1. Identification

Product identifier: PHTHALIC ANHYDRIDE MOLTEN

Other means of identification:

- Product code: 1001
- Recommended use: Plasticizers, polyester, alkyd resins, etc.
- Recommended restrictions: For industrial use only.

Manufacturer/Importer/Supplier/Distributor information:

- Manufacturer: Stepan Company
- Address: 22 West Frontage Road, Northfield, IL 60093, USA
- Telephone: General 1-847-446-7500
- Emergency phone number: Medical 1-800-228-5635, Chemtrec 1-800-424-9300, Chemtrec Int'l +1 703-527-3887
- E-mail: Not available.

2. Hazard(s) identification

- Physical hazards: Not classified.
- Health hazards:
  - Acute toxicity, oral: Category 4
  - Skin corrosion/irritation: Category 2
  - Serious eye damage/eye irritation: Category 1
  - Sensitization, respiratory: Category 1
  - Sensitization, skin: Category 1
  - Specific target organ toxicity, single exposure: Category 3 respiratory tract irritation
- Environmental hazards: Hazardous to the aquatic environment, acute hazard: Not classified
- OSHA defined hazards: Not classified.

Label elements:

Signal word: Danger

Hazard statement:
Harmful if swallowed. Causes skin irritation. May cause an allergic skin reaction. Causes serious eye damage. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause respiratory irritation.

Precautionary statement:

Prevention:
Avoid breathing mist or vapor. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Contaminated work clothing must not be allowed out of the workplace. Wear eye protection/face protection. Wear protective gloves. In case of inadequate ventilation wear respiratory protection.

Response:
If swallowed: Call a poison center/doctor if you feel unwell. If on skin: Wash with plenty of water. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor. Rinse mouth. If skin irritation or rash occurs: Get medical advice/attention. Take off contaminated clothing and wash before reuse.

Storage:
Store in a well-ventilated place. Keep container tightly closed. Store locked up.

Disposal:
Dispose of contents/container in accordance with local/regional/national/international regulations.
Contact with product at elevated temperatures can result in thermal burns.

None.

3. Composition/information on ingredients

Mixtures

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Common name and synonyms</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phthalic anhydride</td>
<td></td>
<td>85-44-9</td>
<td>90-100</td>
</tr>
<tr>
<td>Phthalic acid</td>
<td></td>
<td>88-99-3</td>
<td>&lt;0.2</td>
</tr>
<tr>
<td>Other components below reportable levels</td>
<td></td>
<td></td>
<td>&lt;0.2</td>
</tr>
</tbody>
</table>

4. First-aid measures

Inhalation
Remove victim to fresh air and keep at rest in a position comfortable for breathing. Oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.

Skin contact
Remove contaminated clothing immediately and wash skin with soap and water. In case of eczema or other skin disorders: Seek medical attention and take along these instructions. Wash contaminated clothing before reuse.

Eye contact
Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention immediately.

Ingestion
Rinse mouth. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Get medical advice/attention if you feel unwell.

Most important symptoms/effects, acute and delayed
Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. May cause respiratory irritation. Difficulty in breathing. Skin irritation. May cause redness and pain. May cause an allergic skin reaction. Dermatitis. Rash.

Indication of immediate medical attention and special treatment needed
Provide general supportive measures and treat symptomatically. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

General information
If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media

Unsuitable extinguishing media
Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical
During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters
Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire fighting equipment/instructions
Move containers from fire area if you can do so without risk.

Specific methods
Use standard firefighting procedures and consider the hazards of other involved materials. Extinguish fires started by molten material by using appropriate method for the burning material.

