

Phthalic Anhydride MSDS

1. Product Name and Identification

Product Name: [Phthalic Anhydride](#)

Synonyms: 1,2-Benzenedicarboxylic Anhydride, Phthalic Acid Anhydride

Chemical Formula: C₆H₄(CO)₂O

Molecular Weight: 148.12 g/mol

CAS Number: 85-44-9

Intended Use: Intermediate for plasticizers, resins, dyes, and pigments; curing agent for epoxy resins

2. Composition/Ingredients

Substance	CAS Number	Proportion (%)
Phthalic Anhydride	85-44-9	≥99%
Impurities (trace levels)	---	≤1%

3. Hazards Identification

Classification:

- Harmful if inhaled.
- Causes irritation to skin, eyes, and respiratory system.
- May cause an allergic skin reaction.

Potential Hazards:

- **Health Hazards:** Exposure to dust or vapor may lead to respiratory discomfort. Prolonged skin contact may result in sensitization or dermatitis.
- **Environmental Hazards:** Harmful to aquatic life in significant quantities.

GHS Label Elements:

- **Pictogram:**
⚠ (Warning)
- **Signal Word:** Warning
- **Hazard Statements:**
 - H315 - Causes skin irritation.
 - H319 - Causes serious eye irritation.
 - H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled.
 - H335 - May cause respiratory irritation.
- **Precautionary Statements:**

- Avoid inhalation of dust and fumes.
- Use protective gloves, clothing, and eyewear.
- Ensure proper ventilation.

4. First Aid Measures

Skin Contact:

Wash exposed skin thoroughly with soap and water. Remove contaminated clothing and wash before reuse. Seek medical attention if irritation continues.

Eye Contact:

Rinse eyes immediately with plenty of water for at least 15 minutes. Remove contact lenses, if present. Seek medical attention in case of persistent irritation.

Inhalation:

Move the individual to fresh air. If symptoms like coughing or difficulty breathing develop, seek immediate medical attention. Administer oxygen if necessary and available.

Ingestion:

Rinse mouth with water. Do not induce vomiting unless directed by medical personnel. Seek immediate medical advice.

5. Handling and Storage

Handling:

- Avoid dust formation and inhalation.
- Use personal protective equipment (PPE) while handling.
- Wash hands and face after handling.

Storage:

- Store in a cool, dry, and well-ventilated space.
- Keep container tightly closed when not in use.
- Protect from heat, moisture, and incompatible materials such as oxidizing agents or strong acids and bases.

6. Exposure Controls/Personal Protection

Engineering Controls:

Install local exhaust systems to minimize airborne concentration.
Maintain adequate general ventilation in the workspace.

Personal Protection Equipment (PPE):

- **Eye Protection:** Safety goggles or face shields meeting appropriate standards.
- **Skin Protection:** Wear chemical-resistant gloves and protective clothing to prevent direct contact.
- **Respiratory Protection:** Use an approved respirator for dust or vapor if levels exceed permissible limits.

Exposure Limits:

- OSHA PEL: 2 ppm (time-weighted average)
- ACGIH TLV: 1 ppm (time-weighted average; sensitizer)

7. Physical and Chemical Properties

Property	Value
Form	Solid, crystalline flakes or powder
Color	White or faintly tan
Odor	Pungent, irritating
Melting Point	128-131°C
Boiling Point	284°C
Solubility (Water)	Reacts with water, forming phthalic acid
Specific Gravity	~1.53 at 25°C
Vapor Pressure	0.0005 mmHg at 25°C
Flash Point	152°C (closed cup)

8. Stability and Reactivity

Stability: Stable under recommended storage and use conditions.

Conditions to Avoid:

- Heat and humidity
- Open flame or ignition sources

Materials to Avoid:

- Strong oxidizing agents
- Strong acids and bases
- Moisture, due to hydrolysis to phthalic acid

Decomposition Products:

Releases carbon monoxide, carbon dioxide, and toxic fumes during decomposition.

9. Toxicological Information

Routes of Exposure: Skin contact, eye contact, inhalation, ingestion.

Toxic Effects:

- Acute exposure may lead to irritation of the eyes, skin, or respiratory system.
- Chronic exposure can cause sensitization and long-term respiratory issues.

Chronic Effects:

- Repeated inhalation can lead to asthma or bronchitis.
- Prolonged skin exposure may cause dryness, cracking, or allergic dermatitis.

LD50 Data:

- Oral (rat): ~1,530 mg/kg
- Dermal (rabbit): >10,000 mg/kg

10. Disposal Considerations

Dispose of waste material in accordance with local, regional, and national regulations. Do not directly dispose into water bodies or sewers.

Disposal Recommendations:

- Neutralize small quantities and dispose of in permitted industrial waste facilities.
 - Seek assistance from authorized waste disposal services for larger quantities.
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