# **SAFETY DATA SHEET**

**Dimethyl Ether** 

# Section 1. Identification

| GHS product identifier        | : Dimethyl Ether  |
|-------------------------------|---|
| Chemical name                 | : dimethyl ether  |
| Other means of identification | <ul> <li>Methane, 1,1'-oxybis-; Methane, oxybis-; Methyl ether; oxybismethane; DME;<br/>Methoxymethane; Wood ether; Ether, Dimethyl; Dimethyl oxide; N,N-dimethyl ether;<br/>DIMETHYL ETHER PROPELLANT</li> </ul> |
| Product type                  | : Gas.  |
| Product use                   | : Synthetic/Analytical chemistry.   |
| Synonym                       | : Methane, 1,1'-oxybis-; Methane, oxybis-; Methyl ether; oxybismethane; DME;<br>Methoxymethane; Wood ether; Ether, Dimethyl; Dimethyl oxide; N,N-dimethyl ether;<br>DIMETHYL ETHER PROPELLANT                     |
| SDS #                         | : 001021  |
| Supplier's details            | : Chengdu Hongjin Chemical Co.,Ltd<br>Room 402, Xixi Central<br>International,<br>Chenghua District, Chengdu City   |

**24-hour telephone** : 028-84791130

# Section 2. Hazards identification

| OSHA/HCS status                            | : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).  |
|--|--|
| Classification of the substance or mixture | : FLAMMABLE GASES - Category 1<br>GASES UNDER PRESSURE - Liquefied gas<br>SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) -<br>Category 3  |
| GHS label elements                         |  |
| Hazard pictograms                          |  |
| Signal word                                | : Danger   |
| Hazard statements                          | : Extremely flammable gas.<br>May form explosive mixtures with air.<br>Contains gas under pressure; may explode if heated.<br>May displace oxygen and cause rapid suffocation.<br>May cause drowsiness or dizziness.   |
| Precautionary statements                   |  |
| General                                    | : Read and follow all Safety Data Sheets (SDS'S) before use. Read label before use.<br>Keep out of reach of children. If medical advice is needed, have product container or<br>label at hand. Close valve after each use and when empty. Use equipment rated for<br>cylinder pressure. Do not open valve until connected to equipment prepared for use.<br>Use a back flow preventative device in the piping. Use only equipment of compatible<br>materials of construction. Always keep container in upright position. Approach<br>suspected leak area with caution. |
| Prevention                                 | : Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use only outdoors or in a well-ventilated area. Avoid breathing gas.  |
| Response                                   | : IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or physician if you feel unwell. Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so.  |
| Storage                                    | : Store locked up. Protect from sunlight. Store in a well-ventilated place.  |
| Date of issue/Date of revision             | : 6/11/2019 Date of previous issue : No previous validation Version : 1 1/11   |

### Section 2. Hazards identification

| Disposal                            | : Dispose of contents and container in accordance with all local, regional, national and international regulations.            |
|-------------------------------------|--|
| Hazards not otherwise<br>classified | : In addition to any other important health or physical hazards, this product may displace oxygen and cause rapid suffocation. |

### Section 3. Composition/information on ingredients

| Substance/mixture             | : Substance   |
|-------------------------------|---|
| Chemical name                 | : dimethyl ether  |
| Other means of identification | <ul> <li>Methane, 1,1'-oxybis-; Methane, oxybis-; Methyl ether; oxybismethane; DME;<br/>Methoxymethane; Wood ether; Ether, Dimethyl; Dimethyl oxide; N,N-dimethyl ether;<br/>DIMETHYL ETHER PROPELLANT</li> </ul> |
| Product code                  | : 001021  |

#### **CAS number/other identifiers**

| CAS number      | : 115-10-6 |     |            |
|-----------------|------------|-----|------------|
| Ingredient name |            | %   | CAS number |
| dimethyl ether  |            | 100 | 115-10-6   |

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional 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.

Occupational exposure limits, if available, are listed in Section 8.

