

Material Safety Data Sheet

| HAZARD WARNINGS | RISK PHRASES | PROTECTIVE CLOTHING |
|---|--|---|
|  | <p>Corrosive to eyes and skin on contact. Harmful compound, minimize exposure.</p> |  |

Section I. Chemical Product and Company Identification

| | | | |
|------------------|--|---------------------------------|---|
| Chemical Name | Phosphoric Acid Di(2-ethylhexyl) Ester For rare metals extraction | | |
| Catalog Number | P0811 | Supplier | TCI America 9211 N. Harbortgate St. Portland OR 1-800-423-8616 |
| Synonym | Bis(2-ethylhexyl) hydrogen phosphate Di(2-ethylhexyl) phosphate | | |
| Chemical Formula | [CH ₃ (CH ₂) ₃ CH(C ₂ H ₅)CH ₂ O] ₂ P(:O)OH | | |
| CAS Number | 298-07-7 | In case of Emergency Call | Chemtrec® (800) 424-9300 (U.S.) (703) 527-3887 (International) |

Section II. Composition and Information on Ingredients

| Chemical Name | CAS Number | Percent (%) | TLV/PEL | Toxicology Data |
|---|------------|---------------|----------------|---|
| Phosphoric Acid Di(2-ethylhexyl) Ester <small>For rare metals extraction</small> | 298-07-7 | Min. 95.0 (T) | Not available. | Rat LD ₅₀ (oral) 4940uL/kg Rat LD ₅₀ (intraperitoneal) 50mg/kg Rabbit LD ₅₀ (dermal) 1250uL/kg |

Section III. Hazards Identification

| | |
|------------------------|---|
| Acute Health Effects | Corrosive to skin, eyes, and respiratory system. First degree burns may occur from short exposure to this chemical and second degree burns may result from longer exposure. Liquid or spray mist may produce tissue damage, particularly in mucous membranes of the eyes, mouth and respiratory tract. Skin contact may produce burns. Eye contact can result in corneal damage or blindness. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Corrosive materials may cause serious injury if ingested. Harmful if ingested or inhaled. Minimize exposure to this material. Severe overexposure can result in injury or death. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound. |
| Chronic Health Effects | CARCINOGENIC EFFECTS : Not available. MUTAGENIC EFFECTS : Not available. TERATOGENIC EFFECTS : Not available. Toxicity to the reproductive system: Not available. Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection. |

Section IV. First Aid Measures

| | |
|--------------|---|
| Eye Contact | Check for and remove any contact lenses. DO NOT use an eye ointment. Flush eyes with running water for a minimum of 15 minutes, occasionally lifting the upper and lower eyelids. Seek medical attention. Treat symptomatically and supportively. |
| Skin Contact | If the chemical gets spilled on a clothed portion of the body, remove the contaminated clothes as quickly as possible, protecting your own hands and body. Place the victim under a deluge shower. If the chemical touches the victim's exposed skin, such as the hands: Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. Seek medical attention. Treat symptomatically and supportively. Wash any contaminated clothing before reusing. |
| Inhalation | If the victim is not breathing, perform artificial respiration. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, oxygen can be administered. Seek medical attention. Treat symptomatically and supportively. |
| Ingestion | DO NOT INDUCE VOMITING. Loosen tight clothing such as a collar, tie, belt, or waistband. If the victim is not breathing, administer artificial respiration. Have conscious person drink several glasses of water or milk. Seek immediate medical attention and, if possible, show the chemical label. Treat symptomatically and supportively. |

Section V. Fire and Explosion Data

| | | | |
|---------------------|--|------------------|----------------|
| Flammability | Combustible. | Auto-Ignition | Not available. |
| Flash Points | 200°C (392°F) | Flammable Limits | Not available. |
| Combustion Products | These products are toxic carbon oxides (CO, CO ₂), and phosphates. | | |
| Fire Hazards | No specific information is available regarding the flammability of this compound in the presence of various materials. | | |

Continued on Next Page

Emergency phone number (800) 424-9300

For rare metals extraction

Explosion Hazards Risks of explosion of the product in presence of mechanical impact: Not available.
Risks of explosion of the product in presence of static discharge: Not available.
No additional information is available regarding the risks of explosion.

Fire Fighting Media and Instructions SMALL FIRE: Use DRY chemicals, CO₂, water spray or foam.
LARGE FIRE: Use water spray, fog or foam. DO NOT use water jet.

Section VI. Accidental Release Measures

Spill Cleanup Instructions Combustible material. Corrosive liquid.
Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. DO NOT get water inside container. DO NOT touch spilled material. Use water spray curtain to divert vapor drift. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all sources of ignition. Call for assistance on disposal. **Neutralize the residue with a dilute solution of sodium carbonate.** Consult federal, state, and/or local authorities for assistance on disposal.

Section VII. Handling and Storage

Handling and Storage Information CORROSIVE. HARMFUL. Keep locked up. Keep container dry. Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material. DO NOT ingest. Do not breathe gas, fumes, vapor or spray. Never add water to this product. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes.
Always store away from incompatible compounds such as oxidizing agents, alkalis.

