

Material Safety Data Sheet

Material Name: Avatrel 2580-40 Polymer/US

Document: AVA2580-40/US

***** Section 1 - Chemical Product and Company Identification *******Chemical Name:** Avatrel 2580-40 Polymer

Company Identification: Promerus LLC
9921 Brecksville Road
Brecksville, OH 44141-3289
United States of America

Phone Number: 330-328-8186

Emergency Phone Number: 24 HR CHEMTREC U.S. 800-424-9300
24 HR CHEMTREC Int'l 703-527-3887

***** Section 2 - Composition / Information on Ingredients *****

CAS #	Component	Percent
110-43-0	2-Heptanone	20-81
Proprietary	Cyclic olefin polymer	15-60
108-88-3	Toluene	0.1-4

Component Information/Information on Non-Hazardous Components

This product has been evaluated using criteria specified in 29 CFR 1910.1200 (Hazard Communication Standard).

***** Section 3 - Hazards Identification *******Emergency Overview**

Product is a colorless liquid with a fruity odor. Combustible liquid. This product is irritating to the eyes and skin. This product may cause irritation to the respiratory system. Excessive inhalation of this material causes headache, dizziness, nausea and incoordination. May be harmful if absorbed through the skin. Small amounts of this product, if aspirated into the lungs, may cause mild to severe pulmonary injury. May cause skin sensitization. Exposure to toluene may cause teratogenic effects.

Target Organs

Eyes, skin, lungs, central nervous system and peripheral nervous system

Potential Health Effects: Eyes

Contact with the eyes cause irritation which may be moderate. Processing fumes or vapors may cause eye irritation.

Potential Health Effects: Skin

This product is irritating to the skin. Symptoms may include redness, edema, drying, defatting and cracking of the skin. This product may be absorbed through the skin and cause harm. May cause skin sensitization.

Potential Health Effects: Ingestion

Ingestion can cause gastrointestinal irritation, nausea, vomiting and diarrhea. Ingestion of this product may result in central nervous system effects including headache, sleepiness, dizziness, slurred speech and blurred vision.

This product may be harmful if it is swallowed.

Potential Health Effects: Inhalation

Inhalation of this product may result in central nervous system effects including headache, sleepiness, dizziness, slurred speech and blurred vision. Aspiration into the lungs can cause severe pulmonary injury.

Medical Conditions Aggravated by Exposure

Pre-existing skin problems may be aggravated by prolonged or repeated contact. Persons with sensitive airways (e.g., asthmatics) may react to airborne vapors.

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HMIS Ratings: Health: 2* Fire: 2 Physical Hazard: 0 Pers. Prot.: D

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard

*** Section 4 - First Aid Measures ***

First Aid: Eyes

Immediately flush eyes with water for at least 15 minutes, while holding eyelids open. Get medical attention or advice.

First Aid: Skin

For skin contact flush with large amounts of water while removing contaminated clothing. Get medical attention. Wash clothing before reuse.

First Aid: Ingestion

Do not induce vomiting. Get medical attention immediately. Prevent aspiration of material into lungs.

First Aid: Inhalation

If gas/fume/vapor/mist from the material is inhaled, remove the affected person immediately to fresh air. Seek medical attention.

First Aid: Notes to Physician

If irritation occurs or persists from any route of exposure, remove the affected individual from the area. Call a physician.

*** Section 5 - Fire Fighting Measures ***

General Fire Hazards

This product is an NFPA Level II Combustible liquid.

Hot vapor or mists may be susceptible to spontaneous combustion when mixed with air. Ignition temperatures decrease with increasing vapor volume and vapor/air contact time and are influenced by pressure changes. Therefore, ignition may occur below published ignition temperatures. Use of this product in processes involving elevated-temperatures, vacuum if subject to sudden ingress of air, sudden escape of vapor or mist, etc., must be thoroughly evaluated to assure safe operation. Exposing closed containers to heat may cause excessive pressure resulting in explosive rupture.

Hazardous Combustion Products

Potential decomposition/composition products may include:
CO, CO₂, low molecular weight hydrocarbons

Extinguishing Media

Use water spray, dry chemical, or foam. Carbon dioxide may be ineffective on larger fires due to a lack of cooling capacity which may result in re-ignition.

