



Safety Data Sheet 2-Dicyclohexylphosphino-2',4',6'-triisopropyl-1,1'-biphenyl

SECTION 1. IDENTIFICATION

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|--------------------------------------|--|
| Product Identifier | 2-Dicyclohexylphosphino-2',4',6'-triisopropyl-1,1'-biphenyl |
| Other Means of Identification | Product Number: 1935 |
| Other Identification | 564483-18-7 |
| Product Family | Organophosphorus ligand |
| Recommended Use | Laboratory chemicals, manufacture of substances. |
| Restrictions on Use | None known. |
| Manufacturer | Digital Specialty Chemicals Ltd., 470 Coronation Dr., Toronto, ON, M1E 4Y4, (416) 231-2991 |
| Supplier Identifier | Digital Specialty Chemicals Ltd., 470 Coronation Dr., Toronto, ON, M1E 4Y4, (416) 231-2991 |
| Emergency Phone No. | CANUTEC, (613)-996-6666 0388 |
| SDS No. | |

SECTION 2. HAZARD IDENTIFICATION

Classification

Acute toxicity (Inhalation) - Category 4; Skin irritation - Category 2; Eye irritation - Category 2A; Specific target organ toxicity (single exposure) - Category 3

Label Elements



Signal Word:
Warning

Hazard Statement(s):

Causes skin and eye irritation.
May cause respiratory irritation.

Precautionary Statement(s):

Prevention:

Avoid breathing dust/fume/gas/mist/vapours/spray.
Use only outdoors or in a well-ventilated area.
Wear eye protection/face protection.
Handle in an efficient fume hood,
Handle under inert gas

Response:

IF ON SKIN: Wash with plenty of water.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

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IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Call a POISON CENTRE or doctor if you feel unwell.

If skin irritation occurs: Get medical advice/attention.

If eye irritation persists: Get medical advice or attention.

Take off contaminated clothing and wash it before reuse.

Storage:

Store in a well-ventilated place. Keep container tightly closed.

Store contents under inert gas, Disposal:

Dispose of contents and container in accordance with local, regional, national and international regulations.

Other Hazards

Air sensitive.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

| Chemical Name | CAS No. | % | Other Identifiers | Other Names |
|---|-------------|------|-------------------|-------------|
| 2-Dicyclohexylphosphino-2',4',6'-triisopropyl-1,1'-biphenyl | 564483-18-7 | >98% | PN: 1935 | XPhos |

SECTION 4. FIRST-AID MEASURES

First-aid Measures

Inhalation

If inhaled, move person to fresh air. Closely monitor the victim for signs of respiratory problems such as difficulty breathing, coughing, wheezing or pain. In such cases seek immediate medical assistance.

Skin Contact

Drench the affected skin with running water for 10 minutes or longer if substance is still on the skin, remove all contaminated clothing and footwear, seek medical attention if irritations persists, wash clothing before reuse.

Eye Contact

In case of contact, immediately flush eyes with copious amounts of water for at least 15 minutes, rolls eyes while flushing and occasionally lifting the upper and lower eyelids, do not rub affected area, remove contact lenses, if present and easy to do, seek immediate medical attention.

First-aid Comments

The material may be irritating to skin, eyes, and respiratory tract. May be harmful if swallowed.

Most Important Symptoms and Effects, Acute and Delayed

To the best of our knowledge, the chemical, physical and toxicological properties have not been thoroughly investigated.

Immediate Medical Attention and Special Treatment

Target Organs

No data available.

Special Instructions

Seek medical attention if irritation persists, show SDS to doctor in attendance. **Medical Conditions Aggravated by Exposure** None known.

SECTION 5. FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media

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Water spray, carbon dioxide, dry chemical powder or appropriate foam.

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Unsuitable Extinguishing Media

None known.

Specific Hazards Arising from the Product

No unusual fire or explosion hazards.

Under fire conditions, this material may emit toxic organic fumes and vapours of phosphorus pentoxide.

Special Protective Equipment and Precautions for Fire-fighters

Move containers from fire area if safe to do so. Dike and collect water used to fight fire to avoid discharge into drains.

