



## DIPHENYLPHOSPHINE, 20% in heptane

Safety Data Sheet OMPH029.2

Date of issue: 06/15/2017

Version: 1.0

### SECTION 1: Identification

#### 1.1. Product identifier

Product name : DIPHENYLPHOSPHINE, 20% in heptane  
 Product code : OMPH029.2  
 Product form : Mixture  
 Physical state : Liquid  
 Formula : C<sub>12</sub>H<sub>11</sub>P  
 Chemical family : ORGANOPHOSPHORUS COMPOUND

#### 1.2. Recommended use of the chemical and restrictions on use

Recommended use : 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: Hazard(s) identification

#### 2.1. Classification of the substance or mixture

##### GHS-US classification

Flammable liquids Category 2	H225
Skin corrosion/irritation Category 2	H315
Serious eye damage/eye irritation Category 2	H319
Specific target organ toxicity (single exposure) Category 3	H335
Specific target organ toxicity (single exposure) Category 3	H336
Hazardous to the aquatic environment - Acute Hazard Category 1	H400
Hazardous to the aquatic environment - Chronic Hazard Category 1	H410

Full text of H statements : see section 16

#### 2.2. Label elements

##### GHS-US labeling

Hazard pictograms (GHS-US) :



Signal word (GHS-US) : Danger

Hazard statements (GHS-US) :

- H225 - Highly flammable liquid and vapor
- H315 - Causes skin irritation
- H319 - Causes serious eye irritation
- H335 - May cause respiratory irritation
- H336 - May cause drowsiness or dizziness
- H400 - Very toxic to aquatic life
- H410 - Very toxic to aquatic life with long lasting effects

Precautionary statements (GHS-US) :

- P280 - Wear protective gloves/protective clothing/eye protection/face protection
- P210 - Keep away from heat, open flames, sparks. - No smoking
- P312 - Call a doctor if you feel unwell
- P240 - Ground/Bond container and receiving equipment
- P241 - Use explosion-proof electrical equipment
- P242 - Use only non-sparking tools
- P243 - Take precautionary measures against static discharge
- P261 - Avoid breathing vapors
- P264 - Wash hands thoroughly after handling
- P271 - Use only outdoors or in a well-ventilated area
- P273 - Avoid release to the environment

# DIPHENYLPHOSPHINE, 20% in heptane

## Safety Data Sheet

P303+P361+P353 - If on skin (or hair): take off immediately all contaminated clothing. rinse skin with water/shower  
P332+P313 - If skin irritation occurs: Get medical advice/attention  
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  
P337+P313 - If eye irritation persists: Get medical advice/attention  
P321 - Specific treatment (see first aid instructions on this label)  
P362+P364 - Take off contaminated clothing and wash it before reuse  
P370+P378 - In case of fire: Use dry chemical powder followed by sand or dolomite to extinguish  
P391 - Collect spillage  
P403+P233 - Store in a well-ventilated place. Keep container tightly closed  
P403+P235 - Keep in a cool place  
P405 - Store locked up  
P501 - Dispose of contents/container to licensed waste disposal facility.

### 2.3. Hazards not otherwise classified (HNOC)

No additional information available

### 2.4. Unknown acute toxicity (GHS US)

No data available

## SECTION 3: Composition/Information on ingredients

### 3.1. Substances

Not applicable

### 3.2. Mixtures

Name	Product identifier	%	GHS-US classification
n-Heptane	(CAS No) 142-82-5	78 - 82	Flam. Liq. 2, H225 Skin Irrit. 2, H315 STOT SE 3, H336 Asp. Tox. 1, H304 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Diphenylphosphine	(CAS No) 829-85-6	18 - 22	Pyr. Liq. 1, H250 Skin Irrit. 2, H315 Eye Irrit. 2A, H319 STOT SE 3, H335

Full text of hazard classes and H-statements : see section 16

## 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 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 medical advice/attention.
First-aid measures after ingestion	: Never give anything by mouth to an unconscious person. Get medical advice/attention if you feel unwell.

