# Tetrahydrophthalic anhydride
## Safety Data Sheet
Prepared according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

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

### 1.1. Product identifier
- **Substance name**: Tetrahydrophthalic anhydride
- **Product form**: Substance
- **Product code**: THPA

### 1.2. Relevant identified uses of the substance or mixture and uses advised against

### 1.3. Details of the supplier of the safety data sheet
Dixie Chemical Company, Inc.
10601 Bay Area Blvd
Pasadena TX 77507
Phone: 281-474-3271
Email: msds@dixiechemical.com

### 1.4. Emergency telephone number
- **Emergency number**: CHEMTREC® (800) 424-9300 Domestic, (703) 527-3887 International

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## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

**GHS-US classification**
- **Eye Dam.**: H318
- **Resp. Sens.**: H334
- **Skin Sens.**: H317
- **Aquatic Chronic**: H412

### 2.2. Label elements

**GHS-US labelling**
- **Hazard pictograms (GHS-US)**: GHS05, GHS08
- **Signal word (GHS-US)**: Danger
- **Hazard statements (GHS-US)**: H317 - May cause an allergic skin reaction. H318 - Causes serious eye damage. H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled. H412 - Harmful to aquatic life with long lasting effects.
- **Precautionary statements (GHS-US)**: P261 - Avoid breathing vapours, dust. P272 - Contaminated work clothing must not be allowed out of the workplace. P273 - Avoid release to the environment. P280 - Wear eye protection, face protection, protective clothing, protective gloves. P284 - [In case of inadequate ventilation] wear respiratory protection. P302+P352 - If on skin: Wash with plenty of soap and water. 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. P310 - Immediately call a doctor, a poison center. P321 - Specific treatment (see first aid instructions on this label). P333+P313 - If skin irritation or rash occurs: Get medical advice/attention. P342+P311 - If experiencing respiratory symptoms: Call a doctor, a poison center. P362+P364 - Take off contaminated clothing and wash it before reuse.

### 2.3. Other hazards
No additional information available

### 2.4. Unknown acute toxicity (GHS US)
No data available

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SECTION 3: Composition/information on ingredients

3.1. Substance
Name : Tetrahydrophthalic anhydride
Name Product identifier %
Tetrahydrophthalic anhydride (CAS No) 85-43-8 >95
4-Cyclohexene-1,2-dicarboxylic acid (process impurity) (CAS No) 88-98-2 0.1 - 1

Chemical components disclosed above are those requiring disclosure in accordance with the OSHA Hazard Communication Standard 2012 (29 CFR 1910.1200)

3.2. Mixture
Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures
First-aid measures general : If exposed or concerned, get medical attention/advice. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before re-use. Never give anything to an unconscious person.
First-aid measures after inhalation : IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing. Get medical attention. If breathing is difficult, supply oxygen. If breathing has stopped, give artificial respiration.
First-aid measures after skin contact : IF ON SKIN (or clothing): Remove affected clothing and wash all exposed skin with water for at least 15 minutes. If irritation develops or persists, get medical attention.
First-aid measures after eye contact : IF IN EYES: Immediately flush with plenty of water for at least 15 minutes. Remove contact lenses if present and easy to do so. Get medical attention immediately. Continue rinsing.
First-aid measures after ingestion : IF SWALLOWED: rinse mouth thoroughly. Do not induce vomiting without advice from poison control center or medical professional. Get medical attention immediately.

4.2. Most important symptoms and effects, both acute and delayed
Symptoms/injuries : May cause an allergic skin reaction. Causes serious eye damage. May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Symptoms/injuries after inhalation : May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Symptoms/injuries after skin contact : May cause an allergic skin reaction.
Symptoms/injuries after eye contact : Causes serious eye damage.
Symptoms/injuries after ingestion : May cause gastrointestinal irritation.

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 : Use extinguishing media appropriate for surrounding fire. Dry chemical. Alcohol-resistant foam. carbon dioxide (CO₂). Water spray.
Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture
Fire hazard : No data available.