Fire Fighting Equipment/Instructions

Wear self-contained breathing apparatus (SCBA) equipped with a full facepiece and operated in a pressure-demand mode (or other positive pressure mode) and approved protective clothing. Personnel without suitable respiratory protection must leave the area to prevent significant exposure to hazardous gases from combustion, burning or decomposition. In an enclosed or poorly ventilated area, wear SCBA during cleanup immediately after a fire as well as during the attack phase of firefighting operations.

NFPA Ratings: Health: 2 Fire: 2 Reactivity: 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

*** Section 6 - Accidental Release Measures ***

Containment Procedures

Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Prevent flow into public sewer (explosion hazard), streams or other water systems. Clean up spills immediately. Wear proper personal protective clothing and equipment. Remove sources of ignition. Use spark proof tools. Ventilate the area.

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Clean-Up Procedures

Combustible liquid. Eliminate all ignition sources. Ventilate the contaminated area. If spill is large, be prepared to isolate the hazard area. Deny access to the spill area to persons who are not involved in the cleanup and/or who have not been properly trained in spill management of hazardous/flammable liquids. Absorb spill with inert material. Shovel material into appropriate container for disposal. Put material in suitable, covered, labeled containers. Ventilate the contaminated area.

*** Section 7 - Handling and Storage ***

Handling Procedures

Avoid contact with skin and eyes. Avoid prolonged or repeated skin contact with this material. Avoid breathing vapors or mists of this product. Use this product with adequate ventilation. Keep away from heat, sparks, flames and direct sunlight. DO NOT cut, puncture or weld on or near this container. Do not apply pressure to this container. Containers should be bonded and grounded during transfer of material. Wash thoroughly after handling.

Storage Procedures

Store in a cool, dry, and well-ventilated area. Store in combustible storage area and away from heat and open flame. Avoid storing containers in direct sunlight as vapors may accumulate in the head space creating pressure. Do not store in open, unlabeled or mislabeled containers. Keep container closed when not in use. Keep container upright, when not in use, to prevent leakage. Open containers carefully and slowly. Emptied container may contain residual vapors or liquid which may ignite or explode. Do not reuse empty container without commercial cleaning or reconditioning.

*** Section 8 - Exposure Controls / Personal Protection ***

Exposure Guidelines

A: General Product Information

Keep all exposures to a minimum.

B: Component Exposure Limits

2-Heptanone (110-43-0)

ACGIH:	50 ppm TWA
OSHA (Final):	100 ppm TWA; 465 mg/m3 TWA
OSHA (Vacated):	100 ppm TWA; 465 mg/m3 TWA
NIOSH:	100 ppm TWA; 465 mg/m3 TWA
Alberta:	50 ppm TWA; 233 mg/m3 TWA
British Columbia:	50 ppm TWA
Manitoba:	50 ppm TWA; 235 mg/m3 TWA
New Brunswick:	50 ppm TWA; 233 mg/m3 TWA
NW Territories:	50 ppm TWA; 235 mg/m3 TWA 100 ppm STEL; 465 mg/m3 STEL
Nova Scotia:	50 ppm TWA
Nunavut:	50 ppm TWA; 235 mg/m3 TWA 100 ppm STEL; 465 mg/m3 STEL
Ontario:	25 ppm TWAEV; 115 mg/m3 TWAEV
Quebec:	50 ppm TWAEV; 233 mg/m3 TWAEV
Saskatchewan:	233 mg/m3 TWA; 50 ppm TWA 291 mg/m3 STEL; 60 ppm STEL
Yukon:	100 ppm TWA; 465 mg/m3 TWA 150 ppm STEL; 710 mg/m3 STEL

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Toluene (108-88-3)