### Section 4. First aid measures

#### **Description of necessary first aid measures**

| Eye contact                  | mmediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.  |         |
|------------------------------|--|---------|
| Inhalation                   | Remove victim to fresh air and keep at rest in a position comfortable for breathing. If is<br>s suspected that fumes are still present, the rescuer should wear an appropriate mask<br>or self-contained breathing apparatus. If not breathing, if breathing is irregular or if<br>respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel.<br>may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.<br>Get medical attention. If necessary, call a poison center or physician. If unconscious,<br>place in recovery position and get medical attention immediately. Maintain an open<br>airway. Loosen tight clothing such as a collar, tie, belt or waistband. | <<br>It |
| Skin contact                 | Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. To avoid the risk of static discharges and gas ignition, soak contaminated clothing thoroughly with water before removing it. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.  |         |
| Ingestion                    | As this product is a gas, refer to the inhalation section.   |         |
| Most important symptoms/ef   | s, acute and delayed   |         |
| Potential acute health effec |  |         |
| Eye contact                  | No known significant effects or critical hazards.  |         |
| Inhalation                   | Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness.  |         |
| Skin contact                 | No known significant effects or critical hazards.  |         |
| Frostbite                    | Fry to warm up the frozen tissues and seek medical attention.  |         |
| Ingestion                    | Can cause central nervous system (CNS) depression. As this product is a gas, refer t<br>he inhalation section.   | 0       |
| Over-exposure signs/sympt    |  |         |
| Eye contact                  | No specific data.  |         |

 Date of issue/Date of revision
 : 6/11/2019
 Date of previous issue
 : No previous validation
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| Inhalation          | : Adverse symptoms may include the following:, nausea or vomiting, headache, drowsiness/fatigue, dizziness/vertigo, unconsciousness  |
|---------------------|--|
| Skin contact        | : No specific data.  |
| Ingestion           | : No specific data.  |
| Notes to physician  | : Treat symptomatically. Contact poison treatment specialist immediately if large  |
|                     |  |
|                     | quantities have been ingested or inhaled.  |
| Specific treatments | <ul><li>quantities have been ingested or inhaled.</li><li>No specific treatment.</li><li>No action shall be taken involving any personal risk or without suitable training. If it is</li></ul> |

#### See toxicological information (Section 11)

Section 5. Fire-fighting measures

#### Extinguishing media Suitable extinguishing : Use an extinguishing agent suitable for the surrounding fire. media **Unsuitable extinguishing** : None known. media Specific hazards arising : Contains gas under pressure. Extremely flammable gas. In a fire or if heated, a from the chemical pressure increase will occur and the container may burst, with the risk of a subsequent explosion. **Hazardous thermal** : Decomposition products may include the following materials: carbon dioxide decomposition products carbon monoxide **Special protective actions** : Promptly isolate the scene by removing all persons from the vicinity of the incident if for fire-fighters there is a fire. No action shall be taken involving any personal risk or without suitable training. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. If involved in fire, shut off flow immediately if it can be done without risk. If this is impossible, withdraw from area and allow fire to burn. Fight fire from protected location or maximum possible distance. Eliminate all ignition sources if safe to do so. : Fire-fighters should wear appropriate protective equipment and self-contained breathing **Special protective** apparatus (SCBA) with a full face-piece operated in positive pressure mode. equipment for fire-fighters

### Section 6. Accidental release measures

| Personal precautions, protec   | tiv | e equipment and emergency procedures  |
|--------------------------------|-----|---|
| For non-emergency<br>personnel | :   | Accidental releases pose a serious fire or explosion hazard. No action shall be taken<br>involving any personal risk or without suitable training. Evacuate surrounding areas.<br>Keep unnecessary and unprotected personnel from entering. Shut off all ignition<br>sources. No flares, smoking or flames in hazard area. Avoid breathing gas. Provide<br>adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put<br>on appropriate personal protective equipment. |
| For emergency responders       | :   | If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".   |
| Environmental precautions      | :   | Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).  |

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### Section 6. Accidental release measures

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

| Small spill | : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment.  |
|-------------|---|
| Large spill | : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment. Note: see Section 1 for emergency contact information and Section 13 for waste disposal. |

