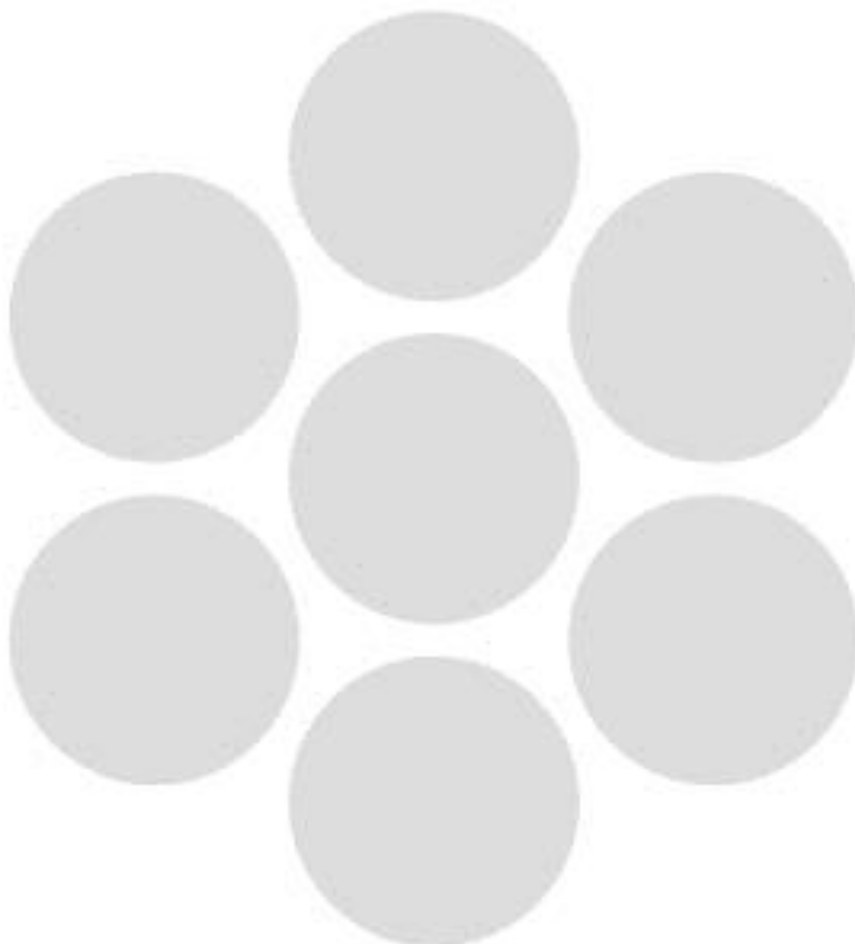


## SDS – Cyclic Olefin Copolymers

**C Technologies, Inc. does not manufacture Cyclic Olefin Copolymers. Cyclic Olefin Copolymers is manufactured for C Technologies, Inc. by Advanced Polymers. Attached you will find the SDS.**



# SAFETY DATA SHEET

## 1. Identification

### Product Identifier

Identification of the substance/preparation

## Cyclic Olefin Copolymers

### Recommended uses and restrictions on use

Use of the Substance / Preparation

injection molding articles for optical industry, 3-D Printing, packaging Industry, medical articles.

## 2. Hazards identification

### 2.1. Classification of the substance or mixture

OSHA Specified Hazards      Not applicable.

### 2.2. Label elements

Not required according to §1910.1200 (GHS-US labeling).

### 2.3. Other hazards

None known

## 3. Composition / Information on ingredients

Chemical characterization

contains ethylene-norbornene copolymer (CAS 26007-43-2)

## 4. First aid measures

### Description of 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.

#### 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.

**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.

**Ingestion**

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

**Most important symptoms and effects, both acute and delayed****Main symptoms**

None known.

**Indication of medical attention/treatment**

This product is essentially inert and non-toxic. Under conditions of thermal decomposition irritant gases may be formed. Exposed patients may need to have their arterial blood gases and carboxyhemoglobin levels checked

**5. Firefighting measures****Extinguishing media****Suitable extinguishing media**

water spray, foam, dry chemical, carbon dioxide (CO<sub>2</sub>).

**Unsuitable Extinguishing Media**

Do not use a solid water stream as it may scatter and spread fire.

**Special hazards arising from the substance or mixture**

Under conditions giving incomplete combustion, hazardous gases produced may consist of:

carbon monoxide (CO)

carbon dioxide (CO<sub>2</sub>)

Combustion gases of organic materials must in principle be graded as inhalation poisons

**Protective equipment and precautions for fire fighters****Special protective equipment for firefighters**

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

**Precautions for firefighting**

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

### Precautions for safe 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.

#### Hygiene measures

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

#### Advice on the protection of the environment

See Section 8: Environmental exposure controls

### Conditions for safe storage

#### Technical measures/Storage conditions

Keep away from direct sunlight. Keep containers tightly closed in a dry, cool and well-ventilated place.

