



**DIETHYLPHOSPHITE**  
 Safety Data Sheet OMPH027  
 Date of issue: 01/06/2015 Version: 1.0

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

### 1.1. Product identifier

Product form : Substance  
 Physical state : Liquid  
 Substance name : DIETHYLPHOSPHITE  
 Product code : OMPH027  
 Formula : C<sub>4</sub>H<sub>11</sub>O<sub>3</sub>P  
 Synonyms : DIETHYL HYDROGEN PHOSPHITE  
 Chemical family : ESTER

### 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](mailto:info@gelest.com) - [www.gelest.com](http://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)

Flam. Liq. 4 H227  
 Eye Irrit. 2A H319  
 Full text of H-phrases: see section 16

### 2.2. Label elements

#### GHS-US labeling

Hazard pictograms (GHS-US) :



GHS07

Signal word (GHS-US) : Warning  
 Hazard statements (GHS-US) : H227 - Combustible liquid  
 H319 - Causes serious eye irritation  
 Precautionary statements (GHS-US) : P280 - Wear protective gloves/protective clothing/eye protection/face protection  
 P210 - Keep away from heat, open flames, sparks. - No smoking  
 P264 - Wash hands thoroughly after handling  
 P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
 P337+P313 - If eye irritation persists: Get medical advice/attention  
 P370+P378 - In case of fire: Use water spray, foam, carbon dioxide, dry chemical to extinguish  
 P403+P235 - Keep in a cool place  
 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

Substance type : Mono-constituent

# DIETHYLPHOSPHITE

## Safety Data Sheet

Name : DIETHYLPHOSPHITE  
CAS No : 762-04-9  
EC no : 212-091-6

Name	Product identifier	%	Classification (GHS-US)
Diethylphosphite	(CAS No) 762-04-9	> 95	Flam. Liq. 4, H227 Eye Irrit. 2A, H319

### 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.

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 medical advice/attention.

First-aid measures after ingestion : Rinse mouth. 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 after inhalation : May cause respiratory irritation. Overexposure may cause: Coughing. Headache. Nausea.

Symptoms/injuries after skin contact : May cause skin irritation. May be harmful in contact with skin.

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

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 : Water spray. Foam. Carbon dioxide. Dry chemical.

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

Fire hazard : Combustible liquid. Irritating fumes and organic acid vapors may develop when material is exposed to elevated temperatures or open flame.

### 5.3. Advice for firefighters

Firefighting instructions : Use water spray to cool exposed surfaces. Exercise caution when fighting any chemical fire.

Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection. Avoid all eye and skin contact and do not breathe vapor and mist.

## 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 liquid enters sewers or public waters.

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

Methods for cleaning up : Clean up any spills as soon as possible, using an absorbent material to collect it. Sweep or shovel spills into appropriate container for disposal. Use only non-sparking tools.

### 6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

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## Safety Data Sheet

### SECTION 7: Handling and storage

#### 7.1. Precautions for safe handling

- Precautions for safe handling : Avoid all eye and skin contact and do not breathe vapor and mist. Provide good ventilation in process area to prevent accumulation of vapors. Containers and transfer lines require grounding during use. Use only non-sparking tools.
- 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

- Technical measures : Ground/bond container and receiving equipment.
- Storage conditions : Keep container tightly closed.
- Incompatible materials : Alkalis. Moisture.
- 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. Contact lenses should not be worn.
- Skin and body protection : Wear suitable protective clothing.
- Respiratory protection : NIOSH-certified combination organic vapor/acid gas (yellow cartridge) respirator.

