

# SAFETY DATA SHEET



Revision Date **28-Dec-2022**  
Version / Revision **1**  
Supersedes Version **--**

product code **TP08**  
Issuing date **11-Sep-2023**

## Norbornene melt

### 1: Identification

#### Product identifier

Identification of the substance/preparation

## Norbornene melt

Chemical Name Bicyclo-[2.2.1] hept-2-ene

CAS-No 498-66-8

#### Recommended uses and restrictions on use

#### Supplier information

Supplier

**Polyplastics USA, Inc.**  
27240 Haggerty Road, Suite E-20  
Farmington Hills, MI 48331  
United States

Product Information

email: [info@topas.com](mailto:info@topas.com)

Emergency telephone number

NCEC +1 202 464 2554 available 24/7

### 2. Hazards identification

#### 2.1. Classification of the substance or mixture

This substance is classified in accordance with paragraph (d) of §1910.1200 (GHS-US classification).

Serious eye damage/eye irritation Category 2A, H319

Reproductive toxicity Category 2, H361

Flammable liquid Category 2, H225

Environmental hazard Aquatic Chronic 2; H411

OSHA Specified Hazards Not applicable.

#### 2.2. Label elements



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### Signal word

### Warning

### Hazard statements

H225: Highly flammable liquid and vapor.  
H319: Causes serious eye irritation.  
H361: Suspected of damaging fertility or the unborn child.  
H411: Toxic to aquatic life with long lasting effects.

### Precautionary statements

### Prevention

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233: Keep container tightly closed.  
P240: Ground and bond container and receiving equipment.  
P241: Use explosion-proof electrical/ ventilating/ lighting equipment.  
P242: Use non-sparking tools.  
P243: Take precautionary measures against static discharge.  
P280: Wear protective gloves/protective clothing/eye protection/face protection.  
P264: Wash hands thoroughly after handling.  
P201: Obtain special instructions before use.  
P202: Do not handle until all safety precautions have been read and understood.

### Response

P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.  
P370 + P378: In case of fire: Use appropriate media for extinction.  
P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P337 + P313: If eye irritation persists: Get medical advice/ attention.  
P308 + P313: IF exposed or concerned: Get medical advice/ attention.

### Storage

P403 + P235: Store in a well ventilated place. Keep cool.  
P405: Store locked up.

### Disposal

P501: Dispose of contents/container in accordance with local regulation.

## 2.3. Other hazards

Caution Hot!

## 3. Composition / Information on ingredients

Component	CAS-No	Concentration (%)
Bicyclo [2.2.1]-hept-2-en	498-66-8	> 98
Toluene	108-88-3	< 2%

## 4. First aid measures

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### Description of first aid measures

#### General advice

Remove/Take off immediately all contaminated clothing. Remove contaminated, soaked clothing immediately and dispose of safely. First aider needs to protect himself.

#### Inhalation

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

#### Eyes

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.

#### Skin

Wash off immediately with soap and plenty of water. 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

Exposure may result in reddening, tears and itching of the eyes and soreness in the nose and throat, together with coughing. Repeated and prolonged exposure to solvents may cause brain and nervous system damage.

### Advice for the rescuer

Wear appropriate personal protective equipment (see section 8) if required

### Special note for doctor

Treat symptomatically

## 5. Firefighting measures

### Extinguishing media

#### Suitable extinguishing media

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

Vapours are heavier than air and may spread along floors

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

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### Fire precautions and protective measures

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

#### 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.

## 6. Accidental release measures

### Personnel precautions, protective equipment and emergency procedures

#### Personal precautions

Avoid contact with skin and eyes. Keep away from heat and sources of ignition. Avoid breathing vapors or mists. Ensure adequate ventilation, especially in confined areas. Keep people away from and upwind of spill/leak. For emergency responders: Personal protection see section 8. For non-emergency personnel: For personal protective equipment see section 8.

#### Environmental precautions

Prevent further leakage or spillage. Do not flush into surface water or sanitary sewer system.

### Methods and material used for collection and disposal of leak

#### Methods for containment

Stop the flow of material, if possible without risk.

#### Methods for cleaning up

DO NOT use combustible materials such as sawdust. Soak up with inert absorbent material. Allow to solidify, use mechanical handling equipment. Sweep up or vacuum up spillage and collect in suitable container for disposal. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapours).