# Section 7. Handling and storage

| Precautions for safe handling                                      | 1 |   |
|--|---|---|
| Protective measures  | : | Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Avoid breathing gas. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Do not puncture or incinerate container. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement. Use only non-sparking tools. Avoid contact with eyes, skin and clothing. Empty containers retain product residue and can be hazardous. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. |
| Advice on general occupational hygiene                             | : | Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.   |
| Conditions for safe storage,<br>including any<br>incompatibilities | : | Store in accordance with local regulations. Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Eliminate all ignition sources. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Cylinder temperatures should not exceed 52 °C (125 °F). Store locked up. Keep container tightly closed and sealed until ready for use. See Section 10 for incompatible materials before handling or use.  |

### Section 8. Exposure controls/personal protection

#### **Control parameters**

#### **Occupational exposure limits**

| Ingredient name                    |  | Exposure limits   |  |
|------------------------------------|--|---|--|
| dimethyl ether                     |  | AIHA WEEL (United States, 10/2011).<br>TWA: 1000 ppm 8 hours.   |  |
| Appropriate engineering controls   | other engineering controls to keep recommended or statutory limits.      | Use process enclosures, local exhaust ventilation or<br>worker exposure to airborne contaminants below any<br>The engineering controls also need to keep gas,<br>any lower explosive limits. Use explosion-proof  |  |
| Environmental exposure<br>controls | they comply with the requirements cases, fume scrubbers, filters or er   | Emissions from ventilation or work process equipment should be checked to ensure<br>they comply with the requirements of environmental protection legislation. In some<br>cases, fume scrubbers, filters or engineering modifications to the process equipment<br>will be necessary to reduce emissions to acceptable levels. |  |
| Individual protection meas         | <u>ures</u>  |   |  |
| Hygiene measures                   | eating, smoking and using the lava<br>Appropriate techniques should be u | oroughly after handling chemical products, before<br>tory and at the end of the working period.<br>used to remove potentially contaminated clothing.<br>e reusing. Ensure that eyewash stations and safety  |  |

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showers are close to the workstation location.

# Section 8. Exposure controls/personal protection

| -                      |  |
|------------------------|--|
| Eye/face protection    | : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.  |
| Skin protection        |  |
| Hand protection        | : Chemical-resistant, impervious gloves complying with an approved standard should be<br>worn at all times when handling chemical products if a risk assessment indicates this is<br>necessary. Considering the parameters specified by the glove manufacturer, check<br>during use that the gloves are still retaining their protective properties. It should be<br>noted that the time to breakthrough for any glove material may be different for different<br>glove manufacturers. In the case of mixtures, consisting of several substances, the<br>protection time of the gloves cannot be accurately estimated. |
| Body protection        | : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear antistatic protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.   |
| Other skin protection  | : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.  |
| Respiratory protection | : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use. 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.  |

# Section 9. Physical and chemical properties

| <u>Appearance</u>                          |                                 |      |
|--|---------------------------------|------|
| Physical state                             | Gas.                            |      |
| Color                                      | Colorless.                      |      |
| Odor                                       | Characteristic.                 |      |
| Odor threshold                             | Not available.                  |      |
| рН   | Not available.                  |      |
| Melting point                              | -141.5°C (-222.7°F)             |      |
| Boiling point                              | -24.82°C (-12.7°F)              |      |
| Critical temperature                       | 126.95°C (260.5°F)              |      |
| Flash point                                | Closed cup: -41.11°C (-42°F)    |      |
| Evaporation rate                           | Not available.                  |      |
| Flammability (solid, gas)                  | Not available.                  |      |
| Lower and upper explosive                  | Lower: 3.3%                     |      |
| (flammable) limits                         | Upper: 26.2%                    |      |
| Vapor pressure                             | 62.3 (psig)                     |      |
| Vapor density                              | 1.6 (Air = 1)                   |      |
| Specific Volume (ft <sup>3</sup> /lb)      | 8.1833                          |      |
| Gas Density (lb/ft <sup>3</sup> )          | 0.1222                          |      |
| Relative density                           | Not applicable.                 |      |
| Solubility                                 | Not available.                  |      |
| Solubility in water                        | 45.6 g/l                        |      |
| Partition coefficient: n-<br>octanol/water | 0.07                            |      |
| Auto-ignition temperature                  | 350°C (662°F)                   |      |
| Decomposition temperature                  | Not available.                  |      |
| Viscosity                                  | Not applicable.                 |      |
| Data of issue/Data of revision             | (11/2010 Date of provious issue | 5/11 |