General fire hazards
No unusual fire or explosion hazards noted.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures
Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Avoid breathing mist or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.
Where possible allow molten material to solidify naturally. Minimize dust generation and accumulation.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

Environmental precautions

Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling

Avoid contact with molten material. Provide adequate ventilation. Do not get this material in contact with eyes. Do not taste or swallow. Avoid breathing mist or vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. When using, do not eat, drink or smoke. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities

Store locked up. Store in original tightly closed container. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phthalic anhydride (CAS 85-44-9)</td>
<td>PEL</td>
<td>12 mg/m³</td>
</tr>
<tr>
<td>Phthalic anhydride (CAS 85-44-9)</td>
<td>2 ppm</td>
<td></td>
</tr>
</tbody>
</table>

US. ACGIH Threshold Limit Values

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phthalic anhydride (CAS 85-44-9)</td>
<td>TWA</td>
<td>1 ppm</td>
</tr>
</tbody>
</table>

US. NIOSH: Pocket Guide to Chemical Hazards

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phthalic anhydride (CAS 85-44-9)</td>
<td>TWA</td>
<td>6 mg/m³</td>
</tr>
<tr>
<td>Phthalic anhydride (CAS 85-44-9)</td>
<td>1 ppm</td>
<td></td>
</tr>
</tbody>
</table>

Biological limit values

No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. General ventilation normally adequate. Eye wash facilities and emergency shower must be available when handling this product.

Individual protection measures, such as personal protective equipment

<table>
<thead>
<tr>
<th>Protection type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye/face protection</td>
<td>Wear safety glasses with side shields (or goggles) and a face shield. Face shield is recommended. Wear a face shield when working with molten material.</td>
</tr>
<tr>
<td>Skin protection</td>
<td>Wear appropriate chemical resistant gloves. Suitable gloves can be recommended by the glove supplier.</td>
</tr>
<tr>
<td>Hand protection</td>
<td>Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended. For molten product, use any type rubber thermal insulating gloves and other clothing as necessary to protect from thermal burns.</td>
</tr>
<tr>
<td>Other</td>
<td>Wear appropriate thermal protective clothing, when necessary.</td>
</tr>
<tr>
<td>Respiratory protection</td>
<td>In case of insufficient ventilation, wear suitable respiratory equipment.</td>
</tr>
<tr>
<td>Thermal hazards</td>
<td>Wear appropriate thermal protective clothing, when necessary.</td>
</tr>
<tr>
<td>General hygiene considerations</td>
<td>Keep away from food and drink. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Contaminated work clothing should not be allowed out of the workplace.</td>
</tr>
</tbody>
</table>
9. Physical and chemical properties

Appearance
- Physical state: Liquid.
- Form: Liquid.
- Color: Not available.
- Odor: Not available.
- Odor threshold: Not available.
- pH: Not available.
- Melting point/freezing point: Not available.
- Initial boiling point and boiling range: 543 °F (283.89 °C)
- Flash point: 304.0 °F (151.1 °C)
- Evaporation rate: Not available.
- Flammability (solid, gas): Not applicable.

Upper/lower flammability or explosive limits
- Flammability limit - lower (%): Not available.
- Flammability limit - upper (%): Not available.
- Explosive limit - lower (%): Not available.
- Explosive limit - upper (%): Not available.

Vapor pressure: 20 mm Hg @ 150°C
Vapor density: Not available.
Relative density: Not available.
Solubility(ies)
- Solubility (water): Not available.
- Auto-ignition temperature: Not available.
- Decomposition temperature: Not available.
- Viscosity: Not available.

Other information
- Explosive properties: Not explosive.
- Oxidizing properties: Not oxidizing.
- Specific gravity: 1.18

10. Stability and reactivity

Reactivity
- The product is stable and non-reactive under normal conditions of use, storage and transport.

Chemical stability
- Material is stable under normal conditions.

Possibility of hazardous reactions
- No dangerous reaction known under conditions of normal use.

Conditions to avoid
- Contact with incompatible materials.

Incompatible materials
- Strong oxidizing agents.

Hazardous decomposition products
- No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure
- Inhalation: May cause irritation to the respiratory system. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Prolonged inhalation may be harmful.
- Skin contact: Causes skin irritation. May cause an allergic skin reaction.
- Eye contact: Causes serious eye damage.
- Ingestion: Harmful if swallowed.
Symptoms related to the physical, chemical and toxicological characteristics

Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. May cause respiratory irritation. Difficulty in breathing. Skin irritation. May cause redness and pain. May cause an allergic skin reaction. Dermatitis. Rash.

