

1. IDENTIFICATION**Product identifier****Product Name** Charmor™ PT40**Chemical Name** Pentaerythritol
CAS No 115-77-5**Other means of identification****Synonyms** 2,2-Bis(hydroxymethyl)1,3-propanediol**Pure substance/mixture** Substance**Recommended use of the chemical and restrictions on use****Application** Chemical intermediate**Uses advised against** Not identified.**Details of the supplier of the safety data sheet****Manufacturer Address****Perstorp Specialty Chemicals AB**
SE-284 80 Perstorp, Sweden
Tel. +46 435 380 00
www.perstorp.com**Supplier Address****Perstorp Polyols, Inc.**
600 Matzinger Road
Toledo, Ohio 43612
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www.perstorp.com**Perstorp Chemicals GmbH**Postfach 1409/1410
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www.perstorp.com**E-mail address** productinfo@perstorp.com**Emergency telephone number****USA** (+)1 866 519 4752 (contract no: 334101)**2. HAZARDS IDENTIFICATION****Classification of the substance or mixture**This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)
Combustible dust**Label elements****Symbols/Pictograms**
Not applicable**Signal word**

Warning

Hazard statements

May form combustible dust concentrations in air

Precautionary Statements

Not applicable

Supplemental information

Keep away from all ignition sources including heat, sparks and flame.

Big Bags: Keep container closed and grounded. Bags: Keep closed when not in use.
Prevent dust accumulations to minimize explosion hazard.

Hazards not otherwise classified (HNOC)

Other hazards
None known

Unknown Acute Toxicity
Not applicable

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance

Chemical Name	CAS No	Weight-%
Pentaerythritol	115-77-5	>80

4. FIRST AID MEASURES

Description of first aid measures

Inhalation	First aid measures not required, but get fresh air for personal comfort.
Skin contact	First aid measures not required, but wash exposed skin with soap and water for hygienic reasons.
Eye contact	First aid measures not required, but rinse opened eye under running water for personal comfort to avoid mechanical irritation.
Ingestion	If a large quantity has been ingested or if you feel unwell, get medical advice/attention.

Most important symptoms and effects, both acute and delayed

None known.

Indication of any immediate medical attention and special treatment needed

Treat symptomatically

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media

Water with full jet as this can form a dust cloud.

Specific hazards arising from the chemical

Hazardous combustion products

Carbon monoxide (CO). Carbon dioxide (CO₂).

Protective equipment and precautions for firefighters

No special protective equipment required.

Additional information

Fine dust dispersed in air, in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions

Important: Remove all ignition sources. Avoid further dust formation. If dusty conditions wear respiratory protective device with

dust filter, gloves and protective clothing for hygienic reasons. Ensure adequate ventilation, especially in confined areas.

Environmental precautions

Do not allow into any sewer, on the ground or into any body of water. See Section 12 for additional ecological information.

Methods and material for containment and cleaning up

Methods for containment

Cover to prevent dust formation. Take up mechanically, placing in appropriate containers for disposal. Use spark-proof tools and explosion-proof equipment.

Methods for cleaning up

Clean contaminated surface thoroughly Use personal protective equipment as required Cover powder spill with plastic sheet or tarp to minimize spreading and keep powder dry Take up mechanically, placing in appropriate containers for disposal Avoid creating dust

Reference to other sections

See Section 7, 8, 13 for more information.

7. HANDLING AND STORAGE

Precautions for safe handling

Do not inhale dust. Avoid generation of dust. Dust can form an explosive mixture with air. Any unavoidable deposit of dust must be regularly removed. Ensure good ventilation at the work station. Keep away from heat, sparks, flame and other sources of ignition (i.e., pilot lights, electric motors and static electricity). Use spark-proof tools and explosion-proof equipment. Comply with the legislation concerning equipment and protective systems intended for use in potentially explosive atmospheres. For additional information, see Perstorp Technical Information – Leaflet TI 0185.

Conditions for safe storage, including any incompatibilities

Keep/store only in original container. Any unavoidable deposit of dust must be regularly removed.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines

Users are advised to consider national Occupational Exposure Limits or other equivalent values.

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Pentaerythritol 115-77-5	TWA: 10 mg/m ³	TWA: 15 mg/m ³ total dust TWA: 5 mg/m ³ respirable fraction (vacated) TWA: 10 mg/m ³ total dust (vacated) TWA: 5 mg/m ³ respirable fraction	Not available

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Particulates not otherwise classified (PNOC)	TWA: 10 mg/m ³ inhalable particles, recommended TWA: 3 mg/m ³ respirable particles, recommended	TWA: 15 mg/m ³ total dust TWA: 5 mg/m ³ respirable fraction (vacated) TWA: 15 mg/m ³ total dust (vacated) TWA: 5 mg/m ³ respirable fraction TWA: 15 mppcf respirable fraction TWA: 50 mppcf total dust	Not available

Appropriate engineering controls

Comply with the legislation concerning equipment and protective systems intended for use in potentially explosive atmospheres.