### SECTION 9: Physical and chemical properties

#### 9.1. Information on basic physical and chemical properties

- Physical state : Liquid
- Appearance : Clear liquid.
- Molecular mass : 138.11 g/mol
- Color : Straw.
- Odor : Mild.
- Odor threshold : No data available
- Refractive index : 1.408
- pH : No data available
- Relative evaporation rate (butyl acetate=1) : No data available
- Melting point : No data available
- Freezing point : < 0 °C
- Boiling point : 50 - 51 °C @ 2 mm Hg
- Flash point : 90 °C
- Auto-ignition temperature : No data available
- Decomposition temperature : No data available
- Flammability (solid, gas) : Combustible liquid
- Vapor pressure : No data available
- Relative vapor density at 20 °C : > 1
- Relative density : 1.072
- Solubility : Soluble in water. Reacts with water.
- Log Pow : No data available
- Log Kow : No data available
- Viscosity, kinematic : 1.2 cSt
- Viscosity, dynamic : No data available
- Explosive properties : No data available
- Oxidizing properties : No data available
- Explosive limits : No data available

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## Safety Data Sheet

### 9.2. Other information

No additional information available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

No additional information available

### 10.2. Chemical stability

Stable in sealed containers.

### 10.3. Possibility of hazardous reactions

Reacts with alkalis and moisture in air liberating ethanol.

### 10.4. Conditions to avoid

Heat. Open flame. Sparks.

### 10.5. Incompatible materials

Alkalis. Moisture.

### 10.6. Hazardous decomposition products

Organic acid vapors. POx.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity : Not classified

Diethylphosphite (762-04-9)	
LD50 oral rat	3900 mg/kg
LD50 dermal rabbit	2020 µl/kg
ATE US (oral)	3900.000 mg/kg body weight
Skin corrosion/irritation	: Not classified
Serious eye damage/irritation	: Causes serious eye irritation.
Respiratory or skin sensitization	: Not classified
Germ cell mutagenicity	: Not classified
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 inhalation	: May cause respiratory irritation. Overexposure may cause: Coughing. Headache. Nausea.
Symptoms/injuries after skin contact	: May cause skin irritation. May be harmful in contact with skin.
Symptoms/injuries after eye contact	: Causes serious eye irritation.
Symptoms/injuries after ingestion	: May be harmful if swallowed.
Reason for classification	: Expert judgment

## SECTION 12: Ecological information

### 12.1. Toxicity

No additional information available

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

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### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods

- Waste disposal recommendations : May be incinerated. 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) : 3334
- DOT NA no. UN3334

#### 14.2. UN proper shipping name

- Proper Shipping Name (DOT) : Aviation regulated liquid, n.o.s.  
(DIETHYLPHOSPHITE)
- Department of Transportation (DOT) Hazard Classes : 9 - Class 9 - Miscellaneous hazardous material 49 CFR 173.140
- Hazard labels (DOT) : 9 - Class 9 (Miscellaneous dangerous materials)



- DOT Symbols : A - Material is regulated as a hazardous material only when be transported by air, G - Identifies PSN requiring a technical name
- DOT Packaging Exceptions (49 CFR 173.xxx) : 155
- DOT Packaging Non Bulk (49 CFR 173.xxx) : 204

#### 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) : 450 L
- DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 450 L

### SECTION 15: Regulatory information

#### 15.1. US Federal regulations

##### Diethylphosphite (762-04-9)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

#### 15.2. International regulations

##### Diethylphosphite (762-04-9)

Listed on the AICS (Australian Inventory of Chemical Substances)  
Listed on the Canadian DSL (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 Japanese ISHL (Industrial Safety and Health Law)  
Listed on NZIoC (New Zealand Inventory of Chemicals)  
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)

#### 15.3. US State regulations

##### DIETHYLPHOSPHITE(762-04-9)

U.S. - California - Proposition 65 - Carcinogens List	No
U.S. - California - Proposition 65 - Developmental Toxicity	No
U.S. - California - Proposition 65 - Reproductive Toxicity - Female	No
U.S. - California - Proposition 65 - Reproductive	No

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DIETHYLPHOSPHITE(762-04-9)				
Toxicity - Male				
Diethylphosphite (762-04-9)				
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significance risk level (NSRL)
No	No	No	No	

### 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::

Eye Irrit. 2A	Serious eye damage/eye irritation Category 2A
Flam. Liq. 4	Flammable liquids Category 4
H227	Combustible liquid
H319	Causes serious eye irritation

#### HMIS III Rating

Health : 2 Moderate Hazard - Temporary or minor injury may occur  
Flammability : 2 Moderate Hazard  
Physical : 1 Slight Hazard

Prepared by safety and environmental affairs.

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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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