

# Material Safety Data Sheet

| HAZARD WARNINGS   | RISK PHRASES   | PROTECTIVE CLOTHING   |
|---|--|---|
|  | <p><b>Corrosive to eyes and skin on contact.</b><br/> <b>Toxic compound, do not ingest or inhale. Avoid all contact with this material.</b><br/> <b>Environmental hazard.</b><br/> <b>Moisture sensitive material.</b><br/> <b>Store under nitrogen.</b></p> |  |

## Section I. Chemical Product and Company Identification

|                  |  |                                 |   |
|------------------|--|---------------------------------|---|
| Chemical Name    | <b>Phthalic Anhydride</b>                    |                                 |   |
| Catalog Number   | P1614  | Supplier                        | TCl America<br>9211 N. Harborgate St.<br>Portland OR<br>1-800-423-8616                    |
| Synonym          | Not available.                               |                                 |   |
| Chemical Formula | C <sub>8</sub> H <sub>4</sub> O <sub>3</sub> |                                 |   |
| CAS Number       | 85-44-9                                      | In case of<br>Emergency<br>Call | <b>Chemtrec®</b><br><b>(800) 424-9300 (U.S.)</b><br><b>(703) 527-3887 (International)</b> |

## Section II. Composition and Information on Ingredients

| Chemical Name      | CAS Number | Percent (%) | TLV/PEL        | Toxicology Data   |
|--------------------|------------|-------------|----------------|---|
| Phthalic Anhydride | 85-44-9    | -----       | Not available. | Rat LD <sub>50</sub> (oral) 1530 mg/kg<br>Rabbit LD <sub>50</sub> (dermal) >10000 mg/kg<br>Rat LC <sub>50</sub> (inhalation) >210 mg/m <sup>3</sup> |

## Section III. Hazards Identification

|                        |   |
|------------------------|---|
| Acute Health Effects   | <p>Corrosive to skin, eyes, and respiratory system. 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. Toxic if ingested or inhaled. Avoid prolonged contact with this material. Overexposure may result in serious illness or death.</p> <p>Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.</p>  |
| Chronic Health Effects | <p><b>CARCINOGENIC EFFECTS</b> : Not available.<br/> <b>MUTAGENIC EFFECTS</b> : Not available.<br/> <b>TERATOGENIC EFFECTS</b> : Not available.<br/> <b>DEVELOPMENTAL TOXICITY</b>: Reproductive Effects.<br/> Rat TCl<sub>0</sub> Inhalation 1 mg/m<sup>3</sup> male 45 days prior to mating.<br/> <b>TOXIC Effects</b>:<br/> Paternal Effects - Spermatogenesis.<br/> Paternal Effects - Testes, epididymis, sperm duct.<br/> Mouse TDLo Intrapertoneal 203 mg/kg female 8-10 days of pregnancy.<br/> <b>TOXIC Effects</b>:<br/> Specific Developmental Abnormalities - Other developmental abnormalities.<br/> Repeated exposure of the eyes to a low level of dust can produce eye irritation. Repeated skin exposure can produce local skin destruction, or dermatitis. Repeated inhalation of dust can produce varying degree of respiratory irritation or lung damage. Repeated exposure to an highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.</p> |

## Section IV. First Aid Measures

|              |  |
|--------------|--|
| Eye Contact  | Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.   |
| Skin Contact | In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.  |
| Inhalation   | If the victim is not breathing, perform mouth-to-mouth resuscitation. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, oxygen can be administered. Seek medical attention if respiration problems do not improve.  |
| Ingestion    | <b>DO NOT INDUCE VOMITING.</b> Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive. |