Information on toxicological effects

Acute toxicity

Harmful if swallowed. May cause an allergic skin reaction. May cause respiratory irritation.

<table>
<thead>
<tr>
<th>Product</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHTHALIC ANHYDRIDE MOLTEN</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Acute</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dermal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LD50</td>
<td>Rabbit</td>
<td>&gt; 10000 mg/kg</td>
</tr>
<tr>
<td>Oral</td>
<td>Rat</td>
<td>1530 mg/kg</td>
</tr>
<tr>
<td>Skin corrosion/irritation</td>
<td></td>
<td>Causes skin irritation.</td>
</tr>
<tr>
<td>Serious eye damage/eye irritation</td>
<td></td>
<td>Causes serious eye damage.</td>
</tr>
<tr>
<td>Respiratory or skin sensitization</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACGIH sensitization</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phthalic anhydride (CAS 85-44-9)</td>
<td></td>
<td>Dermal sensitization</td>
</tr>
<tr>
<td>Respiratory sensitization</td>
<td></td>
<td>May cause allergy or asthma symptoms or breathing difficulties if inhaled.</td>
</tr>
<tr>
<td>Skin sensitization</td>
<td></td>
<td>May cause an allergic skin reaction.</td>
</tr>
<tr>
<td>Germ cell mutagenicity</td>
<td></td>
<td>No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td></td>
<td>This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.</td>
</tr>
</tbody>
</table>

IARC Monographs. Overall Evaluation of Carcinogenicity

Not listed.

US. National Toxicology Program (NTP) Report on Carcinogens

Not listed.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not regulated.

Reproductive toxicity

This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure

May cause respiratory irritation.

Specific target organ toxicity - repeated exposure

Not applicable.

Aspiration hazard

Not likely, due to the form of the product.

Chronic effects

Prolonged inhalation may be harmful.

12. Ecological information

Ecotoxicity

The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

<table>
<thead>
<tr>
<th>Product</th>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHTHALIC ANHYDRIDE MOLTEN</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Aquatic</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Algae</td>
<td>EC50</td>
<td>Algae</td>
</tr>
<tr>
<td></td>
<td></td>
<td>60 - 350 mg/l, 72 hours</td>
</tr>
<tr>
<td>Crustacea</td>
<td>EC50</td>
<td>Daphnia</td>
</tr>
<tr>
<td></td>
<td></td>
<td>640 mg/l, 48 hours</td>
</tr>
<tr>
<td>Fish</td>
<td>LC50</td>
<td>Fish</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&lt; 500 mg/l, 48 hours</td>
</tr>
</tbody>
</table>
Phthalic anhydride (CAS 85-44-9)

### Aquatic

**Acute**

<table>
<thead>
<tr>
<th>Species</th>
<th>Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crustacea</td>
<td>EC50 Daphnia</td>
</tr>
</tbody>
</table>

**Persistence and degradability**

No data is available on the degradability of this product.

**Bioaccumulative potential**

No data available.

**Partition coefficient n-octanol / water (log Kow)**

Phthalic acid: 0.73

**Mobility in soil**

No data available.

**Other adverse effects**

No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

### Disposal considerations

#### Disposal instructions

Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations.

#### Local disposal regulations

Dispose in accordance with all applicable regulations.

#### Hazardous waste code

The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

#### Waste from residues / unused products

Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

#### Contaminated packaging

Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

### Transport information

#### DOT

**UN number**

UN3256

**UN proper shipping name**

Elevated Temperature Liquid, Flammable, N.O.S. (Phthalic anhydride RQ = 5015 LBS)

**Transport hazard class(es)**

- Class: 3
- Subsidiary risk: -
- Packing group: III

**Special precautions for user**

Read safety instructions, SDS and emergency procedures before handling.

#### IATA

**UN number**

Not available.

**UN proper shipping name**

Forbidden for air transport while molten

**Transport hazard class(es)**

- Class: Not available.
- Subsidiary risk: -
- Packing group: Not applicable.

**Environmental hazards**

No.