5.3. Advice for firefighters
Firefighting instructions : Use cold water spray to cool fire-exposed containers to minimize risk of rupture. Do not dispose of fire-fighting water in the environment. Dispose of in accordance with relevant local regulations.
Protection during firefighting : Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
General measures : Ventilate area. Evacuate area. Keep upwind. Avoid dust formation. Eliminate every possible source of ignition. Spill should be handled by trained clean-up crews properly equipped with respiratory equipment and full chemical protective gear (see Section 8).

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 : For further information refer to section 8: “Exposure controls/personal protection”.

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6.2. Environmental precautions
Notify authorities if product enters sewers or public waters. Prevent entry to sewers and public waters. Avoid release to the environment.

6.3. Methods and material for containment and cleaning up
For containment: Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Prevent entry to sewers and public waters. Minimize generation of dust.

Methods for cleaning up: Wear suitable protective clothing. Soak up residue with an absorbent such as clay, sand or other suitable material. Place spilled materials in leak proof, labeled containers. This material and its container must be disposed of in a safe way, and as per local legislation.

6.4. Reference to other sections
No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Precautions for safe handling: Wear personal protective equipment. Do not handle until all safety precautions have been read and understood. Ensure good ventilation of the work station. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. 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
Storage conditions: Store in a well-ventilated place. Keep cool. Protect from sunlight. Keep away from ignition sources. Store away from incompatible materials.

7.3. Specific end use(s)
No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

<table>
<thead>
<tr>
<th>Tetrahydrophthalic anhydride (85-43-8)</th>
<th>Remark (ACGIH)</th>
<th>OELs not established</th>
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</thead>
<tbody>
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<table>
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<tr>
<th>4-Cyclohexene-1,2-dicarboxylic acid (process impurities) (88-98-2)</th>
<th>Remark (ACGIH)</th>
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</table>

8.2. Exposure controls
Appropriate engineering controls: Provide adequate general and local exhaust ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Use explosion-proof equipment with flammable materials. Ensure adequate ventilation, especially in confined areas.


Hand protection: Use gloves chemically resistant to this material when prolonged or repeated contact could occur. Gloves should be classified under Standard EN 374 or ASTM F1296. Change contaminated gloves immediately. Suitable gloves for this specific application can be recommended by the glove supplier. Suggested glove materials are: Neoprene, Nitrile/butadiene rubber, Polyethylene, Ethyl vinyl alcohol laminate, PVC or vinyl.

Eye protection: Chemical goggles and face shield must be worn in combination.

Skin and body protection: Wear long sleeves, and chemically impervious PPE/coveralls to minimize bodily exposure.

Respiratory protection: Wear a NIOSH-approved (or equivalent) full-facepiece airline respirator in the positive pressure mode with emergency escape provisions. In case of inadequate ventilation or risk of inhalation of vapors, use suitable respiratory equipment with gas filter (type A2). Use a positive-pressure air-supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air-purifying respirators may not provide adequate protection.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state: Solid
Molecular mass: 152.16 g/mol
Color: White.
Odor: None.
Odor Threshold: No data available
pH: No data available
pH solution: 1 - 3 for aged dilute aqueous solutions
Relative evaporation rate (butylacetate=1): < 1
Melting point: 99 °C (144°F)
Freezing point: No data available
Boiling point: 144 °C (291°F) at 17 mm Hg
Flash point: 149 °C (300°F) PMCC, ASTM D93
Auto-ignition temperature: ≥ 430 °C
Decomposition temperature: No data available
Vapour pressure: <0.01 mm Hg at 20°C (68°F)
Relative vapour density at 20 °C: 5.2 (Air=1)
Relative density: 1.2 at 110°C (230°F)
Density: 1.2 g/cc (molten)
Solubility: Hydrolyzes.
Log Pow: No data available
Log Kow: No data available
Explosive properties: This material may present an explosion and deflagration hazard risk when dispersed and ignited in air.
Oxidising properties: No data available
Explosive limits: No data available

**SECTION 10: Stability and reactivity**

10.1. Reactivity
No additional information available

10.2. Chemical stability
Stable under normal conditions. Hot water in contact with the product may form substituted phthalic acids.

