Topas® Cyclic Olefin Copolymers

1. PRODUCT AND COMPANY IDENTIFICATION

Identification of the substance/preparation

**Topas® Cyclic Olefin Copolymers**

**Use of the Substance/Preparation**

injection molding articles for optical industry, packaging industry, medical articles.

**Company/Undertaking Identification**

Topas Advanced Polymers GmbH
Paulistrasse 3
65929 Frankfurt
Germany

**Product Information**

+49 (0)1805-1-86727

**Emergency telephone number**

+49 (0)69-305 6418

2. HAZARDS IDENTIFICATION

**Globally Harmonized System**

**Basis for Classification**

Based on present data no classification and labelling is required according to Directive 1272/2008/EC and its amendments (CLP Regulation, GHS)

**Other Hazards**

Contact with product at elevated temperatures can result in thermal burns

**Classification and labelling according to Directive 67/548/EEC or 1999/45/EC**

**Basis for Classification**

According to present data no classification and labelling is required according to Directives 67/548/EEC or 1999/45/EC.

**Other hazards**

Contact with product at elevated temperatures can result in thermal burns

3. COMPOSITION/INFORMATION ON INGREDIENTS

**Chemical characterization**

contains ethylene-norbornene copolymer (CAS 26007-43-2)
4. FIRST AID MEASURES

General advice
Remove/Take off immediately all contaminated clothing. Wash/Decontaminate removed clothing before reuse.

Inhalation
Aerate with fresh air. When symptoms persist or in all cases of doubt seek medical advice.

Skin
Cool skin rapidly with cold water after contact with molten polymer. If polymer is stuck to skin, do not remove. Allow adhered polymer to come off naturally. Removal of adhered polymer may result in more tissue damages than if polymer is allowed to come off over time. When symptoms persist or in all cases of doubt seek medical advice.

Eyes
Resin particles, like other inert materials, are mechanically irritating to eyes. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.

Ingestion
Do not induce vomiting without medical advice. Obtain medical attention.

Main symptoms
None known.

Notes to physician
Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media
water spray. foam. dry chemical. carbon dioxide (CO2).

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 (CO) carbon dioxide (CO2)
Combustion gases of organic materials must in principle be graded as inhalation poisons
Topas® Cyclic Olefin Copolymers

Special protective equipment for fire-fighters
Fire fighter protection should include a self-contained breathing apparatus (NIOSH-approved or EN 133) and full fire-fighting turn out gear.

Precautions for fire-fighting
Cool closed containers exposed to fire with water spray. Keep people away from and upwind of fire. Dike and collect water used to fight fire.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Avoid contact with skin and eyes. Do not breathe dust. Keep people away from and upwind of spill/leak.
For emergency responders: Personal protection see section 8.

Environmental precautions
Not readily biodegradable. Should not be released into the environment. Do not flush into surface water or sanitary sewer system.

Methods for containment
Stop the flow of material, if possible without risk.

Methods for cleaning up
Sweep up and shovel into suitable containers for disposal. Like most thermoplastic plastics the product can be recycled. Dispose of in accordance with local regulations.

7. HANDLING AND STORAGE

Handling
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.

Advice on protection against fire and explosion
Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge. Dust can form an explosive mixture in air. Risks of ignition followed by flame propagation or secondary explosions shall be prevented by avoiding accumulation of dust, e.g. on floors and ledges.

Advice on the protection of the environment
See Section 8: Environmental exposure controls

Storage

Technical measures/Storage conditions
Keep away from direct sunlight. Keep containers tightly closed in a dry, cool and well-ventilated place.
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Advice on common storage
No special restrictions on storage with other products

VCI Storage Class old!
11: Combustible solids

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limits European Union

No exposure limits established

Exposure limits Germany

TRGS 900

<table>
<thead>
<tr>
<th>Component</th>
<th>AGW (mg/m³)</th>
<th>AGW (ppm)</th>
<th>STEL factor</th>
<th>Peak-limit category</th>
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<td>2</td>
<td>II</td>
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<td>2</td>
<td>II</td>
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</table>

MAK-values from the DFG

<table>
<thead>
<tr>
<th>Component</th>
<th>MAK (ppm)</th>
<th>MAK (mg/m³)</th>
<th>listed w/o limits</th>
<th>Ceiling limit value</th>
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<tbody>
<tr>
<td>Dust, general threshold limit value (inhalable fraction) CAS: None</td>
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<td>1,5</td>
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</table>

Occupational exposure controls

Engineering measures
Ensure adequate ventilation. Provide for appropriate exhaust ventilation and dust collection at machinery.