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

Symptoms/effects after inhalation	: May cause drowsiness or dizziness. May cause respiratory irritation. Direct respiratory contact is usually not possible, but will cause burns. Inhalation of combustion products can cause irritation. Vapor inhalation of heptane may lead to impairment of coordination mental alertness, and reaction times, leading to accident proneness. . Exposure at high levels may have narcotic effects.
Symptoms/effects after skin contact	: Causes skin irritation.
Symptoms/effects after eye contact	: Causes serious eye irritation.
Symptoms/effects 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	: Dry chemical powder followed by sand or dolomite.
Unsuitable extinguishing media	: Do not use straight streams.

# DIPHENYLPHOSPHINE, 20% in heptane

## Safety Data Sheet

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

- Fire hazard : Highly flammable liquid and vapor. Irritating fumes and organic acid vapors may develop when material is exposed to elevated temperatures or open flame.
- Explosion hazard : May form flammable/explosive vapor-air mixture.

### 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 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

- General measures : Eliminate every possible source of ignition. Use special care to avoid static electric charges.

#### 6.1.1. For non-emergency personnel

- Protective equipment : Wear protective equipment as described in Section 8.
- Emergency procedures : Evacuate unnecessary personnel.

#### 6.1.2. For emergency responders

- Protective equipment : Do not attempt to take action without suitable protective equipment. Equip cleanup crew with proper protection. For further information refer to section 8: "Exposure controls/personal protection".

### 6.2. Environmental precautions

Avoid release to the environment. 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

- For containment : Collect spillage. Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.
- Methods for cleaning up : Clean up any spills as soon as possible, using an absorbent material to collect it. Use only non-sparking tools.

### 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

- Additional hazards when processed : Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Neat (solvent free) product may ignite spontaneously if heated.
- Precautions for safe handling : Avoid all eye and skin contact and do not breathe vapor and mist. Ground/bond container and receiving equipment. Take precautionary measures against static discharge. Use only outdoors or in a well-ventilated area. Use only non-sparking tools.
- Hygiene measures : Wash contaminated clothing before reuse. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

### 7.2. Conditions for safe storage, including any incompatibilities

- Technical measures : Proper grounding procedures to avoid static electricity should be followed. Use explosion-proof electrical equipment.
- Storage conditions : Keep container tightly closed. Store locked up. Store in sealed containers under inert atmosphere.
- Incompatible materials : Alkalis. Bromine. Chlorine. Metal salts. Oxidizers. Precious metals.
- Storage area : Store in a well-ventilated place. Store away from heat.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

n-Heptane (142-82-5)		
ACGIH	ACGIH TWA (ppm)	400 ppm
ACGIH	ACGIH STEL (ppm)	500 ppm
OSHA	OSHA PEL (TWA) (mg/m³)	2000 mg/m³
OSHA	OSHA PEL (TWA) (ppm)	500 ppm
IDLH	US IDLH (ppm)	750 ppm
NIOSH	NIOSH REL (TWA) (mg/m³)	350 mg/m³
NIOSH	NIOSH REL (TWA) (ppm)	85 ppm
NIOSH	NIOSH REL (ceiling) (mg/m³)	1800 mg/m³

# DIPHENYLPHOSPHINE, 20% in heptane

## Safety Data Sheet

### n-Heptane (142-82-5)

NIOSH

NIOSH REL (ceiling) (ppm)

440 ppm

### 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	: Full face shield with chemical workers goggles.
Skin and body protection	: Wear suitable protective clothing.
Respiratory protection	: Where exposure through inhalation may occur from use, respiratory protection equipment is recommended. NIOSH-certified organic vapor (black cartridge) respirator.