ACGIH:	50 ppm TWA Skin - potential significant contribution to overall exposure by the cutaneous route
OSHA (Final):	200 ppm TWA 300 ppm Ceiling
OSHA (Vacated):	100 ppm TWA; 375 mg/m ³ TWA 150 ppm STEL; 560 mg/m ³ STEL
NIOSH:	100 ppm TWA; 375 mg/m ³ TWA 150 ppm STEL; 560 mg/m ³ STEL
Alberta:	50 ppm TWA; 188 mg/m ³ TWA Substance may be readily absorbed through intact skin
British Columbia:	50 ppm TWA Skin notation
Manitoba:	100 ppm TWA; 375 mg/m ³ TWA 150 ppm STEL; 560 mg/m ³ STEL
New Brunswick:	50 ppm TWA; 188 mg/m ³ TWA Skin - potential for cutaneous absorption
NW Territories:	100 ppm TWA; 375 mg/m ³ TWA 150 ppm STEL; 560 mg/m ³ STEL Skin notation
Nova Scotia:	50 ppm TWA Skin - potential significant contribution to overall exposure by the cutaneous route
Nunavut:	100 ppm TWA; 375 mg/m ³ TWA 150 ppm STEL; 560 mg/m ³ STEL Skin notation
Ontario:	50 ppm TWAEV
Quebec:	100 ppm TWAEV; 377 mg/m ³ TWAEV 150 ppm STEV; 565 mg/m ³ STEV
Saskatchewan:	188 mg/m ³ TWA; 50 ppm TWA 235 mg/m ³ STEL; 60 ppm STEL
Yukon:	100 ppm TWA; 375 mg/m ³ TWA 150 ppm STEL; 560 mg/m ³ STEL Skin notation

Engineering Controls

Ventilation should effectively remove and prevent buildup of any vapor or mist generated from the handling of this product.

PERSONAL PROTECTIVE EQUIPMENT

Personal Protective Equipment: Eyes/Face

Wear chemical goggles; face shield (if splashing is possible).

Personal Protective Equipment: Skin

Wear protective gloves and chemical resistant protective clothing.

Personal Protective Equipment: Respiratory

If ventilation is not sufficient to effectively prevent buildup of aerosols or mists, appropriate NIOSH approved respiratory protection must be provided. Use respiratory protection in accordance with your company's respiratory protection program, local regulations or OSHA regulations under 29 CFR 1910.134.

Personal Protective Equipment: General

Eye wash fountain and emergency showers are recommended.

* * * **Section 9 - Physical & Chemical Properties** * * *

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Appearance: Colorless liquid
Physical State: Liquid
Vapor Pressure: 1.6mm @20°C (68°F) (2-Heptanone)
Boiling Point: 151.5°C (304°F) (2-Heptanone)
Solubility (H2O): 4.3g/L (20°C) (68°F) (2-Heptanone)
Flash Point: 39°C (104°F) (2-Heptanone)
Auto Ignition: 393°C (739°F) (2-Heptanone)
UFL: Not available

Odor: Fruity
pH: Not applicable
Vapor Density: 3.9 (2-Heptanone)
Melting Point: -35°C (-31°F) (2-Heptanone)
Specific Gravity: 0.817 (2-Heptanone)
Flash Point Method: Not applicable
LFL: Not available

*** Section 10 - Chemical Stability & Reactivity Information ***

Chemical Stability

This product is stable under normal temperatures and pressures.

Conditions to Avoid

Avoid heat, ignition sources, oxidizing agents, strong acids, strong bases.

Incompatibility

May react with strong oxidizing agents, halogens, acids, or bases.

Hazardous Decomposition

Decomposition products include CO, CO₂, low molecular weight hydrocarbons.

Hazardous Polymerization

Hazardous polymerization will not occur.

*** Section 11 - Toxicological Information ***

Acute and Chronic Toxicity

A: General Product Information

No toxicity studies have been conducted on this product. As with all chemicals for which test data are limited or do not exist, caution must be exercised through the prudent use of protective equipment and handling procedures to minimize exposure.

This product may cause irritation to the respiratory system. Excessive inhalation of this material causes headache, dizziness, nausea and incoordination. May be harmful if absorbed through the skin. Small amounts of this product, if aspirated into the lungs, may cause mild to severe pulmonary injury. May cause skin sensitization.

Exposure to toluene has been associated with headache, nausea, lightheadedness loss of coordination, memory loss, loss of appetite, enlargement of the liver, and blood effects, as well as cardiac effects.

B: Component Analysis - LD50/LC50

2-Heptanone (110-43-0)

Test & Species	Data
Oral LD50 Rat	1670 mg/kg
Dermal LD50 Rabbit	12600 µL/kg

Toluene (108-88-3)

Test & Species	Data
Inhalation LC50 Rat	12.5 mg/L/4H
Inhalation LC50 Rat	>26700 ppm/1H
Oral LD50 Rat	636 mg/kg
Dermal LD50 Rabbit	8390 mg/kg

Carcinogenicity

A: General Product Information

No information available for the product.