### Precautionary measures to prevent the occurrence of secondary disasters

Observe the presence of other hazardous chemicals and potential reactions near site of accident

## 7. Handling and storage

### Handling

#### Advice on safe handling

Provide sufficient air exchange and/or exhaust in work rooms. Refill and handle product only in closed system.

#### Hygiene measures

When using, do not eat, drink or smoke Wash hands before breaks and immediately after handling the product

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

**Incompatible products**  
Incompatible products:  
strong oxidizing agents  
acids and bases  
radical initiators

## Storage

**Advice on protection against fire and explosion**  
Keep away from sources of ignition - No smoking. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapours). Ground and bond containers when transferring material. Vapour is heavier than air and can travel considerable distance to a source of ignition and flashback. Vapours may form explosive mixture with air. In case of fire, emergency cooling with water spray should be available.

**Technical measures/Storage conditions**  
Keep containers tightly closed in a dry, cool and well-ventilated place.

## 8. Exposure controls / Personal protection

### Exposure limits United States of America

#### US ACGIH

Component	TWA (mg/m <sup>3</sup> )	TWA (ppm)	STEL (mg/m <sup>3</sup> )	STEL (ppm)		
Toluene CAS: 108-88-3		20				
Component	Asphyxia	Carcinogenic category	Included w/o limits	Exposure as low as possible		
Toluene CAS: 108-88-3		A4				
Component	Status					
Toluene CAS: 108-88-3	listed					
Component	TWA (mg/m <sup>3</sup> )	TWA (ppm)	Ceiling (mg/m <sup>3</sup> )	Ceiling (ppm)	Max. conc.	Time
Toluene CAS: 108-88-3		200		300	500 ppm	10MIN
Component	STEL (mg/m <sup>3</sup> )	STEL (ppm)	REL (mg/m <sup>3</sup> )	REL (ppm)		
Toluene CAS: 108-88-3	560	150	375	100		
Component	Potential cancer hazard	Concentration (mg/m <sup>3</sup> )	Concentration (ppm)	Listed w/o limits		

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## Norbornene melt

Toluene CAS: 108-88-3			500	
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### Appropriate Engineering controls

Handle product only in closed system or provide appropriate exhaust ventilation at machinery. Vapors may cause flash fire or explosion.

### Personal protective equipment

#### General industrial hygiene practice

Do not breathe vapours or spray mist. Avoid contact with skin, eyes and clothing. Ensure that eyewash stations and safety showers are close to the workstation location.

#### Hygiene measures

When using, do not eat, drink or smoke. Wash hands before breaks and immediately after handling the product.

#### Respiratory protection

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

#### Hand protection

Wear protective gloves. Recommendations are listed below. Other protective material may be used, depending on the situation, if adequate degradation and permeation data is available. If other chemicals are used in conjunction with this chemical, material selection should be based on protection for all chemicals present.

**Suitable material** Viton

#### Eye protection

Safety glasses with side-shields. In addition to goggles, wear a face shield if there is a reasonable chance for splash to the face.

#### Skin and body protection

Impervious clothing.

#### Thermal Hazard

When handling hot material, use heat resistant gloves.

#### Environmental exposure controls

Use product only in closed system. If leakage can not be prevented, the substance needs to be suck off at the emersion point, if possible without danger. Inform the responsible authorities in case of leakage into the atmosphere, or of entry into waterways, soil or drains.

## 9. Physical and chemical properties

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

<b>Appearance</b>	solid
<b>Colour</b>	colourless
<b>Odour</b>	pungent
<b>Odour threshold</b>	No data available

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<b>pH</b>	No data available
<b>Melting point/freezing point</b>	46 - 47 °C
<b>Boiling point or initial boiling point and boiling range</b>	95 - 96 °C @ 1013 hPa
<b>Flash point</b>	-8 °C
<b>Evaporation rate</b>	No data available
Flammability (solid, gas)	No data available
<b>Lower explosion limit</b>	0,77 Vol %
<b>Upper explosion limit</b>	6,5 Vol %
<b>Vapour pressure</b>	301 hPa @ 59 °C
<b>Relative vapour density</b>	No data available
<b>Density and/or relative density</b>	0.8706 g/cm <sup>3</sup> @20°C
<b>Water solubility</b>	0.13 g/l @20°C
<b>Partition coefficient n-octanol/water (log value)</b>	No data available
<b>Autoignition temperature</b>	450 °C
<b>Decomposition temperature</b>	No data available
<b>Viscosity</b>	No data available

## 9.2. Other information

**Molecular weight** 94.2

## 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 may occur. Polymerization is a highly exothermic reaction and may generate sufficient heat to cause thermal decomposition and/or rupture containers.

