SAFETY DATA SHEET

Product name | Riteflex®
---|---
MSDS number | 87091013
Revision Number | 3***
Revision Date | Aug.21.2017***
Issuing date | Mar.12.2018***

1. Identification of the substance/preparation and the company/undertaking

Product name

Riteflex®

The following SDS applies to products described by combinations of the following trade name, product grade and color code listed below.

Product Grade(s):
100AB, 100HS, 101UV, 102HS, 102UV, 2020, 425, 430, 435, 440, 447, 640, 640A, 647, 655, 655A, 655A RF, 655 LW2, 663, 663HS, 672, 677, 830, 847, 855, 863, 1050, RKX-150***

Color Code:
See Section 16 for list of Color Codes

Manufacturer or supplier's details

Celanese (Shanghai) International Trading Co., Ltd.
Room 239, Xinmao Building
South Taizhong Road
Waigaoqiao Free Trade Zone
Shanghai, China

Celanese Pte Ltd
138 Robinson Road
#17-00
Singapore (068906)
***

Product Information
info-engineeredmaterials-asia@celanese.com

Emergency telephone number
(+65) 62656917 (Operations Room direct dial)
or fax request to +(65) 62664696 (Facsimile to Operations Room)
or email to posh.er@paccoffshore.com.sg

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Synonyms:
Thermoplastic polyester elastomer / TPE-E Polybutylene terephthalate copolymer

Identified uses
Plastic processing industry.

2. Hazards identification

Statements of Hazard
Not a dangerous product according to GHS

1 of 6
3. Composition/Information on ingredients

Chemical characterization

1,4-BENZENEDICARBOXYLIC ACID, DIMETHYL ESTER, POLYMER WITH 1, 4-
BUTANEDIOL AND \(\alpha\)-HYDRO-\(\omega\)-HYDROXYPOLY(OXY-1,4-
BUTANEDIYL); CAS-RN.: 9078-71-1 ***

4. First aid measures

Skin
Immediate medical attention is required. Cool skin rapidly with cold water after contact with molten polymer. Do not peel solidified product off the skin.

Eyes
Immediately flush eye(s) with plenty of water. Call a physician if irritation persists.

Inhalation
Get medical attention immediately if symptoms occur. Move to fresh air in case of accidental inhalation of vapors.

Ingestion
If swallowed, do not induce vomiting - seek medical advice.

Notes to physician
This product is essentially inert and nontoxic. However, if it is heated at too high a temperature or if it burns, gases may be released. Based on the amounts likely to be released, carbon monoxide and the nitrogen oxides are the most likely to cause clinically significant toxicity. Patients who have been exposed to off-gases may need to have their carboxyhemoglobin levels and arterial blood gases checked. In the event that the carboxyhemoglobin levels are normal in an acidotic patient, consider cyanide toxicity. If the exposure occurred in an enclosed space, asphyxia (carbon dioxide replacing oxygen) is a possibility. The nitrogen oxides are severe respiratory tract irritants. If patients may have inhaled high concentrations of irritating fumes, monitoring for delayed onset pulmonary edema should be considered**

5. Fire-fighting measures

NFPA:  Health: 1  Flammability: 0  Instability: 0

Suitable extinguishing media
Water, Foam, Dry powder

Extinguishing media which must not be used for safety reasons
Do not use a solid water stream as it may scatter and spread fire.

Special exposure hazards arising from the substance or preparation itself, its combustion products, or released gases
Under conditions giving incomplete combustion, hazardous gases produced may consist of
Carbon monoxide
Carbon dioxide (CO2)
Combustion gases of organic materials must in principle be graded as inhalation poisons

Special protective equipment for fire-fighters
Wear self-contained breathing apparatus and protective suit.
Other Information
Keep people away from and upwind of fire. Dust can form an explosive mixture in air

6. Accidental release measures

Personal precautions
Do not breathe dust. Avoid dust formation

Environmental precautions
No special environmental precautions required.

Methods for cleaning up
Use mechanical handling equipment. Dispose of in accordance with local regulations

7. Handling and storage

Advice on safe handling
Do not handle hot or molten material without appropriate protective equipment. Do not exceed recommended process temperatures to minimize release of decomposition products. Maintain good housekeeping in work areas. Provide appropriate exhaust ventilation at machinery and at places where dust can be generated

Incompatible products
strong bases

Protection - fire and explosion:
Do not smoke in areas where polymer dust is present. Appropriate measures should be taken to control the generation and accumulation of dust during conveying and processing operations

Material storage
Keep in a dry place. Maintain dryness of resin. To maintain product quality, do not store in heat or direct sunlight. Maximum storage temperature 40°C

Incompatible products
strong bases

8. Exposure controls / personal protection

ACGIH Exposure Limits
No exposure limits established.

OSHA Exposure Limits
No exposure limits established.