Use standard firefighting procedures and consider the hazards of other material involved. Fire-fighters may enter the area if positive pressure SCBA and full Bunker Gear is worn.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment, and Emergency Procedures

Evacuate personnel to safe areas, isolate the hazard area, keep out unnecessary and unprotected personnel. Do not touch damaged containers or spilled product unless wearing appropriate protective equipment. Before entry, especially into confined areas, check atmosphere with an appropriate monitor.

Environmental Precautions

It is good practice to prevent releases into the environment. Inform appropriate managerial or supervisory personnel of all environmental releases.

Methods and Materials for Containment and Cleaning Up

Always wear appropriate Personal Protective Equipment (PPE), sweep up spill and place in a appropriate disposable container, avoid creating dust, ventilate area and wash spill site after material pickup is complete.

Other Information

Report spills to local health, safety and environmental authorities, as required.

SECTION 7. HANDLING AND STORAGE

Precautions for Safe Handling

Always wear appropriate Personal Protective Equipment (PPE) when handling product, use only in a chemical fume hood, do not expose to air, handle under dry protective gas, avoid formation of dust and aerosols, do not breathe dust, vapours or spray mist.

Conditions for Safe Storage

Store in a cool, dry, well-ventilated place in a tightly sealed container, store under inert gas.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

Not available.

Appropriate Engineering Controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday, handle in an efficient fume hood, safety shower and eyewash should be readily available and accessible.

Individual Protection Measures Eye/Face Protection

Wear approved safety glasses or chemical safety goggles. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU). **Skin Protection**

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands, the glove material has to be impermeable and resistant to the product/substance, chose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific workplace, clothing that sufficiently prevents skin contact should be worn such as coveralls and long, sleeves.

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Respiratory Protection

Respiratory protection is not required, however were protection from nuisance levels of dust. Use type N95 (US) or type P1 (EN143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU), handle in an efficient fume hood.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Basic Physical and Chemical Properties

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|--|--|
| Appearance | White powder. Particle Size: Not available |
| Odour | Odourless |
| Odour Threshold | Not available |
| pH | Not available |
| Melting Point/Freezing Point | 185 °C (melting); Not available (freezing) |
| Initial Boiling Point/Range | Not available |
| Flash Point | Not available |
| Evaporation Rate | Not available |
| Flammability (solid, gas) | Not available |
| Upper/Lower Flammability or Explosive Limit | Not available (upper); Not available (lower) |
| Vapour Pressure | Not available |
| Vapour Density (air = 1) | Not available |
| Relative Density (water = 1) | Not available |
| Solubility | Insoluble in water; Not available (in other liquids) |
| Partition Coefficient, n-Octanol/Water (Log Kow) | Not available |
| Auto-ignition Temperature | Not available |
| Decomposition Temperature | Not available |
| Viscosity | Not available (kinematic); Not available (dynamic) |
| Other Information | |
| Physical State | Solid |
| Molecular Formula | C ₃₃ H ₄₉ P |
| Molecular Weight | 476.72 |
| Bulk Density | Not available |
| Surface Tension | Not available |
| Critical Temperature | Not available |
| Electrical Conductivity | Not available |
| Vapour Pressure at 50 deg C | Not available |
| Saturated Vapour Concentration | Not available |

SECTION 10. STABILITY AND REACTIVITY

Reactivity

Not reactive under normal conditions of use.

Chemical Stability

Stable under recommended storage conditions.

Air sensitive.

Possibility of Hazardous Reactions

None expected under normal conditions of storage and use.

Conditions to Avoid

Exposure to air.

Incompatible Materials

Oxidizing agents.

Hazardous Decomposition Products

Carbon oxides, phosphorus oxides.

SECTION 11. TOXICOLOGICAL INFORMATION

Information presented below is for the entire product, unless otherwise specified.

Likely Routes of Exposure

Inhalation; skin contact; skin absorption; eye contact; ingestion.

Acute Toxicity

LC50: No information was located.

LD50 (oral): No information was located.

LD50 (dermal): No information was located.

Skin Corrosion/Irritation May cause skin irritation. **Serious Eye Damage/Irritation**

May cause eye irritation.

STOT (Specific Target Organ Toxicity) - Single Exposure

Inhalation

May be harmful if inhaled, may cause irritation to mucous membranes and upper respiratory tract.