**Special precautions for user**

Read safety instructions, SDS and emergency procedures before handling.

#### IMDG

**UN number**

UN3256

**UN proper shipping name**

RQ, Elevated Temperature Liquid, Flammable, N.O.S. (Phthalic anhydride)

**Transport hazard class(es)**

- Class: 3
- Subsidiary risk: -
- Packing group: III

**Environmental hazards**

- Marine pollutant: No.
- EmS: Not available.

**Special precautions for user**

Read safety instructions, SDS and emergency procedures before handling.

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**

Not established.
15. Regulatory information

US federal regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

CERCLA Hazardous Substance List (40 CFR 302.4)
Phthalic anhydride (CAS 85-44-9) Listed.

SARA 304 Emergency release notification
Not regulated.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)
Not regulated.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories
Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance
Not listed.

SARA 311/312 Hazardous chemical
Yes

SARA 313 (TRI reporting)

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS number</th>
<th>% by wt.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phthalic anhydride</td>
<td>85-44-9</td>
<td>90 - 100</td>
</tr>
</tbody>
</table>

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List
Phthalic anhydride (CAS 85-44-9)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)
Not regulated.

Clean Water Act (CWA) Section 112(r) (40 CFR 68.130)
Hazardous substance

Safe Drinking Water Act (SDWA)
Not regulated.

US state regulations

US - New Jersey Community RTK (EHS Survey): Reportable threshold
Phthalic anhydride (CAS 85-44-9)
Phthalic anhydride (CAS 85-44-9)

**International Inventories**

<table>
<thead>
<tr>
<th>Country(s) or region</th>
<th>Inventory name</th>
<th>On inventory (yes/no)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>Australian Inventory of Chemical Substances (AICS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Domestic Substances List (DSL)</td>
<td>Yes</td>
</tr>
<tr>
<td>Canada</td>
<td>Non-Domestic Substances List (NDSL)</td>
<td>No</td>
</tr>
<tr>
<td>China</td>
<td>Inventory of Existing Chemical Substances in China (IECSC)</td>
<td>Yes</td>
</tr>
<tr>
<td>Japan</td>
<td>Inventory of Existing and New Chemical Substances (ENCS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Korea</td>
<td>Existing Chemicals List (ECL)</td>
<td>Yes</td>
</tr>
<tr>
<td>New Zealand</td>
<td>New Zealand Inventory (NZIoC)</td>
<td>Yes</td>
</tr>
<tr>
<td>Philippines</td>
<td>Philippine Inventory of Chemicals and Chemical Substances (PICCS)</td>
<td>Yes</td>
</tr>
<tr>
<td>Taiwan</td>
<td>Taiwan Inventory (TCSI)</td>
<td>Yes</td>
</tr>
<tr>
<td>United States &amp; Puerto Rico</td>
<td>Toxic Substances Control Act (TSCA) Inventory</td>
<td>Yes</td>
</tr>
</tbody>
</table>

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s).

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

**16. Other information, including date of preparation or last revision**

- **Issue date**: 12-10-2014
- **Revision date**: 02-06-2018
- **Version #**: 05
- **Disclaimer**: Terms and Conditions. This SDS is designed only as guidance for the products to which it applies. To the greatest extent permitted by applicable law, nothing contained herein creates any legal obligation including contractual obligations, expressed or implied warranties, including any warranties of merchantability or fitness for particular purpose; or confers any intellectual property rights, including rights to use trademarks or a license to use patents, issued or pending. The information contained herein is based on the manufacturer's own study and the work of others, and is subject to change at any time without further notice. There is no warranty, expressed or implied, as to the accuracy, completeness or adequacy of the information contained herein, and neither the provider nor the manufacturer (nor the agents, directors, officers, contractors or employees of either) are liable to any party for any damages of any nature, including direct, special or consequential damages arising out of or in connection with the accuracy, completeness, adequacy or furnishing of any information in this SDS, or in any other way related (directly or indirectly) to this SDS. The receipt and use of this information constitutes consent to these terms and conditions.

**Revision information**

Transport Information: Material Transportation Information

HazReg Data: International Inventories