### Conditions to avoid

Avoid any source of ignition. Avoid contact with heat, sparks, open flame and static discharge.

### Incompatible materials

oxidizing agents, radical initiators, strong acids, strong bases.

### Hazardous decomposition products

No decomposition if stored and applied as directed.

## 11. Toxicological information

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### Main symptoms

Exposure may result in reddening, tears and itching of the eyes and soreness in the nose and throat, together with coughing. Repeated and prolonged exposure to solvents may cause brain and nervous system damage.

Acute toxicity				
Bicyclo [2.2.1]-hept-2-en (498-66-8)				
Routes of Exposure	Endpoint	Values	Species	Method
Oral	LD50	9577 mg/kg	rat	OECD 401, in vivo
Dermal	LD50	> 4350 ml/kg	rabbit	OECD 402
Inhalative	LC50	> 26,6 mg/l (4h)	rat	OECD 403, in vivo, aerosol

Toluene (108-88-3)				
Routes of Exposure	Endpoint	Values	Species	Method
Oral	LD50	5580 mg/kg	rat	84/449/EEC B.1
Dermal	LD50	12267 mg/kg	rabbit	in vivo
Inhalative	LC50	28 mg/l (4h)	rat	OECD 403 (vapour)

### Bicyclo [2.2.1]-hept-2-en, CAS: 498-66-8

#### Assessment

Based on available data, the classification criteria are not met for:

Acute oral toxicity  
Acute dermal toxicity  
Acute inhalation toxicity  
STOT SE

### Toluene, CAS: 108-88-3

#### Assessment

Based on available data, the classification criteria are not met for:

Acute oral toxicity  
Acute dermal toxicity  
Acute inhalation toxicity

Irritation and corrosion				
Bicyclo [2.2.1]-hept-2-en (498-66-8)				
Target Organ Effects	Species	Result	Method	
Eyes	rabbit	Low irritating potential severe irritation		
Skin	rabbit	No skin irritation		

### Bicyclo [2.2.1]-hept-2-en, CAS: 498-66-8

#### Assessment

The available data lead to the classification given in section 2

Sensitization
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<b>Bicyclo [2.2.1]-hept-2-en (498-66-8)</b>				
Target Organ Effects	Species	Evaluation	Method	
Skin	mouse	not sensitizing	OECD 429	

### **Bicyclo [2.2.1]-hept-2-en, CAS: 498-66-8**

#### **Assessment**

Based on available data, the classification criteria are not met for:  
Skin sensitization

<b>Subacute, subchronic and prolonged toxicity</b>				
<b>Bicyclo [2.2.1]-hept-2-en (498-66-8)</b>				
Type	Dose	Species	Method	
28-day	NOAEL: 500 mg/kg/d	rat, male/female	OECD 422	
90-day	NOAEL: 2,02 mg/l	rat, male/female	OECD 413	

### **Bicyclo [2.2.1]-hept-2-en, CAS: 498-66-8**

#### **Assessment**

Based on available data, the classification criteria are not met for:  
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<b>Carcinogenicity, Mutagenicity, Reproductive toxicity</b>					
<b>Bicyclo [2.2.1]-hept-2-en (498-66-8)</b>					
Type	Dose	Species	Evaluation	Method	
Mutagenicity		V79 cells, Chinese hamster	negative	OECD 473 (Chromosomal Aberration)	In vitro study
Mutagenicity		V79 cells, Chinese hamster	negative	OECD 476 (Mammalian Gene Mutation)	In vitro study
Reproductive toxicity	NOAEL 500 mg/kg/d	rat, parental	negative	OECD 422	
Reproductive toxicity	NOAEL 500 mg/kg/d	rat, 1. Generation, male/female	negative	OECD 422	
Mutagenicity	5000 µg/plate	Salmonella typhimurium	negative	OECD 471 (Ames)	
Reproductive toxicity	NOAEL 300 mg/kg/d	rat	positive	OECD 414, Oral	