Ensure adequate ventilation, especially in confined areas

Individual protection measures, such as personal protective equipment

Eye/face protection	Wear safety glasses with side shields (or goggles).
Hand Protection	Protective gloves not really required. However, we recommend using protective gloves made of rubber. Chloroprene rubber, CR. Nitrile rubber, NBR.
Skin and body protection	Normal work clothes for the chemical industry (long-legged pants and sleeves).
Respiratory protection	Wear respiratory device with dust filter (minimum N95) in case of insufficient ventilation.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance

powder
crystalline
white

Odor

Slight

Odor threshold

Not applicable

Property

Value

Remarks • Method

pH

4 - 7

@ 20 °C

Melting point / freezing point

258 °C / 496 °F

OECD 102

Boiling point / boiling range

369 °C / 696 °F

ASTM E 537-02

Flash point

> 260 °C / > 500 °F

Evaporation rate

No information available

Flammability (solid, gas)

Not flammable

Explosive limits

No information available

Upper explosive limits

Lower explosive limits

30 g/m³

Vapor pressure

0.000015 Pa

@25°C; SPARC

Vapor density

No information available

Relative density

No information available

Water solubility

62 g/L

@ 20 °C OECD Test No. 105: Water Solubility

Solubility(ies)

No information available

Partition coefficient

-1.7

log POW (OECD 107) Partition Coefficient
(n-octanol/water)

Autoignition temperature

> 400 °C / 752 °F

EU method A16

Decomposition temperature

No information available

Kinematic viscosity

No information available

Dynamic viscosity

No information available

Explosive properties

Not explosive. May form explosive mixtures with air

Oxidizing properties

Not oxidizing.

Density

1.37 g/cm³

@20°C, ISO 1183-1

Bulk density

800 kg/m³

@20°C, ASTM D 1895-96

Other Information

Explosion properties are highly dependent on particle size. For additional information, see Perstorp Technical Information – Leaflet TI 0185.

The physical data apply to: Pentaerythritol mono

10. STABILITY AND REACTIVITY

Reactivity

There exists no specific test data for this product. For further information, see the subsequent subsections of this chapter.

Chemical stability

Stable under normal conditions.

Possibility of Hazardous Reactions

Fine dust dispersed in air, in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard

Conditions to avoid

Risk for dust explosion, avoid handling which can create static electrical discharges.

Incompatible materials

None known.

Hazardous decomposition products

None known.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Inhalation. Dermal.

Symptoms related to the physical, chemical and toxicological characteristics

None known.

Numerical measures of toxicity**Acute toxicity**

Product does not present an acute toxicity hazard based on known or supplied information.

Pentaerythritol (115-77-5)				
Method	Species	Exposure route	Effective dose	Remarks
OECD Test No. 401: Acute Oral Toxicity	Rat	Oral	5110	LD0 mg/kg
Not defined	Mouse	Oral	25500	LD50 (lethal dose) mg/kg
OECD Test No. 402: Acute Dermal Toxicity	rabbit	Dermal	>10000	LD50 (lethal dose) mg/kg
Not defined	rabbit	Inhalation	11000	LC0 mg/m ³ 6h
OECD Test No. 403: Acute Inhalation Toxicity	Rat	Inhalation	>5.15	LC50 mg/l 4h

Skin corrosion/irritation

Non-irritating to the skin.

Pentaerythritol (115-77-5)			
Method	Species	Exposure route	Results:
OECD Test No. 404: Acute Dermal Irritation/Corrosion	rabbit	Dermal	Non-irritating to the skin

Serious eye damage/eye irritation

Non-irritant.

Pentaerythritol (115-77-5)			
Method	Species	Exposure route	Results:
OECD Test No. 405: Acute Eye Irritation/Corrosion	rabbit	Eye	Non-irritant

Respiratory or skin sensitization

No sensitising effects known.

Pentaerythritol (115-77-5)			
Method	Species	Exposure route	Results:
OECD Test No. 429: Skin Sensitization: Local Lymph Node Assay	Mouse	Skin	Not a skin sensitizer

Germ cell mutagenicity

Not mutagenic.

Pentaerythritol (115-77-5)			
Method	Species	Exposure route	Results:
OECD Test No. 471: Bacterial Reverse Mutation Test	in vitro		Negative
OECD Test No. 473: In vitro Mammalian Chromosome Aberration Test	in vitro		Negative
OECD Test No. 476: In vitro Mammalian Cell	in vitro		Negative

Gene Mutation Test		
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Carcinogenicity

There is no indication for any carcinogenic potential since all in vitro mutagenicity studies are negative.

Reproductive toxicity

No indication of reproductive toxicity according to OECD guideline 422 screening test.

