1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: DMMP Odorless

RECOMMENDED USE OF THE CHEMICAL AND RESTRICTIONS ON USE: This material's recommended use is as a flame retardant.

GENERIC NAME: Dimethyl methylphosphonate

SUPPLIER
Focus Chemical, Inc.
25000 Country Club Blvd, Suite 444
North Olmsted, OH 44070
Customer Service: 866-801-1201
E-Mail: Requests@focuschemical.com

EMERGENCY TELEPHONE NUMBER(S)

CHEMTREC (U.S. Transportation), 24-hour - USA: 800-424-9300
CHEMTREC (U.S. Transportation), 24-hour - International: +1 703-527-3887

2. HAZARDS IDENTIFICATION

GHS CLASSIFICATIONS

Health:
- Serious eye damage/eye irritation, Category 2A
- Mutagenicity, Category 1B
- Reproductive toxicity, Category 2
- Specific target organ toxicity, repeated exposure, Category 2

GHS LABEL

Exclamation mark
Health hazard

SIGNAL WORD: DANGER

HAZARD STATEMENTS

H319: Causes serious eye irritation.
H340: May cause genetic defects.
H361: Suspected of damaging fertility or the unborn child.
H371: May cause damage to organs (central nervous system) through prolonged or repeated exposure.

PRECAUTIONARY STATEMENT(S)

Prevention:
- P201: Obtain special instructions before use.
- P202: Do not handle until all safety precautions have been read and understood.
- P260: Do not breathe dust/fume/gas/mist/vapours/spray.
- P264: Wash hands and other exposed areas thoroughly after handling.
- P280: Wear protective gloves/protective clothing/eye protection/face protection.

Response:
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P313: IF exposed or concerned: Get medical advice/attention.
P314: Get medical advice/attention if you feel unwell.
P337+P313: If eye irritation persists: Get medical advice/attention.

Storage:
P405: Store locked up.

Disposal:
P501: Dispose of contents/container to hazardous or special waste collection point.

Hazards not otherwise classified:
No specific dangers known, if the regulations/notes for storage and handling are considered.

Labeling of special preparations (GHS):
The following percentage of the mixture consists of component(s) with unknown hazards regarding the acute toxicity: 2% dermal
The following percentage of the mixture consists of component(s) with unknown hazards regarding the acute toxicity: 2% oral
The following percentage of the mixture consists of component(s) with unknown hazards regarding the acute toxicity: 2% inhalation - vapor
The following percentage of the mixture consists of component(s) with unknown hazards regarding the acute toxicity: 2% inhalation - mist

3. COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>Wt.%</th>
<th>CAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimethyl methylphosphonate</td>
<td>75 - 100</td>
<td>756-79-6</td>
</tr>
<tr>
<td>Phosphonic Acid, Dimethyl Ester</td>
<td>1 - 5</td>
<td>868-85-9</td>
</tr>
<tr>
<td>Solvent Naphtha (petroleum), Medium Aliphatic</td>
<td>1 - 3</td>
<td>64742-88-7</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

EYES: Wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.
SKIN: Immediately wash thoroughly with soap and water, seek medical attention.
INGESTION: Immediately rinse mouth and then drink 200-300 mL of water, seek medical attention.
INHALATION: Keep patient calm, remove to fresh air, seek medical attention.

MOST IMPORTANT SYMPTOMS/EFFECTS, ACUTE AND DELAYED:
Symptoms: The most important known symptoms and effects are described in the labeling (see section 2) and/or in section 11.

INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED:
Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

5. ADVICE FOR FIREFIGHTERS

SUITABLE (AND UNSUITABLE) EXTINGUISHING MEDIA: Use water spray, foam, dry powder or carbon dioxide.
SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE: Carbon oxides, phosphorus oxides.
ADVICE FOR FIREFIGHTERS: Wear self-contained breathing apparatus for fire fighting.

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES: Use personal protective
DMMP Odorless

clothing. Information regarding personal protective measures, see section 8.

ENVIRONMENTAL PRECAUTIONS: Do not discharge into drains/surface waters/groundwater.

METHODS AND MATERIALS FOR CONTAINMENT AND CLEANING UP:
For large amounts: Pump off product.
For small amounts: Pick up with suitable absorbent material (e.g. sand, sawdust, general-purpose binder). Dispose of absorbed material in accordance with regulations.
Place absorbed material in the same container as the spilled substance/product for disposal.

7. HANDLING AND STORAGE

PRECAUTIONS FOR SAFE HANDLING: No special measures necessary provided product is used correctly. Protection against fire and explosion: Take precautionary measures against static discharges.

CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITES: Keep container tightly closed and dry; store in a cool place. Protect from temperatures above 50 °C.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

INDIVIDUAL PROTECTION MEASURES, SUCH AS PERSONAL PROTECTIVE EQUIPMENT (PPE)

EYES AND FACE: Tightly fitting safety goggles (chemical goggles) and face shield.
SKIN: Wear chemical-resistant gloves and protective clothing.
RESPIRATORY: Wear a NIOSH-certified (or equivalent) organic vapor/particulate respirator.

PROTECTIVE CLOTHING: Body protection must be chosen depending on activity and possible exposure, e.g. apron, protecting boots, chemical-protection suit.

9. PHYSICAL AND CHEMICAL PROPERTIES

ODOR: Odorless.
ODOR THRESHOLD: Not applicable.
APPEARANCE: Colorless liquid.
pH: 5-7
FLASH POINT AND METHOD: 100°C (212°F) PMCC
FLAMMABLE LIMITS: Not available.
AUTOIGNITION TEMPERATURE: Not available.
VAPOR PRESSURE: 1.3 mbar at 20°C
VAPOR DENSITY: Not available.
BOILING POINT: 181°C
FREEZING POINT: <-50°C
THERMAL DECOMPOSITION: Not available.
SOLUBILITY IN WATER: Miscible (> 100 g/L @ 21 °C).
EVAPORATION RATE: Not available.
DENSITY: 1.15-1.17 g/cm³ @ 20 °C
SPECIFIC GRAVITY: Not available.
DMMP Odorless

VISCOSITY: 4 mPa s at 25°C

PARTITION COEFFICIENT (N-OCTANOL/WATER): 0.46 (log Kow)

10. STABILITY AND REACTIVITY

REACTIVITY: No hazardous reactions if stored and handled as prescribed/indicated.

POSSIBILITY OF HAZARDOUS REACTIONS: No hazardous reactions when stored and handled according to instructions. The product is chemically stable.

CHEMICAL STABILITY: Stable if stored and handled as prescribed/indicated.

CONDITIONS TO AVOID: See SDS section 7 - Handling and Storage.

HAZARDOUS DECOMPOSITION PRODUCTS: No hazardous decomposition products if stored and handled as prescribed/indicated.

INCOMPATIBLE MATERIALS: Amines, carboxylic acids, halides.

11. TOXICOLOGICAL INFORMATION

ACUTE TOXICITY

DERMAL LD₅₀: > 4640 mg/kg

Notes: Species: rat

ORAL LD₅₀: 10190 mg/kg

Notes: Species: rat

INHALATION LC₅₀: > 2.589 mg/L

Notes: Species: rat; Exposure time: 4 h

CARCINOGENICITY

Notes: The observed kidney tumors in rats are regarded as a consequence of a species-specific mechanism and thus not relevant for humans.

Information on: Solvent Naphtha (petroleum), Medium Aliphatic: Long-term exposure to highly irritating concentrations resulted in skin tumors in animals. A carcinogenic effect in humans can be excluded after brief skin contact.

INFORMATION ON THE LIKELY ROUTES OF EXPOSURE: Routes of entry for solids and liquids are ingestion and inhalation, but may include eye or skin contact. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

Primary routes of entry
Skin
Eyes
Inhalation
Ingestion

SERIOUS EYE DAMAGE/IRRITATION: Eye contact causes irritation.

SKIN CORROSION/IRRITATION: Not irritating to the skin.

RESPIRATORY OR SKIN SENSITIZATION: Skin sensitizing effects were not observed in animal studies.

STOT-SINGLE EXPOSURE: No data available.

STOT-REPEATED EXPOSURE: The substance may cause damage to the testes after repeated ingestion of high doses, as shown in animal studies. The substance may cause damage to the kidney after repeated ingestion of high doses, as shown in
animal studies. The substance may cause damage to the liver after repeated ingestion of high doses, as shown in animal studies.

Information on: Solvent Naphtha (petroleum), Medium Aliphatic: The substance may cause damage to the central nervous system after repeated inhalation.

**REPRODUCTIVE TOXICITY:** Causes impairment of fertility in laboratory animals.

**ASPIRATION HAZARD:** Not relevant.

**SYMPTOMS RELATED TO THE PHYSICAL, CHEMICAL AND TOXICOLOGICAL CHARACTERISTICS:** The most important known symptoms and effects are described in the labeling (see section 2) and/or in section 11. Further important symptoms and effects are so far not known.

**GERM CELL MUTAGENICITY:** The substance was not mutagenic in bacteria. The substance was mutagenic in a mammalian cell culture test system. The substance was mutagenic in studies with mammals.

**DELAYED AND IMMEDIATE EFFECTS AND ALSO CHRONIC EFFECTS FROM SHORT AND LONG TERM EXPOSURE:** No data available.

### 12. ECOLOGICAL INFORMATION

**PERSISTENCE AND DEGRADABILITY:** Poorly biodegradable.

**BIOACCUMULATIVE POTENTIAL:** Based on the n-octanol/water distribution coefficient, accumulation in organisms is not to be expected.

**TOXICITY:** There is a high probability that the product is not acutely harmful to aquatic organism. The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations.

96-HOUR LC₅₀: 2,259 mg/L, Oncorhynchus mykiss (OECD Guideline 203, static). The details of the toxic effect relate to the nominal concentration.

**MOBILITY IN SOIL:** The substance will not evaporate into the atmosphere from the water surface. Adsorption to solid soil phase is not expected.

**OTHER ADVERSE EFFECTS:** No data available.

### 13. DISPOSAL CONSIDERATIONS

**PRODUCT DISPOSAL:** Dispose of in accordance with national, state and local regulations. It is the waste generator's responsibility to determine if a particular waste is hazardous under RCRA.

**PACKAGING DISPOSAL:** Dispose of in a licensed facility. Recommend crushing, puncturing or other means to prevent unauthorized use of used containers.

### 14. TRANSPORT INFORMATION

**DOT (DEPARTMENT OF TRANSPORTATION)**

**PROPER SHIPPING NAME:** Not classified as a dangerous good under transport regulations.

**AIR (ICAO/IATA)**

**SHIPPING NAME:** Not classified as a dangerous good under transport regulations.

**VESSEL (IMO/IMDG)**

**SHIPPING NAME:** Not classified as a dangerous good under transport regulations.

### 15. REGULATORY INFORMATION
UNITED STATES

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)

FIRE: No  REACTIVITY: No  ACUTE TOXICITY: Yes  CHRONIC: Yes

313 REPORTABLE INGREDIENTS: This product does not contain greater than 1.0% (greater than 0.1% for carcinogenic substance) of any chemical substances listed under SARA Section 313.

TSCA (TOXIC SUBSTANCE CONTROL ACT)

TSCA STATUS: All components of this product are on the TSCA inventory or are exempt.

CALIFORNIA PROPOSITION 65: This product does not intentionally contain chemical(s) known by the state of California to cause cancer, birth defects or reproductive harm.

16. OTHER INFORMATION

Date Prepared: 10/06/2015

ABBREVIATIONS AND ACRONYMS:
- CERCLA - The Comprehensive Environmental Response, Compensation, and Liability Act
- DOT - Department of Transportation
- IARC - International Agency for Research on Cancer
- IATA - International Air Transport Association
- ICAO - International Civil Aviation Organization
- IMDG - International Maritime Dangerous Goods
- IMO - International Maritime Organization
- LC50 - Lethal Concentration, 50%
- LD50 - Lethal Dose, 50%
- OSHA - Occupational Safety and Health Administration
- NIOSH - National Institute of Occupational Safety and Health
- NTP - National Toxicology Program
- PMCC - Pensky-Martens Closed Cup
- PPE - Personal Protective Equipment
- RCRA - The Resource Conservation and Recovery Act
- RQ - Reportable Quantity
- SARA - Superfund Amendments and Reauthorization Act
- SDS - Safety Data Sheet
- STOT - Specific Target Organ Toxicity
- TSCA - Toxic Substances Control Act

MANUFACTURER DISCLAIMER: The information and the recommendations provided in this Material Safety Data Sheet (MSDS) are believed to be accurate and are given in good faith. However, no warranty, expressed or implied, is given. Since the actual use of the product described herein is beyond our control, Focus Chemical, Inc. assumes no responsibility or liability arising out of the use of the product by others. Users should make their own investigations to determine the suitability of the information for their particular purposes. It is the responsibility of the purchaser or user to ensure that his/her activities comply with all federal, state, provincial or local laws.