| <b>Section V. Fire and Explosion Data</b> |  |                  |                          |
|---|--|------------------|--------------------------|
| Flammability                              | May be combustible at high temperature.  | Auto-Ignition    | 570 °C (1058 °F)         |
| Flash Points                              | 152 °C (305.6 °F).   | Flammable Limits | LOWER: 1.7% UPPER: 10.4% |
| Combustion Products                       | These products are toxic carbon oxides (CO, CO <sub>2</sub> ).   |                  |                          |
| Fire Hazards                              | Not available.   |                  |                          |
| Explosion Hazards                         | Risks of explosion of the product in presence of mechanical impact: Not available.<br>Risks of explosion of the product in presence of static discharge: Not available.                                |                  |                          |
| Fire Fighting Media and Instructions      | SMALL FIRE: Use DRY chemical powder.<br>LARGE FIRE: Use water spray, fog or foam. DO NOT use water jet.<br>Consult with local fire authorities before attempting large scale fire-fighting operations. |                  |                          |

| <b>Section VI. Accidental Release Measures</b> |   |
|--|---|
| Spill Cleanup Instructions                     | Corrosive material. Toxic material. Environmentally hazardous material. Moisture sensitive material. Stop leak if without risk. DO NOT get water inside container. DO NOT touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all sources of ignition. Consult federal, state, and/or local authorities for assistance on disposal. |

| <b>Section VII. Handling and Storage</b> |   |
|--|---|
| Handling and Storage Information         | CORROSIVE. TOXIC. ENVIRONMENTAL HAZARD. MOISTURE SENSITIVE. STORE UNDER NITROGEN. Keep locked up. Keep container dry. Keep away from heat. Mechanical exhaust required. When not in use, tightly seal the container and store in a dry, cool place. Avoid excessive heat and light. DO NOT ingest. Do not breathe dust. Never add water to this product. Wear suitable protective clothing. If ingested, seek medical advice immediately and show the container or the label. Treat symptomatically and supportively.<br>Always store away from incompatible compounds such as oxidizing agents, reducing agents, acids, alkalis (bases). |

| <b>Section VIII. Exposure Controls/Personal Protection</b> |   |
|--|---|
| Engineering Controls                                       | Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.   |
| Personal Protection  | Face shield. Lab coat. Dust 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.<br> |
| Exposure Limits  | Not available.  |

| <b>Section IX. Physical and Chemical Properties</b> |                        |                       |   |
|---|------------------------|-----------------------|---|
| Physical state @ 20°C                               | Solid. (White flakes.) | Solubility            | Soluble in 162 parts water, more in hot water, in 125 parts carbon disulfide, alcohol, hot benzene. Sparingly soluble in ether. |
| Specific Gravity                                    | 1.53 (water=1)         | Partition Coefficient | Log P <sub>ow</sub> : 1.6   |
| Molecular Weight                                    | 148.12                 | Vapor Pressure        | <0.3 Pa @ 20 °C   |
| Boiling Point                                       | 284 °C (543.2 °F)      | Vapor Density         | 5.1 (Air = 1)   |
| Melting Point                                       | 131 °C (267.8 °F)      | Volatility            | Not available.  |
| Refractive Index                                    | Not available.         | Odor                  | Pungent.  |
| Critical Temperature                                | Not available.         | Taste                 | Not available.  |
| Viscosity   | 1.3 Pas @ 140 °C       |                       |   |

| <b>Section X. Stability and Reactivity Data</b> |  |
|---|--|
| Stability                                       | This material is stable if stored under proper conditions. (See Section VII for instructions)        |
| Conditions of Instability                       | Avoid excessive heat and light. Moisture sensitive.  |
| Incompatibilities                               | Reactive with strong oxidizing agents, strong reducing agents, strong acids, strong alkalis (bases). |

