

## **SECTION 1 – CHEMICAL IDENTIFICATION**

Trade Name: Tetrahydrophthalic Anhydride  
Synonyms: THPA; 1,3-Isobenzofurandione,  
3a,4,7,7a-tetrahydro-

Formula:  $C_8H_8O_3$   
Chemical Family: Furan Derivative  
Chemical Use: Chemical intermediate used in the  
preparation of polyester resins.

HMIS Hazard Rating	4 = Extreme
Health: 3*	3 = High
Fire: 1	2 = Moderate
Reactivity: 1	1 = Slight
*-Chronic effect indicator. See Section 11.	0 = Least

PPE rating to be supplied by user  
depending on use conditions.

## **SECTION 2 – HAZARDS IDENTIFICATION**

Inhalation: May cause severe nose, throat, and lung irritation. May cause respiratory tract sensitization. May aggravate pre-existing respiratory disorders. Chronic exposure may cause bronchitis and asthma.

Skin Contact: May cause severe irritation. Contact with moist skin may cause burns. May cause skin sensitization. May aggravate pre-existing skin disorders.

Eye Contact: May cause severe irritation or burns.

Ingestion: May cause burns of the mouth, throat, and gastrointestinal tract.

## **SECTION 3 – COMPOSITION**

<u>Components</u>	<u>Percentage</u>	<u>TLV (ppm)</u>	<u>CAS #</u>
<u>Tetrahydrophthalic anhydride</u>	<u>&gt;99</u>	<u>Not Established</u>	<u>85-43-8</u>

## **SECTION 4 – FIRST AID MEASURES**

- Inhalation: Remove victim to fresh air. If breathing is difficult, give oxygen. If not breathing, administer artificial respiration. Get medical attention.
- Skin Contact: Immediately remove contaminated clothing and shoes. Wipe excess material from skin and flush with water for at least 15 minutes. Use soap if available or follow by washing with soap and water. Do not reuse contaminated clothing without laundering. Get medical attention.
- Eye Contact: Immediately flush with plenty of water for at least 15 minutes. Get medical attention.
- Inhalation: Remove victim to fresh air. If breathing is difficult, give oxygen. If not breathing, administer artificial respiration. Get medical attention.
- Ingestion: Get medical attention immediately.

## **SECTION 5 – FIREFIGHTING MEASURES**

- Extinguishing Media: Use water, foam, dry chemical, or carbon dioxide (CO<sub>2</sub>).
- Special Firefighting Procedures/Precautions: Firefighters should wear NIOSH approved self-contained breathing apparatus. Responders should wear protective clothing to prevent skin contact. Move containers from fire area. If unable to move, cool sealed containers with water.
- Unusual Fire and Explosion Information: This material reacts with water or steam to form tetrahydrophthalic acid. This reaction is slightly exothermic. It should not present any problems if large quantities of water are used.
- Environmental Note: Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

## **SECTION 6 – ACCIDENTAL RELEASE MEASURES**

**Protective Measures:** Evacuate area of unprotected personnel. Eliminate sources of ignition. Stay upwind and out of low areas. Wear personal protective equipment (See section 8) when responding to spills.

**Spill Management:** Stop source of leak if safe to do so. Remove mechanically by method, which minimizes generation of airborne dusts. Spray area with water to remove trace residue. Contain run-off from residue flush and dispose of properly. Prevent entry into waterways, sewer, or confined areas. Remove contaminated trace residues from soil and dispose of in same manner as material. Place in non-leaking container and dispose of material properly.

**Disposal:** Proper disposal should be evaluated based on regulatory status of this material (refer to section 13).

## **SECTION 7 – HANDLING AND STORAGE**

Special sensitivity: Moisture, heat, and strong oxidizers.

As with any other flammable powdery material, the potential for a dust explosion exists. Due caution should be exercised when handling THPA. Containers should be grounded and/or bonded when the material is being transferred. Store in a cool, dry, well-ventilated location away from any sources of ignition. Keep away from heat, sparks, and flames. Keep separate from other storage, particularly strong oxidizers. Avoid contact with eyes, skin, and clothing. Avoid generation and breathing of dust.

Empty containers must be handled with care due to product residue.

## **SECTION 8 – EXPOSURE CONTROLS AND PERSONAL PROTECTION**

Respiratory Protection:	For solid THPA, utilize NIOSH approved respiratory protection for dust. For molten THPA, utilize NIOSH approved respiratory protection for organic vapor and dust.
Ventilation:	Utilize local exhaust to control high vapor connections in confined areas.
Protective Gloves:	Utilize appropriate impervious chemical gloves.
Eye Protection:	Chemical goggles and possibly a face shield. Have eyewash facilities readily available.
Other Protective Equipment:	Wear additional protective clothing to prevent skin contact. This may include chemical resistant boots and chemical resistant suits.
Work Practices:	Use good personal hygiene practices. Wash hands before eating, drinking, smoking or using toilet facilities. Promptly remove soiled clothing and wash thoroughly before reuse. Shower after work using plenty of soap and water.