Personal protective equipment
Material Safety Data Sheet

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General industrial hygiene practice
Avoid contact with skin, eyes and clothing. Do not breathe dust or mist. Ensure that eyewash stations and safety showers are close to the workstation location.

Hygiene measures
Wash hands before breaks and immediately after handling the product. Take off all contaminated clothing immediately.

Respiratory protection
If the dust exposure limit is exceeded, wear dust mask or respirator with particle filter.

Hand protection
Heat resistant gloves.
Suitable material: leather gloves

Eye protection
Tightly fitting safety goggles. Equipment should conform to EN 166

Skin and body protection
Wear face-shield and protective suit for abnormal processing problems.

Thermal Hazard
When handling hot material, use heat resistant gloves. Heat only in areas with appropriate exhaust ventilation.

9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>granules</td>
</tr>
<tr>
<td>Colour</td>
<td>colourless</td>
</tr>
<tr>
<td>Odour</td>
<td>odourless</td>
</tr>
<tr>
<td>Softening point</td>
<td>&gt;60 °C/ &gt;140 F</td>
</tr>
<tr>
<td>Bulk density</td>
<td>550 - 600 g/l</td>
</tr>
<tr>
<td>Method</td>
<td>DIN 53466</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>&lt; 0.001 mm Hg @25°C (77 F)</td>
</tr>
<tr>
<td>Water solubility</td>
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</tr>
<tr>
<td>VOC Content(%)</td>
<td>&lt; 0.5 % (wt/wt)</td>
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</table>

10. STABILITY AND REACTIVITY

Stability
Stable under normal conditions of handling, use and transportation.

Hazardous reactions
Hazardous polymerisation does not occur.
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Conditions to avoid
Avoid temperatures above 350 °C / 662F. Risk of decomposition.

Materials to avoid
oxidizing agents.

11. TOXICOLOGICAL INFORMATION

Principle Routes of Exposure
Inhalation, Eye contact, Skin contact

Note
No toxicology information is available. Handle in accordance with good industrial hygiene and safety practice.

12. ECOLOGICAL INFORMATION

Note
No information on ecology is available. According to our experience and to the information provided to us, the product does not have any harmful effects if it is used and handled as specified.

13. DISPOSAL CONSIDERATIONS

Product Information
Where possible recycling is preferred to disposal or incineration. May be taken to waste disposal site or incineration plant, with household waste. Rules of the local authorities must be observed.

Uncleaned empty packaging
Regulations concerning reuse or disposal of used packaging materials must be observed.

14. TRANSPORT INFORMATION

IMDG
Not restricted

ICAO/IATA
Not restricted

ADR/RID
Not restricted

D.O.T. (49CFR)
Not restricted

15. REGULATORY INFORMATION

Globally Harmonized System
Topas® Cyclic Olefin Copolymers

Basis for Classification
Based on present data no classification and labelling is required according to Directive 1272/2008/EC and its amendments (CLP Regulation, GHS)

16. OTHER INFORMATION

Revision Date 21-May-2012
Issuing date 22-May-2012

Training advice
For effective first-aid, special training / education is needed.

Sources of key data used to compile the datasheet
Information contained in this safety data sheet is based on Topas owned data and public sources deemed valid or acceptable. The absence of data elements required by ANSI or 2001/58/EC indicates, that no data meeting these requirements is available.

Further information for the safety data sheet
For more information, consult the Technical Data Sheet (www.topas.com). Changes against the previous version are marked by ***.

Disclaimer
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