardous polymerization** : Under normal conditions of storage and use, hazardous polymerization will not occur.

## 11. Toxicological information

### Acute toxicity

| Product/ingredient name       | Result      | Species | Dose        | Exposure |
|-------------------------------|-------------|---------|-------------|----------|
| Propylene glycol              | LD50 Dermal | Rabbit  | 20800 mg/kg | -        |
|                               | LD50 Oral   | Rat     | 20 g/kg     | -        |
| 2,2'-(ethylenedioxy)diethanol | LD50 Dermal | Rabbit  | >20 mL/kg   | -        |
|                               | LD50 Oral   | Rat     | 17 g/kg     | -        |
|                               | LD50 Oral   | Rat     | 15000 mg/kg | -        |

- Chronic toxicity** : No specific data.

## 12. Ecological information

- Environmental effects** : Not established

## 12. Ecological information

### Aquatic ecotoxicity

| Product/ingredient name       | Test | Result   | Species | Exposure |
|-------------------------------|------|--|---------|----------|
| Propylene glycol              | -    | Acute EC50 >10000000 ug/L                        | Daphnia | 48 hours |
|                               | -    | Acute LC50 710000 ug/L                           | Fish    | 96 hours |
|                               | -    | Acute LC50 4919 mg/L                             | Daphnia | 48 hours |
|                               | -    | Chronic NOEC 600000 ug/L                         | Fish    | 96 hours |
| 2,2'-(ethylenedioxy)diethanol | -    | Chronic NOEC 660000 ug/L                         | Daphnia | 48 hours |
|                               | -    | Acute LC50 >10000000 ug/L Marine water           | Fish    | 96 hours |
|                               | -    | Acute LC50 59900000 to 63700000 ug/L Fresh water | Fish    | 96 hours |
|                               | -    | Chronic NOEC 24 g/L Fresh water                  | Daphnia | 48 hours |

**Other adverse effects** : No known significant effects or critical hazards.

## 13. Disposal considerations

**Waste disposal** : The generation of waste should be avoided or minimized wherever possible. This material and its container must be disposed of in a safe way. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Empty containers or liners may retain some product residues. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

## 14 . Transport information

**DOT/TDG/IMDG/IATA** : Not regulated.

## 15 . Regulatory information

### United States

**HCS Classification** : Not regulated.

**U.S. Federal regulations** : TSCA 8(b) inventory: All components are listed or exempted.  
 SARA 302/304/311/312 extremely hazardous substances: Not listed.  
 SARA 302/304 emergency planning and notification: Not listed.  
 SARA 302/304/311/312 hazardous chemicals: Not Listed.  
 SARA 311/312 MSDS distribution - chemical inventory - hazard identification: Not listed.  
 Clean Water Act (CWA) 307: Not listed.  
 Clean Water Act (CWA) 311: Not listed.  
 Clean Air Act (CAA) 112 accidental release prevention: Not listed.  
 Clean Air Act (CAA) 112 regulated flammable substances: Not listed.  
 Clean Air Act (CAA) 112 regulated toxic substances: Not listed.

**Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs)** : Not listed

**Clean Air Act Section 602 Class I Substances** : Not listed

**Clean Air Act Section 602 Class II Substances** : Not listed

**DEA List I Chemicals (Precursor Chemicals)** : Not listed

**DEA List II Chemicals (Essential Chemicals)** : Not listed

## 15 . Regulatory information

- State regulations**
- Connecticut Carcinogen Reporting:** None of the components are listed.
  - Connecticut Hazardous Material Survey:** None of the components are listed.
  - Florida substances:** None of the components are listed.
  - Illinois Chemical Safety Act:** None of the components are listed.
  - Illinois Toxic Substances Disclosure to Employee Act:** None of the components are listed.
  - Louisiana Reporting:** None of the components are listed.
  - Louisiana Spill:** None of the components are listed.
  - Massachusetts Spill:** None of the components are listed.
  - Massachusetts Substances:** None of the components are listed.
  - Michigan Critical Material:** None of the components are listed.
  - Minnesota Hazardous Substances:** None of the components are listed.
  - New Jersey Hazardous Substances:** None of the components are listed.
  - New Jersey Spill:** None of the components are listed.
  - New Jersey Toxic Catastrophe Prevention Act:** None of the components are listed.
  - New York Acutely Hazardous Substances:** None of the components are listed.
  - New York Toxic Chemical Release Reporting:** None of the components are listed.
  - Pennsylvania RTK Hazardous Substances:** The following components are listed:  
Propylene glycol; 2,2'-(ethylenedioxy)diethanol
  - Rhode Island Hazardous Substances:** None of the components are listed.

### California Prop. 65

No products were found.

### Canada

- WHMIS (Canada)** : Not controlled under WHMIS (Canada).
- Canadian lists**
- CEPA Toxic substances:** None of the components are listed.
  - Canadian ARET:** None of the components are listed.
  - Canadian NPRI:** None of the components are listed.
  - Alberta Designated Substances:** None of the components are listed.
  - Ontario Designated Substances:** None of the components are listed.
  - Quebec Designated Substances:** None of the components are listed.
- Canada inventory** : All components are listed or exempted.

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.

### International regulations

- International lists**
- Australia inventory (AICS):** All components are listed or exempted.
  - China inventory (IECSC):** All components are listed or exempted.
  - Japan inventory:** All components are listed or exempted.
  - Korea inventory:** All components are listed or exempted.
  - New Zealand Inventory of Chemicals (NZIoC):** Not determined.
  - Philippines inventory (PICCS):** All components are listed or exempted.

**Chemical Weapons Convention List Schedule I Chemicals** : Not listed

**Chemical Weapons Convention List Schedule II Chemicals** : Not listed

**Chemical Weapons Convention List Schedule III Chemicals** : Not listed

## 16 . Other information

### United States

**Label requirements** : MAY CAUSE EYE AND SKIN IRRITATION.

**Hazardous Material** :

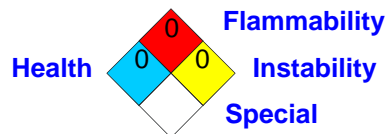
**Information System (U.S.A.)**

|                  |   |
|------------------|---|
| Health           | 0 |
| Flammability     | 0 |
| Physical hazards | 0 |
|                  |   |

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on MSDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

**National Fire Protection Association (U.S.A.)** :



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### Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.