## SECTION 9: Physical and chemical properties

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

Physical state	: Liquid
Appearance	: Clear solution.
Molecular mass	: 186.2 g/mol
Color	: No data available
Odor	: Unpleasant. Pungent.
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	: < 0 °C (neat)
Freezing point	: No data available
Boiling point	: 280 °C (neat)
Flash point	: -4 °C
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Flammability (solid, gas)	: Highly flammable liquid and vapor
Vapor pressure	: 2 mm Hg
Relative vapor density at 20 °C	: > 1
Relative density	: 0.755
VOC content	: > 75 %
Solubility	: Insoluble in water. Reacts slowly with water.
Log Pow	: No data available
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

### 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 under dry inert atmosphere.

### 10.3. Possibility of hazardous reactions

No additional information available

### 10.4. Conditions to avoid

Heat. Open flame. Sparks.

# DIPHENYLPHOSPHINE, 20% in heptane

## Safety Data Sheet

### 10.5. Incompatible materials

Alkalis. Bromine. Chlorine. Metal salts. Oxidizers. Precious metals.

### 10.6. Hazardous decomposition products

Carbon monoxide. Formaldehyde. Organic phosphine vapors. Phosphorus oxides.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity : Not classified

n-Heptane (142-82-5)	
LD50 oral mouse	5000 mg/kg
LD50 dermal rabbit	3000 mg/kg
LC50 inhalation rat (mg/l)	103 g/m <sup>3</sup> (Exposure time: 4 h)
ATE US (dermal)	3000 mg/kg body weight
ATE US (vapors)	103 mg/l/4h
ATE US (dust, mist)	103 mg/l/4h
Toxicity information	1000 ppm Inhalation (heptane)-human, TCLo

Skin corrosion/irritation : Causes skin irritation.  
Serious eye damage/irritation : Causes serious eye irritation.  
Respiratory or skin sensitization : Not classified  
Germ cell mutagenicity : Not classified  
Carcinogenicity : Not classified  
None of the components in this product at concentrations >0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.

Reproductive toxicity : Not classified  
Specific target organ toxicity – single exposure : May cause respiratory irritation. May cause drowsiness or dizziness.

Specific target organ toxicity – repeated exposure : Not classified  
May cause damage to organs through prolonged or repeated exposure

Aspiration hazard : Not classified  
Symptoms/effects after inhalation : May cause drowsiness or dizziness. May cause respiratory irritation. Direct respiratory contact is usually not possible, but will cause burns. Inhalation of combustion products can cause irritation. Vapor inhalation of heptane may lead to impairment of coordination mental alertness, and reaction times, leading to accident proneness.  
. Exposure at high levels may have narcotic effects.

Symptoms/effects after skin contact : Causes skin irritation.  
Symptoms/effects after eye contact : Causes serious eye irritation.  
Symptoms/effects after ingestion : May be harmful if swallowed.  
Reason for classification : Expert judgment

## SECTION 12: Ecological information

### 12.1. Toxicity

Ecology - general : Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects.  
Ecology - water : Toxic to aquatic life with long lasting effects.

n-Heptane (142-82-5)	
LC50 fish 1	375 mg/l (Exposure time: 96 h - Species: Cichlid fish)

### 12.2. Persistence and degradability

No additional information available

### 12.3. Bioaccumulative potential

n-Heptane (142-82-5)	
Log Pow	4.66

### 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 effects from this product.

# DIPHENYLPHOSPHINE, 20% in heptane

## Safety Data Sheet

GWPmix comment : No known effects from this product.

### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods

Sewage disposal recommendations : Do not dispose of waste into sewer.

Product/Packaging disposal recommendations : Incinerate. Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to licensed waste disposal facility. This is a RCRA hazardous waste: 40 CFR 261.21 (i.e. ignitable) 40 CFR 261.23 (i.e. reactive).

Additional information : Handle empty containers with care because residual vapors are flammable.

Ecology - waste materials : Avoid release to the environment.