Pentaerythritol (115-77-5)				
Method	Species	Exposure route	Effective dose	Remarks
OECD Test No. 422: Combined Repeated Dose Toxicity Study with the Reproduction/Developmental Toxicity Screening Test	Rat	Oral	1000	NOAEL mg/kg bw/day (P1)
OECD Test No. 422: Combined Repeated Dose Toxicity Study with the Reproduction/Developmental Toxicity Screening Test	Rat	Oral	1000	NOAEL mg/kg bw/day (F1)
OECD Test No. 414: Prenatal Development Toxicity Study	Rat	Oral	1000	NOEL (No observed effect level) mg/kg bw/day (P1+F1)

STOT - single exposure

No known effect.

STOT - repeated exposure

Pentaerythritol (115-77-5)				
Method	Species	Exposure route	Effective dose	Remarks
OECD Test No. 422: Combined Repeated Dose Toxicity Study with the Reproduction/Developmental Toxicity Screening Test	Rat	Oral	100	NOAEL mg/kg bw/day
OECD Test No. 407: Repeated Dose 28-day Oral Toxicity Study in Rodents	Rat	Oral	1000	NOAEL mg/kg bw/day
OECD Test No. 408: Repeated Dose 90-Day Oral Toxicity Study in Rodents	Rat	Oral	1000	NOAEL mg/kg bw/day

Aspiration hazard

Not applicable.

12. ECOLOGICAL INFORMATION**Toxicity**

Low toxicity to aquatic organisms.

Pentaerythritol (115-77-5)					
Method	Species	Exposure route	Effective dose	Exposure time	Remarks
OECD Test No. 203: Fish, Acute Toxicity Test	Oryzias latipes (Ricefish)	Freshwater	>100	96h	LC50 (lethal concentration) mg/l
OECD Test No. 202: Daphnia sp., Acute Immobilization Test	Daphnia magna	Freshwater	>1000	24h	EC50 (effective concentration) mg/l
OECD Test No. 201: Freshwater Alga and Cyanobacteria, Growth Inhibition Test	Pseudokirchneriella subcapitata	Freshwater	>1000	72h	EC50 (effective concentration) mg/l

OECD Test No. 211: Daphnia magna Reproduction Test	Daphnia magna	Freshwater	1000	21d	NOEC mg/l
OECD Test No. 209: Activated Sludge, Respiration Inhibition Test (Carbon and Ammonium Oxidation)	Bacteria toxicity		>1000	3h	EC50 (effective concentration) mg/l
OECD Test No. 201: Freshwater Alga and Cyanobacteria, Growth Inhibition Test	Pseudokirchneriella subcapitata	Freshwater	1000	72h	NOEC mg/l

Persistence and degradability

Readily biodegradable

Pentaerythritol (115-77-5)			
Method	Value	Exposure time	Results:
OECD Test No. 301E: Ready Biodegradability: Modified OECD Screening Test (TG 301 E)	99%	28d	Readily biodegradable
OECD 310	83.7%	28d	Readily biodegradable
	1380		COD (mg/g)
	1300		TOD (mg/g)

Bioaccumulative potential

Based on the partition coefficients of the ingredients the product is not expected to bioaccumulate in organisms.

Chemical Name	Partition coefficient	Bioconcentration factor (BCF)
Pentaerythritol	-1.7	

Mobility in soil

The substance is not expected to adsorb to a high degree to suspended solids and sediment based upon the log Pow.

Other adverse effects

None known.

13. DISPOSAL CONSIDERATIONS

Disposal methods

Disposal should be in accordance with applicable regional, national and local laws and regulations. Incinerate at a licensed installation.

Contaminated packaging

Thoroughly emptied and clean packaging may be recycled.

14. TRANSPORT INFORMATION

DOT Road transport	Not regulated
RID Rail transport	Not regulated
IMDG Sea transport	Not regulated
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	No information available
IATA Air transport	Not regulated

15. REGULATORY INFORMATION**Safety, health and environmental regulations/legislation specific for the substance or mixture****International Regulations**

Not applicable.

US Federal Regulations**SARA 313**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

CWA (Clean Water Act)

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

TSCA Inventory

Listed and active in the TSCA registry.

US State Regulations**California Proposition 65**

This product does not contain any Proposition 65 chemicals

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Pentaerythritol 115-77-5	X	X	X

Other regulations, restrictions and prohibition regulations

Comply with the legislation concerning equipment and protective systems intended for use in potentially explosive atmospheres.

16. OTHER INFORMATION, INCLUDING DATE OF PREPARATION OF THE LAST REVISION

NFPA	Health hazards 1	Flammability 3	Instability 0	Physical and Chemical Properties *
HMIS	Health hazards 1	Flammability 3	Physical hazards 0	Personal protection X

Key or legend to abbreviations and acronyms used in the safety data sheet

Not applicable

Issue Date 08-Jan-2019

Revision Date 08-Jan-2019

Revision Note SDS sections updated: 8 NIOSH IDLH, Respiratory protection, 11 OECD Test No. 408: Repeated Dose 90-Day Oral Toxicity Study in Rodents, 15

This safety data sheet complies with the requirements of: OSHA Hazard Communication Standard (29 CFR 1910.1200).

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet