SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier
Product form: Substance
Physical state: Solid
Substance name: OCTYLPHOSPHONIC ACID
Product code: OMPH061
Formula: C8H19O3P
Synonyms: n-OCTYL PHOSPHOROUS ACID
Chemical family: ACID

1.2. Relevant identified uses of the substance or mixture and uses advised against
Use of the substance/mixture: Chemical intermediate
For research and industrial use only

1.3. Details of the supplier of the safety data sheet
GELEST, INC.
11 East Steel Road
Morrisville, PA 19067
USA
T 215-547-1015 - F 215-547-2484 - (M-F): 8:00 AM - 5:30 PM EST
info@gelest.com - www.gelest.com

1.4. Emergency telephone number
Emergency number: CHEMTREC: 1-800-424-9300 (USA); +1 703-527-3887 (International)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

| Classification (GHS-US) | | |
|-------------------------|-------------------|
| Skin Corr. 1C H314      |
| Eye Dam. 1 H318         |
| Aquatic Acute 2 H401    |

Full text of H-phrases: see section 16

2.2. Label elements

GHS-US labeling
Hazard pictograms (GHS-US):

<table>
<thead>
<tr>
<th>Signal word (GHS-US)</th>
<th>Danger</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazard statements (GHS-US)</td>
<td>H314 - Causes severe skin burns and eye damage</td>
</tr>
<tr>
<td></td>
<td>H318 - Causes serious eye damage</td>
</tr>
<tr>
<td></td>
<td>H401 - Toxic to aquatic life</td>
</tr>
</tbody>
</table>

Precautionary statements (GHS-US)
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P260 - Do not breathe dust
P264 - Wash hands thoroughly after handling
P273 - Avoid release to the environment
P301+P330+P331 - If swallowed: rinse mouth. Do NOT induce vomiting
P303+P361+P353 - If on skin (or hair): take off immediately all contaminated clothing, rinse skin with water/shower
P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P310 - Immediately call a doctor
P363 - Wash contaminated clothing before reuse
P405 - Store locked up
P501 - Dispose of contents/container to licensed waste disposal facility.

2.3. Other hazards
No additional information available
2.4. **Unknown acute toxicity (GHS US)**
No data available

### SECTION 3: Composition/information on ingredients

#### 3.1. Substance

<table>
<thead>
<tr>
<th>Substance type</th>
<th>Mono-constituent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>OCTYLPHOSPHONIC ACID</td>
</tr>
<tr>
<td>CAS No</td>
<td>4724-48-5</td>
</tr>
<tr>
<td>EC no</td>
<td>225-218-5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>Classification (GHS-US)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Octylphosphonic acid</td>
<td>(CAS No) 4724-48-5</td>
<td>&gt; 95</td>
<td>Skin Corr. 1C, H314</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Eye Dam. 1, H318</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Aquatic Acute 2, H401</td>
</tr>
</tbody>
</table>

3.2. **Mixture**
Not applicable

### SECTION 4: First aid measures

#### 4.1. Description of first aid measures

**First-aid measures general**
Remove contaminated clothing and shoes. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). If possible show this sheet; if not available show packaging or label.

**First-aid measures after inhalation**
Remove victim to fresh air and keep at rest in a position comfortable for breathing. If you feel unwell, seek medical advice.

**First-aid measures after skin contact**
Wash with plenty of soap and water. Get immediate medical advice/attention.

**First-aid measures after eye contact**
Immediately flush eyes thoroughly with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice/attention.

**First-aid measures after ingestion**
Never give anything by mouth to an unconscious person. Get medical advice/attention.

#### 4.2. Most important symptoms and effects, both acute and delayed

**Symptoms/injuries**
Causes severe skin burns and eye damage.

**Symptoms/injuries after inhalation**
May cause irritation to the respiratory tract. Overexposure may cause: Coughing. Headache. Nausea.

**Symptoms/injuries after skin contact**
Causes (severe) skin burns. Short term exposure will produce irritation. Long term exposure is corrosive to the skin and mucous membranes.

**Symptoms/injuries after eye contact**
Causes serious eye damage.

**Symptoms/injuries after ingestion**
May be harmful if swallowed.

#### 4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

### SECTION 5: Firefighting measures

#### 5.1. Extinguishing media

Suitable extinguishing media
Not combustible.

#### 5.2. Special hazards arising from the substance or mixture

No additional information available

#### 5.3. Advice for firefighters

**Firefighting instructions**
Exercise caution when fighting any chemical fire.

**Protection during firefighting**
Do not enter fire area without proper protective equipment, including respiratory protection. Avoid contact with skin and eyes. Do not breathe dust.

### SECTION 6: Accidental release measures

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

6.1.1. **For non-emergency personnel**

**Emergency procedures**
Evacuate unnecessary personnel.

6.1.2. **For emergency responders**

**Protective equipment**
Equip cleanup crew with proper protection.

#### 6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if product enters sewers or public waters.

#### 6.3. Methods and material for containment and cleaning up

**Methods for cleaning up**
Sweep or shovel spills into appropriate container for disposal.
6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling: Avoid contact with skin and eyes. Do not breathe dust. Provide local exhaust or general room ventilation to minimize exposure to dust.

Hygiene measures: Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions: Keep container tightly closed.

Storage area: Store in a well-ventilated place. Store away from heat.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Exposure controls

Appropriate engineering controls: Provide local exhaust or general room ventilation.

Personal protective equipment: Avoid all unnecessary exposure. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

Hand protection: Neoprene or nitrile rubber gloves.

Eye protection: Chemical goggles or face shield. Contact lenses should not be worn.

Skin and body protection: Wear suitable protective clothing.

Respiratory protection: NIOSH-certified dust and mist (orange cartridge) respirator.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state: Solid

Appearance: Resinous or crystalline solid.

Molecular mass: 194.21 g/mol

Color: Off-white.

Odor: No data available

Odor threshold: No data available

Refractive index: No data available

pH: No data available

Relative evaporation rate (butyl acetate=1): No data available

Melting point: 102 - 103 °C

Freezing point: No data available

Boiling point: > 200 °C @ 3 mm Hg

Flash point: > 110 °C

Auto-ignition temperature: No data available

Decomposition temperature: No data available

Flammability (solid, gas): No data available

Vapor pressure: < 0.1 mm Hg @ 20°C

Relative vapor density at 20 °C: No data available

Relative density: 1.1

VOC content: < 3%

Solubility: Slightly. Soluble in water. Forms emulsions.

Log Pow: 2.74 Octanol/water partition coefficient

Log Kow: No data available

Viscosity, kinematic: No data available

Viscosity, dynamic: No data available

Explosive properties: No data available

Oxidizing properties: No data available

Explosion limits: No data available
SECTION 10: Stability and reactivity

10.1. Reactivity
No additional information available

10.2. Chemical stability
Stable.

10.3. Possibility of hazardous reactions
No additional information available

10.4. Conditions to avoid
No additional information available

10.5. Incompatible materials
No additional information available

10.6. Hazardous decomposition products
Carbon dioxide. Phosphorus oxides.

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Acute toxicity: Not classified

<table>
<thead>
<tr>
<th>Octylphosphonic acid (4724-48-5)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
<td>&gt; 2000 mg/kg</td>
</tr>
<tr>
<td>LD50 dermal rabbit</td>
<td>&gt; 2000 mg/kg</td>
</tr>
</tbody>
</table>

Skin corrosion/iritation: Causes severe skin burns and eye damage.

Serious eye damage/iritation: Causes serious eye damage.

Respiratory or skin sensitization: Not classified

Germ cell mutagenicity: Not classified

Ames test for mutagenicity is negative.

Carcinogenicity: Not classified

Reproductive toxicity: Not classified

Specific target organ toxicity (single exposure): Not classified

Specific target organ toxicity (repeated exposure): Not classified

Aspiration hazard: Not classified


Symptoms/injuries after skin contact: Causes (severe) skin burns. Short term exposure will produce irritation. Long term exposure is corrosive to the skin and mucous membranes.

Symptoms/injuries after eye contact: Causes serious eye damage.

Symptoms/injuries after ingestion: May be harmful if swallowed.

Reason for classification: Expert judgment

SECTION 12: Ecological information

12.1. Toxicity

<table>
<thead>
<tr>
<th>Octylphosphonic acid (4724-48-5)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>EC50 Daphnia 1</td>
<td>5.3 mg/l Daphnia</td>
</tr>
</tbody>
</table>

12.2. Persistence and degradability
No additional information available

12.3. Bioaccumulative potential
No additional information available

12.4. Mobility in soil
No additional information available

12.5. Other adverse effects
Other adverse effects: This substance may be hazardous to the environment.

Effect on ozone layer: No additional information available
OCTYLPHOSPHONIC ACID
Safety Data Sheet

Effect on the global warming: No known ecological damage caused by this product.

SECTION 13: Disposal considerations
13.1. Waste treatment methods
Waste disposal recommendations: Landfill. Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to licensed waste disposal facility.
Ecology - waste materials: Avoid release to the environment.

SECTION 14: Transport information
14.1. UN number
UN-No.(DOT): 3260
DOT NA no.: UN3260

14.2. UN proper shipping name
Proper Shipping Name (DOT): Corrosive solid, acidic, inorganic, n.o.s. (OCTYLPHOSPHONIC ACID)
Department of Transportation (DOT) Hazard Classes: 8 - Class 8 - Corrosive material 49 CFR 173.136
Hazard labels (DOT): 8 - Corrosive

DOT Symbols: G - Identifies PSN requiring a technical name
Packing group (DOT): III - Minor Danger
DOT Packaging Exceptions (49 CFR 173.xxx): 154
DOT Packaging Non Bulk (49 CFR 173.xxx): 213
DOT Packaging Bulk (49 CFR 173.xxx): 240

14.3. Additional information
Other information: No supplementary information available.

Transport by sea
DOT Vessel Stowage Location: A - The material may be stowed “on deck” or “under deck” on a cargo vessel and on a passenger vessel.

Air transport
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27): 25 kg
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75): 100 kg

SECTION 15: Regulatory information
15.1. US Federal regulations
Octylphosphonic acid (4724-48-5)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. International regulations
Octylphosphonic acid (4724-48-5)
Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on the Canadian NDSL (Non-Domestic Substances List)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on Turkish inventory of chemical

15.3. US State regulations
OCTYLPHOSPHONIC ACID(4724-48-5)
U.S. - California - Proposition 65 - Carcinogens List: No
U.S. - California - Proposition 65 - Developmental: No
OCTYLPHOSPHONIC ACID
Safety Data Sheet

OCTYLPHOSPHONIC ACID (4724-48-5)

Toxicity

<table>
<thead>
<tr>
<th>U.S. - California - Proposition 65 - Reproductive Toxicity - Female</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. - California - Proposition 65 - Reproductive Toxicity - Male</td>
<td>No</td>
</tr>
</tbody>
</table>

Octylphosphonic acid (4724-48-5)

<table>
<thead>
<tr>
<th>U.S. - California - Proposition 65 - Carcinogens List</th>
<th>U.S. - California - Proposition 65 - Developmental Toxicity</th>
<th>U.S. - California - Proposition 65 - Reproductive Toxicity - Female</th>
<th>U.S. - California - Proposition 65 - Reproductive Toxicity - Male</th>
<th>No significance risk level (NSRL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

SECTION 16: Other information

Abbreviations and acronyms:

Abbreviations: ND: Not Determined, No Data; NA: Not Applicable; LD: Lethal Dose; LC: Lethal Concentration; ATE: Acute Toxicity Estimates; H: hour; °: °C unless otherwise stated; mm: millimeters Hg, torr; PEL: permissible exposure level; TWA: time weighted average; TLV: threshold limit value; TG: Test Guideline; NIOSH: National Institute for Occupational Safety and Health; IARC: International Agency for Research on Cancer; NTP: National Toxicology Program; HMIS: Hazardous Material Information System; CAS No.: Chemical Abstract Service Registration Number; EC No.: European Commission Registration Number; EC Index No.: European Commission Index Number; OECD: The Organisation for Economic Co-operation and Development.

Full text of H-phrases:

<table>
<thead>
<tr>
<th>Aquatic Acute 2</th>
<th>Hazardous to the aquatic environment - Acute Hazard Category 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye Dam. 1</td>
<td>Serious eye damage/eye irritation Category 1</td>
</tr>
<tr>
<td>Skin Corr. 1C</td>
<td>Skin corrosion/irritation Category 1C</td>
</tr>
<tr>
<td>H314</td>
<td>Causes severe skin burns and eye damage</td>
</tr>
<tr>
<td>H318</td>
<td>Causes serious eye damage</td>
</tr>
<tr>
<td>H401</td>
<td>Toxic to aquatic life</td>
</tr>
</tbody>
</table>

HMIS III Rating

Health: 3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given
Flammability: 2 Moderate Hazard
Physical: 0 Minimal Hazard

Prepared by safety and environmental affairs.

Date of issue: 06/22/2015 Version: 1.0

SDS US (GHS HazCom 2012) - Custom

According to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

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