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B: Component Carcinogenicity

Toluene (108-88-3)

ACGIH: A4 - Not Classifiable as a Human Carcinogen

IARC: Monograph 71, 1999; Monograph 47, 1989 (Group 3 (not classifiable))

Chronic Toxicity

No information available for the product.

Teratogenicity

Intentional misuse of toluene has resulted in reproductive effects including physical and developmental abnormalities, such as low birth weight and microencephaly, and have been referred to as fetal toluene syndrome.

* * * Section 12 - Ecological Information * * *

Ecotoxicity

A: General Product Information

No ecotoxicity testing has been conducted on this product.

B: Component Analysis

2-Heptanone (110-43-0)

Environmental: If released to soil, calculated soil adsorption coefficients ranging from 44-285 indicate that 2-heptanone may display moderate to high mobility and it has the potential to leach into groundwater. Heptanone has the potential to biodegrade in soil. If released to water, 2-heptanone is expected to rapidly volatilize to the atmosphere. The half-life for volatilization from a model river 1 m deep, flowing at 1 m/sec with a wind speed of 3 m/sec is 8.4hr.

Physical: If released to the atmosphere, 2-heptanone is expected to undergo a gas-phase reaction with photochemically produced hydroxyl radicals; the estimated half-life for this process is 1.9days.

Other: 2-Heptanone had a theoretical biological oxygen demand (BOD) of 1.4%, 2.4% and 4.8% after 6, 12 and 24 hr, respectively, when incubated with a activated sludge seed at an initial concentration of 500 ppm. 2-Heptanone underwent a 5 day theoretical BOD of 44%. In a screening study using a sewage seed, 2-heptanone had a 10 day BOD of 0.50 g/g.

C: Component Analysis - Ecotoxicity - Aquatic Toxicity

2-Heptanone (110-43-0)

Test & Species	Data	Conditions
96 Hr LC50 Pimephales promelas	131.0 mg/L	flow-through

Toluene (108-88-3)

Test & Species	Data	Conditions
96 Hr LC50 Pimephales promelas	25 mg/L	1 day old
96 Hr LC50 Oncorhynchus mykiss	24.0 mg/L	static
96 Hr LC50 Lepomis macrochirus	24.0 mg/L	static
96 Hr LC50 Lepomis macrochirus	13 mg/L	static
96 Hr EC50 Selenastrum capricornutum	>433 mg/L	
30 min EC50 Photobacterium phosphoreum	19.7 mg/L	
48 Hr EC50 water flea	11.3 mg/L	
48 Hr EC50 water flea	310 mg/L	
48 Hr EC50 Daphnia magna	11.3 mg/L	

Environmental Fate

No ecological testing has been conducted on this product.

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*** Section 13 - Disposal Considerations ***

US EPA Waste Number & Descriptions

If discarded, this product is considered a RCRA ignitable waste, D001. Wastes must be tested using methods described in 40 CFR Part 261 to determine if it meets applicable definitions of hazardous wastes.

Disposal Instructions

Dispose of waste material according to Local, State, Federal, and Provincial Environmental Regulations. Liquids cannot be disposed of in a landfill. Liquids cannot be disposed of in a landfill.

*** Section 14 - Transportation Information ***

US DOT Information

Shipping Name: Flammable Liquid, n.o.s (2-Heptanone, Toluene)

UN/NA #: UN1993 **Hazard Class:** 3 **Packing Group:** III

Required Label(s): FLAMMABLE LIQUID

Additional Info.: NOTE: For US ground transportation for non-bulk shipment (less than 119 gallons (450L)), this product can be re-classified as Not Regulated.