### SECTION 14: Transport information

#### 14.1. UN number

UN-No.(DOT) : 1993

DOT NA no. : UN1993

#### 14.2. UN proper shipping name

Transport document description : UN1993 Flammable liquids, n.o.s. (DIPHENYLPHOSPHINE, 20% in heptane), 3, II

Proper Shipping Name (DOT) : Flammable liquids, n.o.s.  
(DIPHENYLPHOSPHINE, 20% in heptane)

Class (DOT) : 3 - Class 3 - Flammable and combustible liquid 49 CFR 173.120

Packing group (DOT) : II - Medium Danger

Hazard labels (DOT) : 3 - Flammable liquid

Dangerous for the environment

Marine pollutant



Yes

Yes



DOT Packaging Non Bulk (49 CFR 173.xxx) : 202

DOT Packaging Bulk (49 CFR 173.xxx) : 242

DOT Packaging Exceptions (49 CFR 173.xxx) : 150

DOT Symbols : G - Identifies PSN requiring a technical name

#### 14.3. Additional information

Emergency Response Guide (ERG) Number : 128

Other information : No supplementary information available.

#### Transport by sea

DOT Vessel Stowage Location : B - (i) The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers, or one passenger per each 3 m of overall vessel length; and (ii) "On deck only" on passenger vessels in which the number of passengers specified in paragraph (k)(2)(i) of this section is exceeded.

#### Air transport

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27) : 5 L

DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75) : 60 L

### SECTION 15: Regulatory information

#### 15.1. US Federal regulations

##### Diphenylphosphine (829-85-6)

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

# DIPHENYLPHOSPHINE, 20% in heptane

## Safety Data Sheet

### n-Heptane (142-82-5)

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

EPA TSCA Regulatory Flag

T - T - indicates a substance that is the subject of a Section 4 test rule under TSCA.

### 15.2. International regulations

#### CANADA

No additional information available

### n-Heptane (142-82-5)

Listed on the Canadian DSL (Domestic Substances List)

WHMIS Classification

Class B Division 2 - Flammable Liquid

Class D Division 2 Subdivision B - Toxic material causing other toxic effects

### EU-Regulations

### Diphenylphosphine (829-85-6)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

### n-Heptane (142-82-5)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

### National regulations

### n-Heptane (142-82-5)

Listed on the AICS (Australian Inventory of Chemical Substances)

Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)

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 the Canadian IDL (Ingredient Disclosure List)

Listed on INSQ (Mexican National Inventory of Chemical Substances)

Listed on CICR (Turkish Inventory and Control of Chemicals)

### 15.3. US State regulations

### n-Heptane (142-82-5)

U.S. - Massachusetts - Right To Know List

U.S. - New Jersey - Right to Know Hazardous Substance List

U.S. - Pennsylvania - RTK (Right to Know) List

## SECTION 16: Other information

Full text of H-phrases::

H225	Highly flammable liquid and vapor
H250	Catches fire spontaneously if exposed to air
H304	May be fatal if swallowed and enters airways
H315	Causes skin irritation
H319	Causes serious eye irritation
H335	May cause respiratory irritation
H336	May cause drowsiness or dizziness
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects

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; GHS: The Globally Harmonized System of Classification and Labelling.

### HMIS III Rating

Health

: 3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given

Flammability

: 4 Severe Hazard - Flammable gases, or very volatile flammable liquids with flash points below 73 F, and boiling points below 100 F. Materials may ignite spontaneously with air. (Class IA)

# DIPHENYLPHOSPHINE, 20% in heptane

## Safety Data Sheet

Physical

: 1 Slight Hazard - Materials that are normally stable but can become unstable (self-react) at high temperatures and pressures. Materials may react non-violently with water or undergo hazardous polymerization in the absence of inhibitors.

Prepared by safety and environmental affairs.

Date of issue: 06/15/2017

Version: 1.0

SDS US (GHS HazCom 2012) - Custom

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

*The information contained in this document has been gathered from reference materials and/or Gelest, Inc. test data and is to the best knowledge and belief of Gelest, Inc. accurate and reliable. Such information is offered solely for your consideration, investigation and verification. It is not suggested or guaranteed that the hazard precautions or procedures described are the only ones which exist. Gelest, Inc. makes no warranties, express or implied, with respect to the use of such information and assumes no responsibility therefore. Information on this safety data sheet is not intended to constitute a basis for product specifications.*

© 2017 Gelest Inc. Morrisville, PA 19067

