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Revision number 5

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****Supplier Address****Perstorp Specialty Chemicals AB**
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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)

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 have 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 Directive 94/9/EC concerning equipment and protective systems intended for use in potentially explosive atmospheres and, Directive 1999/92/EC regarding minimum requirements for improving the safety and health protection of workers potentially at risk from 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

Appropriate engineering controls

Comply with Directive 94/9/EC concerning equipment and protective systems intended for use in potentially explosive atmospheres and, Directive 1999/92/EC regarding minimum requirements for improving the safety and health protection of workers potentially at risk from 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 legs and sleeves).
Respiratory protection	Wear respiratory device with dust filter (P2) in case of insufficient ventilation.

9. PHYSICAL AND CHEMICAL PROPERTIES**Information on basic physical and chemical properties**

Appearance	
Physical state	Powder
Appearance	Crystalline
Color	White
Odor	Slight
Odor threshold	Not applicable

Property	Values	Remarks • Method
pH	4 - 7	@ 20 °C
Melting point / freezing point	258 °C / 496 °F	OECD 102
Initial boiling point and boiling range	369 °C / 696 °F	ASTM E 537-02
Flash point	> 260 °C / > 500 °F	
Evaporation rate		No information available
Flammability		Not flammable
Flammability limit in air		
Upper flammability or explosive limits		No information available
Lower flammability or explosive limits	30 g/m ³	
Vapor pressure	0.000015 Pa	@25°C; SPARC
Relative vapor density		No information available
Specific gravity		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.	
Liquid density	1.37 g/cm ³	@20°C, ISO 1183-1
Bulk density	800 kg/m ³	@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

Most important symptoms and effects, both acute and delayed

None known

Numerical measures of toxicity

ATEmix (oral)	5,094.50 mg/kg
ATEmix (dermal)	10,000.00 mg/kg
Unknown acute toxicity	Not applicable

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	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

Since all in vitro mutagenicity studies are negative, there is no hint for any carcinogenic potential.

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)
OECD Test No. 443	Rat	Oral	1000	NOAEL; mg/kg bw/day; Systemic Toxicity, Reproductive toxicity
OECD Test No. 414: Prenatal Development Toxicity Study	rabbit	Oral	1000	NOAEL: mg/kg bw/day.

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.

0% of the mixture consists of component(s) of unknown hazards to the aquatic environment

Pentaerythritol (115-77-5)					
Method	Species	Exposure route	Effective dose	Exposure time	Remarks
OECD Test No. 203: Fish,	Oryzias latipes	Freshwater	>100	96h	LC50 (lethal

Acute Toxicity Test	(Ricefish)				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 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

Waste from residues/unused products

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 Directive 94/9/EC concerning equipment and protective systems intended for use in potentially explosive atmospheres and, Directive 1999/92/EC regarding minimum requirements for improving the safety and health protection of workers potentially at risk from explosive atmospheres.

16. OTHER INFORMATION

NFPA	Health hazards 1	Flammability 3	Instability 0	Special hazards *
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

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Revision note The SDS has been reviewed but no relevant changes found

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