Section VIII. Exposure Controls/Personal Protection

Engineering Controls Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash station and safety shower is proximal to the work-station location.

Personal Protection Face shield. Lab coat. Vapor respirator. Boots. Gloves. A MSHA/NIOSH approved respirator must be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.



Exposure Limits Not available.

Section IX. Physical and Chemical Properties

| | | | |
|-----------------------|---|-----------------------|---|
| Physical state @ 20°C | Liquid. | Solubility | Easily soluble in diethyl ether, acetone. |
| Specific Gravity | 0.977 | | |
| Molecular Weight | 322.43 | Partition Coefficient | 4.37 (est.) |
| Boiling Point | Not available. | Vapor Pressure | 9.69x10 ⁻⁶ mm Hg (est.) |
| Melting Point | -60°C (-76°F) | Vapor Density | Not available. |
| Refractive Index | 1.4420 @ 25°C | Volatility | Not available. |
| Critical Temperature | Not available. | Odor | Odorless. |
| Viscosity | 47.320 Centipoise @ 70 degrees F (est.) | Taste | Not available. |

Section X. Stability and Reactivity Data

Stability This material is stable if stored under proper conditions. (See Section VII for instructions)

Conditions of Instability Avoid excessive heat and light.

Incompatibilities Highly reactive with oxidizing agents, alkalis.

Section XI. Toxicological Information

RTECS Number TB7875000

Routes of Exposure Ingestion. Inhalation. Eye contact. Skin contact.

Toxicity Data Rat LD₅₀ (oral) 4940uL/kg
Rat LD₅₀ (intraperitoneal) 50mg/kg
Rabbit LD₅₀ (dermal) 1250uL/kg

Chronic Toxic Effects **CARCINOGENIC EFFECTS** : Not available.
MUTAGENIC EFFECTS : Not available.
TERATOGENIC EFFECTS : Not available.
Toxicity to the reproductive system: Not available. Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection.

Continued on Next Page

Emergency phone number (800) 424-9300

For rare metals extraction

| | |
|---------------------|---|
| Acute Toxic Effects | Corrosive to skin, eyes, and respiratory system. First degree burns may occur from short exposure to this chemical and second degree burns may result from longer exposure. Liquid or spray mist may produce tissue damage, particularly in mucous membranes of the eyes, mouth and respiratory tract. Skin contact may produce burns. Eye contact can result in corneal damage or blindness. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Corrosive materials may cause serious injury if ingested. Harmful if ingested or inhaled. Minimize exposure to this material. Severe overexposure can result in injury or death. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound. |
|---------------------|---|

Section XII. Ecological Information

| | |
|--------------------|----------------|
| Ecotoxicity | Not available. |
| Environmental Fate | Not available. |

Section XIII. Disposal Considerations

| | |
|----------------|--|
| Waste Disposal | Recycle to process, if possible. Consult your local or regional authorities. You may be able to dissolve or mix material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber system. Observe all federal, state, and local regulations when disposing of this substance. |
|----------------|--|

Section XIV. Transport Information

| | |
|----------------------|---|
| DOT Classification | DOT CLASS 8: Corrosive material. |
| PIN Number | UN1902 |
| Proper Shipping Name | Diisooctyl acid phosphate |
| Packing Group (PG) | III |
| DOT Pictograms |  |

Section XV. Other Regulatory Information and Pictograms

| | |
|-------------------------------|--|
| TSCA Chemical Inventory (EPA) | This product is ON the EPA Toxic Substances Control Act (TSCA) inventory. |
| WHMIS Classification (Canada) | WHMIS CLASS D-2B: Material causing other toxic effects (TOXIC). |
| EINECS Number (EEC) | 206-056-4 |
| EEC Risk Statements | R34- Causes burns. R45- May cause cancer. R20/21/22- Harmful by inhalation, in contact with skin and if swallowed. |
| Japanese Regulatory Data | Not available. |

Section XVI. Other Information

Version 1.0
Validated on 4/1/1997.
Printed 3/19/2005.

Notice to Reader

TCl laboratory chemicals are for research purposes only and are NOT intended for use as drugs, food additives, households, or pesticides. The information herein is believed to be correct, but does not claim to be all inclusive and should be used only as a guide. Neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All chemical reagents must be handled with the recognition that their chemical, physiological, toxicological, and hazardous properties have not been fully investigated or determined. All chemical reagents should be handled only by individuals who are familiar with their potential hazards and who have been fully trained in proper safety, laboratory, and chemical handling procedures. Although certain hazards are described herein, we can not guarantee that these are the only hazards which exist. Our MSDS sheets are based only on data available at the time of shipping and are subject to change without notice as new information is obtained. Avoid long storage periods since the product is subject to degradation with age and may become more dangerous or hazardous. It is the responsibility of the user to request updated MSDS sheets for products that are stored for extended periods. Disposal of unused product must be undertaken by qualified personnel who are knowledgeable in all applicable regulations and follow all pertinent safety precautions including the use of appropriate protective equipment (e.g. protective goggles, protective clothing, breathing equipment, facial mask, fume hood). For proper handling and disposal, always comply with federal, state, and local regulations.