TDG Information

Shipping Name: Flammable Liquid, n.o.s (2-Heptanone, Toluene)

UN/NA #: UN1993 **Hazard Class:** 3 **Packing Group:** III

Required Label(s): FLAMMABLE LIQUID

ICAO Information

Shipping Name: Flammable Liquid, n.o.s (2-Heptanone, Toluene)

UN #: UN1993 **Hazard Class:** 3 **Packing Group:** III

Required Label(s): FLAMMABLE LIQUID

IATA Information

Shipping Name: Flammable Liquid, n.o.s (2-Heptanone, Toluene)

UN #: UN1993 **Hazard Class:** 3 **Packing Group:** III

Required Label(s): FLAMMABLE LIQUID

ADR Information

Shipping Name: Flammable Liquid, n.o.s (2-Heptanone, Toluene)

UN #: UN1993 **Hazard Class:** 3 **Packing Group:** III

Required Label(s): FLAMMABLE LIQUID

RID Information

Shipping Name: Flammable Liquid, n.o.s (2-Heptanone, Toluene)

UN #: UN1993 **Hazard Class:** 3 **Packing Group:** III

Required Label(s): FLAMMABLE LIQUID

IMDG Information

Shipping Name: Flammable Liquid, n.o.s (2-Heptanone, Toluene)

UN #: UN1993 **Hazard Class:** 3 **Packing Group:** III

Required Label(s): FLAMMABLE LIQUID

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*** Section 15 - Regulatory Information ***

Additional Regulatory Information

A: General Product Information

No additional information available.

B: Component Analysis - Inventory

Component	CAS #	TSCA	Canada	EU	METI
2-Heptanone	110-43-0	Yes	DSL	EINECS	Yes
Toluene	108-88-3	Yes	DSL	EINECS	Yes

US Federal Regulations

A: General Product Information

The cyclic olefin polymer in this product meets the requirements of the TSCA Polymer Exemption.

B: Component Analysis

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).

Toluene (108-88-3)

SARA 313: 1.0 % de minimis concentration

CERCLA: 1000 lb final RQ; 454 kg final RQ

SARA 311/312 - Acute Health: Yes **Chronic Health:** Yes **Fire:** Yes **Pressure:** No **Reactive:** No

State Regulations

A: General Product Information

Other state regulations may apply. Check individual state requirements.

B: Component Analysis - State

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA	RI
2-Heptanone	110-43-0	Yes	Yes	Yes	Yes	Yes	Yes
Toluene	108-88-3	Yes	Yes	Yes	Yes	Yes	Yes

The following statement(s) are provided under the California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):

WARNING! This product contains a chemical known to the state of California to cause reproductive/developmental effects.

*** Section 16 - Other Information ***

Other Information

Reasonable care has been taken in the preparation of this information, but the manufacturer makes no warranty of merchantability or any other warranty, expressed or implied, with respect to this information. The manufacturer makes no representations and assumes no liability for any direct, incidental or consequential damages resulting from its use.

This bulletin cannot cover all possible situations which the user may experience during processing. Each aspect of your operation should be examined to determine if, or where, additional precautions may be necessary. All health and safety information contained in this bulletin should be provided to your employees or customers. It is your responsibility to develop appropriate work practice guidelines and employee instructional programs for your operation.

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Key/Legend

ACGIH: American Conference of Governmental Industrial Hygienists

A1: Confirmed human carcinogen

A2: Suspected human carcinogen

A3: Animal carcinogen

DSL: Canadian Domestic Substances List

CAS No: Chemical Abstract Service Registry Number

EEC: European Economic Community

IARC: International Agency for Research on Cancer

Group1: Carcinogenic to humans

Group2A: Probably carcinogenic to humans

Group2B: Possibly carcinogenic to humans

Group3: Unclassifiable as a carcinogen to humans

JSOH: Japan Society for Occupational Health

LVE: Low Volume Exemption

METI: Ministry of Environment, Trade, and Industry

MSHA: Mine Safety and Health Administration

NIOSH: National Institute for Occupational Safety and Health

NDSL: Non-Domestic Substances List

NTP: National Toxicology Program

N/A: Not Applicable

N/E: None Established

OSHA: Occupational Safety and Health Administration

PEL: Permissible Exposure Limit

PNOC: Particulates Not Otherwise Classified

RTK: Right To Know

STEL: Short Term Exposure Limit (15 minute Time Weighted Average)

TLV: Threshold Limit Value

C: Ceiling limit

S: Skin notation refers to the potential significant contribution to the overall exposure by the cutaneous route including mucous membranes and the eyes and by direct skin contact with the substance

WEEL: Workplace Environmental Exposure Level

WHMIS: Canadian Workplace Hazardous Materials Information System