

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

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

GHS-US classification

Eye Dam. 1 H318
 Resp. Sens. 1 H334
 Skin Sens. 1 H317
 Aquatic Chronic 3 H412

2.2. Label elements

GHS-US labelling

Hazard pictograms (GHS-US) :



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
 P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS US)

No data available

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".

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

| Tetrahydrophthalic anhydride (85-43-8) | |
|--|----------------------|
| Remark (ACGIH) | OELs not established |
| Remark (OSHA) | OELs not established |
| 4-Cyclohexene-1,2-dicarboxylic acid (process impurities) (88-98-2) | |
| Remark (ACGIH) | OELs not established |
| Remark (OSHA) | OELs not established |

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.

Personal protective equipment : Gloves. Protective clothing. Wear chemical goggles and face shield in combination. Insufficient ventilation: wear respiratory protection.



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 |
| Flammability (solid, gas) | : No data available |
| Vapour pressure | : <0.01 mm Hg at 20°C (68°F) 50 mm Hg at 195°C (383°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 |
| Viscosity, kinematic | : No data available |
| Viscosity, dynamic | : 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 |

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 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

Alcohols. Acids. Bases. Oxidizing agent. Water or heat will affect product quality.

10.6. Hazardous decomposition products

Carbon oxides (CO, CO₂).

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

| Tetrahydrophthalic anhydride | |
|------------------------------|---------------|
| LD50 oral | 5410 mg/kg bw |
| LD50 dermal | > 2000 bw |

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.

| Tetrahydrophthalic anhydride | |
|-------------------------------|-------------------------------------|
| LC50 fishes 1 | > 100 mg/l |
| EC50 freshwater invertebrates | 100 mg/l (freshwater invertebrates) |
| LC50 freshwater fish | 100 mg/l (freshwater fish) |

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

| Tetrahydrophthalic anhydride | |
|---|--|
| All chemical substances in this product are listed in the EPA (Environment Protection Agency) TSCA (Toxic Substances Control Act) Inventory or are exempt | |
| SARA Section 311/312 Hazard Classes | Immediate (acute) health hazard Delayed (chronic) health hazard |

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