10.3. Possibility of hazardous reactions
Reacts with water to form substituted phthalic acids.

10.4. Conditions to avoid
Incompatible materials. Excessive temperature variations.

10.5. Incompatible materials

10.6. Hazardous decomposition products
Carbon oxides (CO, CO₂).

**SECTION 11: Toxicological information**

11.1. Information on toxicological effects

Acute toxicity: Not classified

<table>
<thead>
<tr>
<th>Tetrahydrophthalic anhydride</th>
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<tr>
<td>LD50 oral</td>
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<tr>
<td>LD50 dermal</td>
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Skin corrosion/irritation: Not classified
Serious eye damage/irritation: Causes serious eye damage.
Respiratory or skin sensitisation: May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction.
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 allergy or asthma symptoms or breathing difficulties if inhaled.
Symptoms/injuries after skin contact: May cause an allergic skin reaction.
Symptoms/injuries after eye contact: Causes serious eye damage.
Symptoms/injuries after ingestion: May cause gastrointestinal irritation.

SECTION 12: Ecological information

12.1. Toxicity
Ecology - general: Harmful to aquatic life with long lasting effects.

<table>
<thead>
<tr>
<th>Tetrahydrophthalic anhydride</th>
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<tbody>
<tr>
<td>LC50 fishes 1</td>
</tr>
<tr>
<td>EC50 freshwater invertebrates</td>
</tr>
<tr>
<td>LC50 freshwater fish</td>
</tr>
</tbody>
</table>

12.2. Persistence and degradability
Estimated to not be persistent in the environment.
The substance is readily biodegradable, although failing the 10-day window criterion. It is reasonable to assume, as testing was undertaken in aqueous media, that the degradation product of the substance is degradable.

12.3. Bioaccumulative potential
Estimated to not be bioaccumulative in the environment.

12.4. Mobility in soil
The substance and its degradation product are both regarded as being highly mobile in soil.

12.5. Other adverse effects
No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods
Waste treatment methods: Do not discharge to public wastewater systems without permit of pollution control authorities.
Waste disposal recommendations: Dispose in a safe manner in accordance with local/national regulations.

SECTION 14: Transport information

In accordance with DOT
Not hazardous for transport

Additional information
Other information: No supplementary information available.

Transport by sea
No additional information available

Air transport
No additional information available

SECTION 15: Regulatory information

15.1. US Federal regulations

<table>
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<tr>
<td>All chemical substances in this product are listed in the EPA (Environment Protection Agency) TSCA (Toxic Substances Control Act) Inventory or are exempt</td>
</tr>
<tr>
<td>SARA Section 311/312 Hazard Classes</td>
</tr>
</tbody>
</table>
15.2. International regulations

All chemical substances in this product are listed on the Australian Inventory of Chemical Substances (AICS) or are exempt
All chemical substances in this product are listed on the Chinese Chemical Inventory of Existing Chemical Substances (IECSC) or are exempt
All chemical substances in this product are listed on the Korean Existing Chemicals Inventory (KECI) or are exempt
All chemical substances in this product are listed on the Canadian Non-Domestic Substances List (NDSL) or are exempt
All chemical substances in this product are listed on the European EINECS Inventory or the ELINCS list or are exempt
All chemical substances in this product are listed on the Taiwan Chemical Substance Inventory (TSCI) or are exempt
All chemical substances in this product are listed on the Japanese Existing and New Chemical Substances Inventory (ENCS) or are exempt
One or more of the chemical substances in this product is not listed on the Philippines Inventory of Chemicals and Chemical Substances (PICCS) (88-98-2)
One or more of the chemical substances in this product is not listed on the New Zealand Inventory of Chemicals (NZIoC) (88-98-2)

15.3. US State regulations

California Proposition 65
This product does not contain any substances known to the state of California to cause cancer and/or reproductive harm.

4-Cyclohexene-1,2-dicarboxylic acid (process impurity) (85-43-8)
U.S. - New Jersey - Right to Know Hazardous Substance List

SECTION 16: Other information

Indication of changes : Revision 07/07/2015
Other information : Author: NMR.

HMIS III Rating

Health : 3*
Flammability : 1
Physical : 1
Personal Protection : 

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.