#### 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.

#### Incompatible products

No special restrictions on storage with other products

## 8. Exposure controls / Personal protection

### Exposure limits United States of America

Component	TWA (mg/m <sup>3</sup> )	TWA (ppm)	STEL (mg/m <sup>3</sup> )	STEL (ppm)
Dust, general threshold limit value (inhalable fraction) CAS: None	10			
Dust, general threshold limit value (respirable fraction) CAS: None	3			

#### US OSHA Z-1

Component	Ceiling (mg/m <sup>3</sup> )	Ceiling (ppm)	PEL (mg/m <sup>3</sup> )	PEL (ppm)	Skin Designation
Dust, general threshold limit value (inhalable fraction) CAS: None			15		
Dust, general threshold limit value (respirable fraction) CAS: None			5		

## US NIOSH IDHL

Component	Potential cancer hazard	Concentration (mg/m <sup>3</sup> )	Concentration (ppm)	Listed w/o limits
Dust, general threshold limit value (inhalable fraction) CAS: None		concentration not determined		Note D
Dust, general threshold limit value (respirable fraction) CAS: None		concentration not determined		Note D

### Appropriate Engineering controls

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

### Personal protective equipment

#### 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

Based on workplace contaminant levels and working limits of the respirator, use a respirator approved by NIOSH

#### Hand protection

Heat resistant gloves.

#### Suitable material

leather gloves

#### Eye protection

Tightly fitting safety goggles.

#### 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

### 9.1. Information on basic physical and chemical properties

Appearance	granules
Colour	colourless
Odour	odourless
Odour threshold	No data available
pH	No data available
Melting point/range	approx. 75-185 °C
Boiling point/range	No data available
Flash point	Not applicable
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Lower explosion limit	Not applicable
Upper explosion limit	Not applicable
Vapour pressure	< 0.001 mm Hg @25°C (77 F)

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<b>Vapour density</b>	No data available
<b>Relative density</b>	No data available
<b>Bulk density</b>	550 - 600 g/l
<b>Method</b>	DIN 53466
<b>Water solubility</b>	insoluble
<b>log Pow</b>	No data available
<b>Autoignition temperature</b>	Not applicable
<b>Decomposition temperature</b>	No data available
<b>Viscosity</b>	Not applicable
<b>Oxidizing properties</b>	Does not apply, substance is not oxidising. There are no chemical groups associated with oxidizing properties

## 9.2. Other information

VOC Content(%) < 0.5 % (wt/wt)

## 10. Stability and reactivity

### Reactivity

The reactivity of the product corresponds to the typical reactivity shown by the substance group as described in any text book on organic chemistry.

### Chemical stability

Stable under normal conditions of handling, use and transportation.

### Possibility of hazardous reactions

Hazardous polymerisation does not occur.

### Conditions to avoid

Avoid temperatures above 350 °C / 662F. Risk of decomposition.

### Incompatible materials

oxidizing agents.

### Hazardous decomposition products

Thermal decomposition can lead to release of irritating gases and vapours.

## 11. Toxicological information

### **Main symptoms**

None known

### **Note**

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

## 12. Ecological information

### Ecotoxicity

No data available  
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### **Persistence/Degradability**

No data available

### **Bioaccumulative potential**

No data available

### **Mobility in soil**

No data available

### **Other Adverse Effects**

No data available

#### **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**

ICAO/IATA Not restricted

IMDG Not restricted

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

## **15. Regulatory information**

#### **OSHA Regulatory Status**

This material is non-hazardous as defined by the American OSHA Hazard Communication Standard (29CFR 1910.1200).

#### **Federal Regulations**

This product complies with U.S. Toxic Substance Control Act (TSCA)

## **International Inventories**

The products covered by this SDS are permitted under the following inventories:

TSCA (US)  
AICS (AU)  
KECI (KR)  
DSL (CA)  
IECSC (CN)  
EINECS (EU)  
ENCS (JP)  
NZIoC (NZ)  
TCSI (TW)

## **16. Other information**

**Manufacturer's Revision Date:** 29-Dec-2017  
**Manufacturer's Issuing Date** 02-Apr-2018  
**Manufacturer's Version/Revision No.** 7.02

### **Training advice**

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

### **Hazard Rating Systems**

#### **NFPA (National Fire Protection Association)**

Health Hazard	1
Fire Hazard	1
Reactivity	0

#### **HMIS (Hazardous Material Information System)**

Health Hazard	0
Flammability	1
Physical Hazard	0

### **Disclaimer**

The information contained herein is accurate to the best of our knowledge. We do not suggest or guarantee that any hazards listed herein are the only ones which exist. C Technologies, Inc. makes no warranty of any kind, express or implied, concerning the safe use of this material in your process or in combination with other substances. Effects can be aggravated by other materials and/or this material may aggravate or add to the effects of other materials. User has sole responsibility to determine the suitability of the materials for any use and the manner of use contemplated. User must meet all applicable safety and health standards