### **Bicyclo [2.2.1]-hept-2-en, CAS: 498-66-8**

#### **CMR Classification**

not evaluated by:

NTP: (National Toxicity Program)

IARC: (International Agency for Research on Cancer)

OSHA: (Occupational Safety & Health Administration)

#### **Evaluation**

Suspected of damaging the unborn child

In the absence of specific alerts no cancer testing is required

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**Toluene, CAS: 108-88-3**

### CMR Classification

Directive 1272/2008/EC, Annex VI: Repr. 2

**Bicyclo [2.2.1]-hept-2-en, CAS: 498-66-8**

### Aspiration toxicity

Due to the viscosity, this product does not present an aspiration hazard

## 12. Ecological information

### Ecotoxicity

#### Acute aquatic toxicity

**Bicyclo [2.2.1]-hept-2-en (498-66-8)**

Species	Exposure time	Dose	Method
Danio rerio (Zebra fish)	96h	LC50: > 7,5 mg/l	OECD 203
Poecilia reticulata (guppy)	5 d	EC50: > 40 mg/l	
Daphnia magna (Water flea)	48h	EC50: 7,3 mg/l	OECD 202
Scenedesmus subspicatus	72h	EC50: 9,9 mg/l (Biomass)	OECD 201
Activated sludge (domestic)	3 h	EC50: > 1000 mg/l	OECD 209

### Persistence/Degradability

**Bicyclo [2.2.1]-hept-2-en, CAS: 498-66-8**

#### Biodegradation

no significant degradation.

### Bioaccumulative potential

**Bicyclo [2.2.1]-hept-2-en, CAS: 498-66-8**

#### Bioaccumulative potential

log Pow: 4.1

### Mobility in soil

**Bicyclo [2.2.1]-hept-2-en, CAS: 498-66-8**

No data available

### Other Adverse Effects

**Bicyclo [2.2.1]-hept-2-en, CAS: 498-66-8**

No data available

## 13. Disposal considerations

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### 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

### IMDG

UN/ID No	UN 3176
Proper shipping name	Flammable solid, organic, molten, n.o.s.
Hazard Inducer	(Norbornene)
Class	4.1
Marking	Fish and tree
Packing group	II
Marine pollutant	yes
EmS	F-A, S-H

### D.O.T. (49CFR)

UN/ID No	UN 3176
Hazard Inducer	(Norbornene)
Class	4.1
Marking	Fish and tree
Packing group	II
Marine pollutant	yes
Emergency Response Guide	133

## 15. Regulatory information

### Toluene, CAS: 108-88-3

40CFR 63.100-.106, Table 2  
40CFR 63.100-.106, Table 1: Group I  
Clean Water Act Section 307(a)  
CERCLA Hazardous Substance  
CERCLA RQ 1000 LBS  
EPCRA SARA Title III 313  
de minimis concentration 1.0 %  
DEA Essential Chemicals: Chemical Code Number: 6594

### Toluene, CAS: 108-88-3

CA Hazardous Substances (Director's) List  
CA Proposition 65  
Text einfügen!  
IL Chemical Safety Act  
MN Hazardous Substances List

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NJ RTK List  
PA RTK List  
RI RTK List

### International Inventories

#### **Bicyclo [2.2.1]-hept-2-en, CAS: 498-66-8**

AICS (AU)  
DSL (CA)  
NDSL (CA)  
EC-No. 2078660 (EU)  
ENCS (4)-1763 (JP)  
ISHL 7-(2)-108 (JP)  
KECI 2012-3-5388 (KR)  
PICCS (PH)  
TSCA (US)  
NZIoC (NZ)

## 16. Other information

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### **Training advice**

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

### **Hazard Rating Systems**

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

Health Hazard	2
Fire Hazard	3
Reactivity	1

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

Health Hazard	2
Flammability	3
Physical Hazard	1

### **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 OSHA, ANSI or Annex II, Regulation 1907/2006/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](http://www.topas.com)). Observe national and local legal requirements. Changes against the previous version are marked by \*\*\*.