## **SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES**

Boiling Point:	Not Established
Melting Point:	210°F (99°C) minimum
Molecular Weight:	152.16
Volatility/Vol (%):	N.E.
Vapor Pressure (mm Hg):	<0.01 @ 68°F (20°C), 50 @ 383°F (195°C)
Vapor Density (Air = 1):	5.2
Solubility in H <sub>2</sub> O:	Hydrolyzes.
Appearance/Odor:	Solid, white flakes with no odor.
Odor Threshold	Not Applicable
Density:	1.2 g/cc (molten)
Evap. Rate (Butyl Acetate = 1):	<1
Flash Point:	300°F (149°C) PMCC, ASTM D93
Lower Explosive Limit:	Not Established
Upper Explosive Limit:	Not Established
Autoignition Temperature:	Not Established

## **SECTION 10 – STABILITY AND REACTIVITY**

Chemical Stability:	Stable.
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Conditions to Avoid: Incompatible materials.

Incompatible Materials: Strong oxidizers. Heat and / or water will affect product quality.

Decomposition Products: Oxides of carbon, organic fragments.

Hazardous Polymerization: Will not occur.

## **SECTION 11 – TOXICOLOGICAL INFORMATION**

**ACGIH TLV:** Not Established      **STEL:** Not Established

**OSHA PEL:** Not Established      **STEL:** Not Established

May cause respiratory tract sensitization. May aggravate pre-existing respiratory disorders. Chronic exposure may cause bronchitis and asthma. May cause skin sensitization. May aggravate pre-existing skin disorders.

**Carcinogenicity listed by:**    **NTP: No**                      **IARC: No**                      **OSHA: No**

**Inhalation:**      **LC:** >294 mg/m<sup>3</sup> (rat)

**Skin:**              500 mg/24H MLD (rabbit)

**Eyes:**             20 mg/24H MOD (rabbit)

**Ingestion:**    **LD50:** 5410 mg/kg (rat)

**Intraperitoneal:**    **LDLo:** 500 mg/kg (mouse)

## **SECTION 12 – ECOLOGICAL INFORMATION**

No data available.

## **SECTION 13 – DISPOSAL INFORMATION**

Place in a city, state, or federally permitted disposal facility. Handle in accordance with all applicable regulations.

## **SECTION 14 – TRANSPORTATION INFORMATION**

### **US DOT:**

Proper Shipping Name:	Not hazardous per DOT guidelines.
Primary Hazard Class:	Not Applicable.
Secondary Hazard Class:	Not Applicable.
Identification Number:	Not Applicable.
Packing Group:	Not Applicable.
Reportable Quantity:	Not Applicable.
Marine Pollutant:	Not Applicable.
Label(s) Required:	Not Applicable.

## **SECTION 15 – REGULATORY INFORMATION**

**U.S. Regulations:**

**TSCA:** All substances are listed on, or are exempt from reporting.

**SARA Hazard Notification:**

Hazard Categories Under Title III:	Acute, Chronic.
Section 302 Extremely Hazardous Substances:	Not Listed
Section 313 Toxic Chemicals:	Not Listed
CERCLA RQ:	No.

TSCA 12(b) Export Notification: Not Listed

State Regulatory Agencies:

Pennsylvania Non-Hazardous present at 3% or greater:  
Tetrahydrophthalic Anhydride 85-43-8 >99.0%  
New Jersey Hazardous Substance List:  
Tetrahydrophthalic Anhydride 85-43-8 >99.0%

**European Regulations:**

EINECS Number: 201-605-4  
Index Number: 607-099-00-5

Labeling according to EC directives.



Irritant

**Risk Phrases:**

R 41 - Risk of serious damage to eyes.  
R 42/43 - May cause sensitization by inhalation and skin contact.  
R 52/53 - Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**Safety Phrases:**

S 2 - Keep out of the reach of children.  
S 22 - Do not breathe dust.  
S 24 - Avoid contact with skin.  
S 26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.  
S 37/39 - Wear suitable gloves and eye/face protection.  
S 61 - Avoid release to the environment. Refer to special instructions/Safety data sheets.

**Canadian Regulations:**

This compound is listed on the DSL.  
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and MSDS contains all the information required by the Controlled Products Regulations.

**Japanese Regulations:**

Tetrahydrophthalic anhydride is listed on the ENCS.  
 ENCS Number: 3-3435X (unlisted chemical name)

**Australian Regulations:**

Tetrahydrophthalic anhydride is listed on the AICS.

**Korean Regulations:**

Tetrahydrophthalic anhydride is listed on the ECL.  
 ECL Number: KE-33465

**Philippines Regulations:**

Tetrahydrophthalic anhydride is listed on the PICCS.

**Swiss Regulations:**

Tetrahydrophthalic anhydride is listed on the Giftliste 1.  
 SWISS Number: G-6852

**SECTION 16 – OTHER INFORMATION**

**PPE Codes (NPCA-HMIS)**

<b>A</b> – Glasses	<b>G</b> – Glasses, Gloves, Vapor Respirator
<b>B</b> – Glasses, Gloves	<b>H</b> – Goggles, Gloves, Apron, Vapor Respirator
<b>C</b> – Glasses, Gloves, Apron	<b>I</b> – Glasses, Gloves, Dust/Vapor Respirator
<b>D</b> – Faceshield, Gloves, Apron	<b>J</b> – Goggles, Gloves, Apron, Dust/Vapor Respirator
<b>E</b> – Glasses, Gloves, Dustmask	<b>K</b> – Supplied Air, Gloves, Full Protective Suit, Boots
<b>F</b> – Glasses, Gloves, Apron, Dust Respirator	

**Disclaimer**

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