Skin Absorption

May be harmful if absorbed through the skin.

Ingestion

May cause irritation.

Aspiration Hazard

Not known to be an aspiration hazard.

STOT (Specific Target Organ Toxicity) - Repeated

Exposure No information available on long-term chronic effects. **Respiratory and/or Skin Sensitization** No data available.

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by OSHA.

Reproductive Toxicity

Development of Offspring

No data available.

Sexual Function and Fertility

No data available.

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No data available.

Germ Cell

Mutagenicity No data available. **Interactive**

Effects No data available.

Other Information

RTECS: no data available,

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12. ECOLOGICAL INFORMATION

Do not allow the material to be released to the environment without the proper government permits, an environmental hazard cannot be excluded in the event of unprofessional handling or disposal, may cause long-term adverse effects in the aquatic environment.

Ecotoxicity

No data available.

Persistence and

Degradability No data available. **Bioaccumulative**

Potential No data available.

Mobility in Soil

No data available.

Other Adverse Effects

PBT/vPvB assessment not available.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal Methods

Always wear appropriate Personal Protective Equipment (PPE) when handling this product. Dissolve in or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber, consider packaging as unused product and dispose accordingly, observe all federal, state and local environmental regulations.

SECTION 14. TRANSPORT INFORMATION

Not regulated under Canadian TDG regulations. Not regulated under US DOT Regulations. Not regulated under IATA Regulations.

Environmental Not applicable (2-Dicyclohexylphosphino-2',4',6'-triisopropyl-1,1'-biphenyl) **Hazards**

Special Precautions Not applicable

Transport in Bulk According to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15. REGULATORY INFORMATION

Safety, Health and Environmental Regulations

This Safety Data Sheet classification and labeling have been determined according to the (EC) No.1272-2008 "Classification, Labeling and Packaging" regulation; as well as the EU Directives 67/548/EEC and 1999/45/EC and take into account the intended product use.

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Canada

Domestic Substances List (DSL) / Non-Domestic Substances List (NDSL)

Not listed on the DSL or NDSL.

CEPA - National Pollutant Release Inventory (NPRI)

Not listed on the CEPA-National Pollutant Release Inventory.

USA

Toxic Substances Control Act (TSCA) Section 8(b)

Not listed on the TSCA inventory.

Additional USA Regulatory Lists

SARA Title III - Section 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA Title III - Section 311/312: No SARA hazards

SARA Title III - Section 313: This material does not contain any chemical components with known CAS number that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313. Massachusetts Right To Know: No components are subject to the Massachusetts Right to Know Act

New Jersey Right To Know. (2-Dicyclohexylphosphino-2',4',6'-triisopropyl-1,1'-biphenyl)

Pennsylvania Right To Know. (2-Dicyclohexylphosphino-2',4',6'-triisopropyl-1,1'-biphenyl)

California Proposition 65: This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

SECTION 16. OTHER INFORMATION

SDS Prepared By M. Laneman

Phone No. 4162312991

Date of Preparation January 14, 2019

Date of Last Revision January 14, 2019

Revision Indicators Not revised since date of preparation.

Key to Abbreviations ACGIH® = American Conference of Governmental Industrial Hygienists

AIHA® = AIHA® Guideline Foundation

HSDB® = Hazardous Substances Data Bank

IARC = International Agency for Research on Cancer

NFPA = National Fire Protection Association

NIOSH = National Institute for Occupational Safety and Health

NTP = National Toxicology Program

OSHA = US Occupational Safety and Health Administration

RTECS® = Registry of Toxic Effects of Chemical Substances

References

CHEMINFO database. Canadian Centre for Occupational Health and Safety (CCOHS).

HSDB® database. US National Library of Medicine. Available from Canadian Centre for Occupational Health and Safety (CCOHS).

NIOSH Pocket Guide database. National Institute for Occupational Safety and Health. Available from Canadian Centre for Occupational Health and Safety (CCOHS).

Registry of Toxic Effects of Chemical Substances (RTECS®) database. Dassault Systèmes/BIOVIA ("BIOVIA"). Available from Canadian Centre for Occupational Health and Safety (CCOHS).

Disclaimer

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