| Date o | f issue | /Date of | revision |
|--------|---------|----------|----------|
|        |         |          |          |

### Section 9. Physical and chemical properties

| Flow time (ISO 2431) | : Not available. |
|----------------------|------------------|
| Molecular weight     | : 46.08 g/mole   |
| Aerosol product      |                  |
| Heat of combustion   | : -31284700 J/kg |

# Section 10. Stability and reactivity

| Reactivity                         | : No specific test data related to reactivity available for this product or its ingredients.  |
|------------------------------------|---|
| Chemical stability                 | : The product is stable.  |
| Possibility of hazardous reactions | : Under normal conditions of storage and use, hazardous reactions will not occur.   |
| Conditions to avoid                | : Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. |
| Incompatible materials             | : Oxidizers   |
| Hazardous decomposition products   | : Under normal conditions of storage and use, hazardous decomposition products should not be produced.  |

Hazardous polymerization : Under normal conditions of storage and use, hazardous polymerization will not occur.

### Section 11. Toxicological information

#### Information on toxicological effects

#### Acute toxicity

| Product/ingredient name | Result  | Species | Dose | Exposure                      |
|-------------------------|---|---------|------|-------------------------------|
| dimethyl ether          | LC50 Inhalation Gas.<br>LC50 Inhalation Gas.<br>LC50 Inhalation Vapor | Rat     |      | 1 hours<br>4 hours<br>4 hours |

#### Irritation/Corrosion

Not available.

#### **Sensitization**

Not available.

#### **Mutagenicity**

Not available.

#### **Carcinogenicity**

Not available.

#### **Reproductive toxicity**

Not available.

#### **Teratogenicity**

Not available.

#### Specific target organ toxicity (single exposure)

| Name           |            | Route of exposure | Target organs    |
|----------------|------------|-------------------|------------------|
| dimethyl ether | Category 3 | Not applicable.   | Narcotic effects |

# Section 11. Toxicological information

Specific target organ toxicity (repeated exposure)

Not available.

#### **Aspiration hazard**

Not available.

| Information on the likely                           | : Routes of entry anticipated: Inhalation.  |
|---|---|
| routes of exposure                                  |   |
| Potential acute health effects                      | <u>&gt;</u>   |
| Eye contact   | : No known significant effects or critical hazards.   |
| Inhalation  | : Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness.   |
| Skin contact  | : No known significant effects or critical hazards.   |
| Ingestion   | : Can cause central nervous system (CNS) depression. As this product is a gas, refer to the inhalation section.                     |
| Symptoms related to the phy                         | vsical, chemical and toxicological characteristics  |
| Eye contact   | : No specific data.   |
| Inhalation  | : Adverse symptoms may include the following:, nausea or vomiting, headache, drowsiness/fatigue, dizziness/vertigo, unconsciousness |
| Skin contact  | : No specific data.   |
| Ingestion   | : No specific data.   |
| Delayed and immediate effect<br>Short term exposure | ts and also chronic effects from short and long term exposure   |
| Potential immediate<br>effects                      | : Not available.  |
| Potential delayed effects                           | : Not available.  |
| Long term exposure                                  |   |
| Potential immediate effects                         | : Not available.  |
| Potential delayed effects                           | : Not available.  |
| Potential chronic health eff                        | <u>ects</u>   |
| Not available.                                      |   |
| General   | : No known significant effects or critical hazards.   |
| Carcinogenicity                                     | : No known significant effects or critical hazards.   |
| Mutagenicity  | : No known significant effects or critical hazards.   |
| Teratogenicity                                      | : No known significant effects or critical hazards.   |
| <b>Developmental effects</b>                        | : No known significant effects or critical hazards.   |
| Fertility effects                                   | : No known significant effects or critical hazards.   |
|   |   |

#### Numerical measures of toxicity

Acute toxicity estimates Not available.