**Section XI. Toxicological Information**

|                       |  |
|-----------------------|--|
| RTECS Number          | TI3150000  |
| Routes of Exposure    | Eye Contact. Ingestion. Inhalation. Skin contact.  |
| Toxicity Data         | Rat LD <sub>50</sub> (oral) 1530 mg/kg<br>Rabbit LD <sub>50</sub> (dermal) >10000 mg/kg<br>Rat LC <sub>50</sub> (inhalation) >210 mg/m <sup>3</sup> /1H  |
| Chronic Toxic Effects | <b>CARCINOGENIC EFFECTS</b> : Not available.<br><b>MUTAGENIC EFFECTS</b> : Not available.<br><b>TERATOGENIC EFFECTS</b> : Not available.<br><b>DEVELOPMENTAL TOXICITY</b> : Reproductive Effects.<br>Rat TCl <sub>0</sub> Inhalation 1 mg/m <sup>3</sup> male 45 days prior to mating.<br>TOXIC Effects:<br>Paternal Effects - Spermatogenesis.<br>Paternal Effects - Testes, epididymis, sperm duct.<br>Mouse TDLo Intraperitoneal 203 mg/kg female 8-10 days of pregnancy.<br>TOXIC Effects:<br>Specific Developmental Abnormalities - Other developmental abnormalities.<br>Repeated exposure of the eyes to a low level of dust can produce eye irritation. Repeated skin exposure can produce local skin destruction, or dermatitis. Repeated inhalation of dust can produce varying degree of respiratory irritation or lung damage. Repeated exposure to an highly toxic material may produce general deterioration of health by an accumulation in one or many human organs. |
| Acute Toxic Effects   | Corrosive to skin, eyes, and respiratory system. 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. Toxic if ingested or inhaled. Avoid prolonged contact with this material. Overexposure may result in serious illness or death.<br>Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.  |

**Section XII. Ecological Information**

|                    |  |
|--------------------|--|
| Ecotoxicity        | Not available.   |
| Environmental Fate | Phthalic anhydride release to the atmosphere could result from its manufacture and use in many products and its use in the manufacture of other commercial materials, polyester resins, and alkyd resins, phthaleins, phthalates, benzoic acid, sythetic indigo, artifiical resins (glyptal), synthetic fibers, dyes, pigments, pharmaceuticals, insecticides and chlorinated products. It is released from industrial plants which produce phthalic anhydride by oxidation of xylenes and naphthalene; from the incineration of industrial refuse and water sludges and slurries from plastic products and other manufacturing processes; phthalic anhydride has been detected in leachate from municipal and separate industrial wastes containing plastics. If phthalic anhydride is released to soil, it will not be expected to sorb to the soil. It is expected to hydrolyze in moist soils. If it is released to water it will not be expected to bioconcentrate in aquatic organisms, sorb to sediments, or to evaporate. Hydrolysis will be a major fate process based on an estimated half-life of 1.5 minutes. If it is released to the atmosphere it may be susceptible to direct photolysis. The estimated vapor-phase half-life in the atmosphere is about 32 days as a result of ring addition of photochemically produced hydroxyl radicals. Exposure to phthalic anhydride result mainly from occupational exposure involving the inhalation of contaminated air. |

**Section XIII. Disposal Considerations**

|                |   |
|----------------|---|
| Waste Disposal | Recycle to process, if possible. Consult your local 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 the substance. |
|----------------|---|

**Section XIV. Transport Information**

|                      |   |
|----------------------|---|
| DOT Classification   | DOT Class 8: Corrosive material.  |
| PIN Number           | UN2214  |
| Proper Shipping Name | Phthalic anhydride  |
| Packing Group (PG)   | III   |
| DOT Pictograms       |  |

**Section XV. Other Regulatory Information and Pictograms**

|                               |  |
|-------------------------------|--|
| TSCA Chemical Inventory (EPA) | This compound is <b>ON</b> the EPA Toxic Substances Control Act (TSCA) inventory list.   |
| WHMIS Classification (Canada) | CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC).<br>CLASS E: Corrosive solid.<br>On DSL.  |
| EINECS Number (EEC)           | 201-607-5  |
| EEC Risk Statements           | R23/24/25- Toxic by inhalation, in contact with skin and if swallowed.<br>R34- Causes burns.<br>R51- Toxic to aquatic organisms.<br>R53- May cause long-term adverse effects in the aquatic environment. |
| Japanese Regulatory Data      | ENCS No. (3)-1344  |

**Section XVI. Other Information**

**Version 1.0**  
**Validated on 8/24/2006.**  
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**Notice to Reader**

TCI 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.