Exposure controls

Engineering measures
General: May not be adequate as the sole means to control employee exposure. Local Exhaust: Recommended when appropriate to control employee exposure to dust or process vapors
SAFETY DATA SHEET

Personal protective equipment

General advice
Do not breathe dust. Avoid contact with skin and eyes.

Hygiene measures
When using, do not eat, drink or smoke. Do not inhale dust particles, during processing glass or glass dust particles are set free and cause irritation to the respiratory passage. Wash hands before breaks and at the end of workday.

Respiratory protection
Wear dust mask when handling large quantities.

Eye protection
Safety glasses.

Skin protection
Avoid contact with skin.

Hand protection
No special precautions required.

9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Pellets</td>
</tr>
<tr>
<td>Form</td>
<td>Pellets</td>
</tr>
<tr>
<td>Odor</td>
<td>Slight, specific</td>
</tr>
<tr>
<td>Flash point</td>
<td>Not applicable***</td>
</tr>
<tr>
<td>Ignition temperature</td>
<td>320°C***</td>
</tr>
<tr>
<td>Method</td>
<td>ASTM D 1929</td>
</tr>
<tr>
<td>Melting point/range</td>
<td>145 - 225°C***</td>
</tr>
<tr>
<td>Density</td>
<td>1.00 - 1.25 g/ml @ 20°C***</td>
</tr>
<tr>
<td>Bulk density</td>
<td>Approx 770 - 890 kg/m³ @20 °C</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>Not determined***</td>
</tr>
<tr>
<td>Water solubility</td>
<td>Insoluble</td>
</tr>
</tbody>
</table>

10. Stability and reactivity

Chemical stability
Stable under normal conditions.

Conditions to avoid
Flame. Avoid temperatures above 260 °C / 500 °F. Fine powder may present a dust explosion hazard.

Incompatible Materials
Strong bases.

Hazardous Combustion or Decomposition Products:
Aldehydes, ketones, esters, acids, alcohols, butadiene, tetrahydrofuran, toluene, benzoic acid, terephthalic acid.

11. Toxicological information

Potential health effects.
Routes of exposure
Skin, eyes, inhalation, ingestion.

Immediate effects

<table>
<thead>
<tr>
<th>Route</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin</td>
<td>Polymer particles and reinforcing fibers may cause mechanical irritation. The molten product can cause serious burns.***</td>
</tr>
<tr>
<td>Eyes</td>
<td>Polymer particles and reinforcing fibers may cause mechanical irritation</td>
</tr>
<tr>
<td>Inhalation</td>
<td>Overheating in processing may generate hazardous, irritating vapours. Dust irritating to respiratory tract.***</td>
</tr>
<tr>
<td>Ingestion</td>
<td>Low toxicity by this route is expected based on the biological activity of high molecular weight polymers.</td>
</tr>
</tbody>
</table>

Medical conditions which may be aggravated by exposure: No specific information available on the product. Off-gases, which may be released if overheated, may affect those with chronic diseases of the respiratory system.***

Toxicological data are not available. Observe the usual hygienic measures for handling chemicals***

12. Ecological Information

Ecotoxicity: The effects of resin pellets on the wildlife that may ingest them is not well understood. In the case of seabirds, some marine biologists believe that the fowl may not be able to pass plastic pellets through their digestive tracts. Thus, large quantities of ingested pellets may cause intestinal blockage, false feelings of satiation or reduction in absorption of nutrients, causing malnutrition and starvation. The goal of SPI's Operation Clean Sweep is zero loss of pellets into the environment..

Environmental Fate/Information: This material is considered to be non-biodegradable. Do not discharge product unmonitored into the environment***

13. Disposal considerations

Product information
Disposal required in compliance with all waste management related state and local regulations. The choice of the appropriate method of disposal depends on the product composition by the time of disposal as well as the local statutes and possibilities for disposal.

Uncleaned empty packaging
Contaminated packaging should be emptied as far as possible and after appropriate cleansing may be taken for reuse.

14. Transport information

US Department of Transportation Not regulated
ADR/RID Not regulated
ADN Not regulated
14. Transport information

ICAO/IATA Not restricted
IMDG Not regulated

15. Regulatory information

INTERNATIONAL REGULATIONS
This preparation is not classified as dangerous according to Chinese legislation.
This mixture is not classified as dangerous according to Japanese legislation.

16. Other information

HMIS: Health: 1 Flammability: 0 Physical Hazard: 0

Color code(s)
NATURAL, RC3099SP20, RF2001, RF3001, RF-NAT, RL3100SP20, RN3196K20

Prepared By
Product Stewardship Department
Celanese

Other Information:
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Changes against the previous version are marked by ***

Sources of key data used to compile the datasheet
Information contained in this safety data sheet is based on Celanese owned data and public sources deemed valid or acceptable.

Further information
This information is based on our present state of knowledge. It shall describe our products regarding safety requirements and shall not be construed as a guarantee or statement of condition and/or quality.