## Section 12. Ecological information

#### **Toxicity**

Not available.

#### Persistence and degradability

Not available.

#### **Bioaccumulative potential**

| Product/ingredient name | LogPow | BCF | Potential |
|-------------------------|--------|-----|-----------|
| dimethyl ether          | 0.07   | -   | low       |

#### **Mobility in soil**

| Soil/water partition | : Not available. |
|----------------------|------------------|
| coefficient (Koc)    |                  |

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

### Section 13. Disposal considerations

| Disposal methods | The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Empty Airgas-owned pressure vessels should be returned to Airgas. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container. |
|------------------|---|
|------------------|---|

# Section 14. Transport information

|                               | DOT               | TDG               | Mexico         | IMDG              | ΙΑΤΑ              |
|-------------------------------|-------------------|-------------------|----------------|-------------------|-------------------|
| UN number                     | UN1033            | UN1033            | UN1033         | UN1033            | UN1033            |
| UN proper<br>shipping name    | DIMETHYL<br>ETHER | DIMETHYL<br>ETHER | DIMETHYLETHERS | DIMETHYL<br>ETHER | DIMETHYL<br>ETHER |
| Transport<br>hazard class(es) | 2.1               | 2.1               | 2.1            | 2.1               | 2.1               |
| Packing group                 | -                 | -                 | -              | -                 | -                 |
| Environmental<br>hazards      | No.               | No.               | No.            | No.               | No.               |

"Refer to CFR 49 (or authority having jurisdiction) to determine the information required for shipment of the product."

#### Additional information

**DOT Classification** 

: Limited quantity Yes.

Quantity limitation Passenger aircraft/rail: Forbidden. Cargo aircraft: 150 kg. Special provisions T50

| Date of issue/Date of revision | : 6/11/2019 | Date of previous issue | : No previous validation | Version : 1 | 8/11 |
|--------------------------------|-------------|------------------------|--------------------------|-------------|------|
|--------------------------------|-------------|------------------------|--------------------------|-------------|------|

# Section 14. Transport information

| •  |   |   |
|--|---|---|
| TDG Classification   | : | Product classified as per the following sections of the Transportation of Dangerous<br>Goods Regulations: 2.13-2.17 (Class 2).<br>Explosive Limit and Limited Quantity Index 0.125<br>ERAP Index 3000<br>Passenger Carrying Ship Index Forbidden<br>Passenger Carrying Road or Rail Index Forbidden |
| ΙΑΤΑ   | : | Quantity limitation Passenger and Cargo Aircraft: Forbidden. Cargo Aircraft Only: 150 kg.   |
| Special precautions for user   | : | <b>Transport within user's premises:</b> always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.   |
| Transport in bulk according<br>to Annex II of MARPOL and<br>the IBC Code | : | Not available.  |

# Section 15. Regulatory information

| U.S. Federal regulations  | TSCA 8(a) CDR Exempt/Partial exemption: Not determined                                    |  |  |  |  |
|---|---|--|--|--|--|
|   | Clean Air Act (CAA) 112 regulated flammable substances: dimethyl ether                    |  |  |  |  |
| Clean Air Act Section 112<br>(b) Hazardous Air<br>Pollutants (HAPs) | Not listed  |  |  |  |  |
| Clean Air Act Section 602<br>Class I Substances                     | : Not listed  |  |  |  |  |
| Clean Air Act Section 602<br>Class II Substances                    | : Not listed  |  |  |  |  |
| DEA List I Chemicals<br>(Precursor Chemicals)                       | : Not listed  |  |  |  |  |
| DEA List II Chemicals<br>(Essential Chemicals)                      | : Not listed  |  |  |  |  |
| SARA 302/304  |   |  |  |  |  |
| Composition/information   | on ingredients  |  |  |  |  |
| No products were found.   |   |  |  |  |  |
| SARA 304 RQ<br><u>SARA 311/312</u>                                  | : Not applicable.   |  |  |  |  |
| Classification  | : Refer to Section 2: Hazards Identification of this SDS for classification of substance. |  |  |  |  |
| State regulations   |   |  |  |  |  |
| Massachusetts   | : This material is listed.  |  |  |  |  |
| New York  | : This material is not listed.  |  |  |  |  |
| New Jersey  | : This material is listed.  |  |  |  |  |
| Pennsylvania  | : This material is listed.  |  |  |  |  |
| International regulations   |   |  |  |  |  |
| Chemical Weapon Convention List Schedules I, II & III Chemicals     |   |  |  |  |  |
| Not listed.   |   |  |  |  |  |
| Montreal Protocol (Annex  | es A, B, C, E)  |  |  |  |  |
| Not listed.   |   |  |  |  |  |
| Stockholm Convention on   | Persistent Organic Pollutants   |  |  |  |  |
| Not listed.   |   |  |  |  |  |
| Rotterdam Convention on Prior Informed Consent (PIC)                |   |  |  |  |  |
| Date of issue/Date of revision                                      | : 6/11/2019 Date of previous issue : No previous validation Version : 1 9/11              |  |  |  |  |

### Section 15. Regulatory information

Not listed.

#### **UNECE Aarhus Protocol on POPs and Heavy Metals**

Not listed.

| Inventory list    |  |
|-------------------|--|
| Australia         | : This material is listed or exempted.   |
| Canada            | : This material is listed or exempted.   |
| China             | : This material is listed or exempted.   |
| Europe            | : This material is listed or exempted.   |
| Japan             | : Japan inventory (ENCS): This material is listed or exempted.<br>Japan inventory (ISHL): This material is listed or exempted. |
| Malaysia          | : Not determined.  |
| New Zealand       | : This material is listed or exempted.   |
| Philippines       | : This material is listed or exempted.   |
| Republic of Korea | : This material is listed or exempted.   |
| Taiwan            | : This material is listed or exempted.   |
| Thailand          | : Not determined.  |
| Turkey            | : This material is listed or exempted.   |
| United States     | : This material is listed or exempted.   |
| Viet Nam          | : Not determined.  |

# Section 16. Other information

#### Hazardous Material Information System (U.S.A.)



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 and the associated label are not required on SDSs or products leaving a facility 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 trademark and service mark of the American Coatings Association, Inc.

The customer is responsible for determining the PPE code for this material. For more information on HMIS® Personal Protective Equipment (PPE) codes, consult the HMIS® Implementation Manual.

#### National Fire Protection Association (U.S.A.)



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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

#### Procedure used to derive the classification

## Section 16. Other information

|   | Classification   | Justification   |  |
|---|--|---|--|
| FLAMMABLE GASES - Category 1<br>GASES UNDER PRESSURE - Liquefied gas<br>SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) -<br>Category 3 |  | Expert judgment<br>Expert judgment<br>Expert judgment |  |
| <u>History</u>  |  |   |  |
| Date of printing  | : 6/11/2019  |   |  |
| Date of issue/Date of revision  | : 6/11/2019  |   |  |
| Date of previous issue  | : No previous validation   |   |  |
| Version   | : 1  |   |  |
| Key to abbreviations  | ATE = Acute Toxicity Estimate<br>BCF = Bioconcentration Factor<br>GHS = Globally Harmonized System of Classification and Labelling of Chemicals<br>IATA = International Air Transport Association<br>IBC = International Air Transport Association<br>IBC = International Maritime Dangerous Goods<br>LogPow = logarithm of the octanol/water partition coefficient<br>MARPOL = International Convention for the Prevention of Pollution From Ships, 1973<br>as modified by the Protocol of 1978. ("Marpol" = marine pollution)<br>UN = United Nations |   |  |
| References  | : Not available.   |   |  |

#### Notice to reader

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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.