

SAFETY DATA SHEET



Trimethylolpropane flake
10690

Version / Revision 2 .00***
Supersedes Version 1 .00***

Revision Date 15-May-2015
Issuing date 15-May-2015

SECTION 1: Identification

1.1. Product identifier

Identification of the
substance/preparation

Trimethylolpropane flake

CAS-No 77-99-6***

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the Substance /
Preparation Intermediate
Monomer

1.3. Details of the supplier of the safety data sheet

Supplier **OXEA Corporation**
1505 West LBJ Freeway, Suite 400
Dallas, TX 75234
USA
Phone: +1 972 481 2700

Product Information Product Stewardship
FAX: +49 (0)208 693 2053
email: psq@oxea-chemicals.com

1.4. Emergency telephone number

Emergency telephone number in USA, call 800 424 9300
outside USA, call 703 527 3887, collect calls accepted
available 24/7***

SECTION 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).***

OSHA Specified Hazards .***
Combustible dust***

2.2. Label elements

Signal word **Warning*****

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Hazard statements May form combustible dust concentrations in air.***

2.3. Other hazards

None known

SECTION 3: Composition/information on ingredients

3.1. Substances

Component	CAS-No	Concentration (%)
Trimethylolpropane (TMP)	77-99-6	> 98,0

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation

Keep at rest. 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. Remove contact lenses. Immediate medical attention is required.

Skin

Wash off immediately with plenty of water. When symptoms persist or in all cases of doubt seek medical advice.

Ingestion

Call a physician immediately. Do not induce vomiting without medical advice.

4.2. Most important symptoms and effects, both acute and delayed

Main symptoms

cough.

Special hazard

Lung irritation.

4.3. Indication of any immediate medical attention and special treatment needed

General advice

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

Treat symptomatically. If ingested, irrigate the stomach using activated charcoal.

SECTION 5: Firefighting measures

5.1. Extinguishing media

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Suitable extinguishing media

foam, dry chemical, carbon dioxide (CO₂), water spray

Extinguishing media which must not be used for safety reasons

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

5.2. Special hazards arising from the substance or mixture

Under conditions giving incomplete combustion, hazardous gases produced may consist of:
carbon monoxide (CO)
carbon dioxide (CO₂)
Combustion gases of organic materials must in principle be graded as inhalation poisons
Dust can form an explosive mixture in air

5.3. Advice for firefighters

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 containers / tanks with water spray. Dike and collect water used to fight fire. Keep people away from and upwind of fire.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Avoid contact with skin and eyes. Do not breathe dust. Keep people away from and upwind of spill/leak. Ensure adequate ventilation, especially in confined areas. Keep away from heat and sources of ignition.
For emergency responders: Personal protection see section 8.

6.2. Environmental precautions

Prevent further leakage or spillage. Do not discharge product into the aquatic environment without pretreatment (biological treatment plant).

6.3. Methods and material for containment and cleaning up

Methods for containment

Stop the flow of material, if possible without risk. Dike spilled material, where this is possible.

Methods for cleaning up

Use mechanical handling equipment. Keep in suitable, closed containers for disposal. Dispose of in accordance with local regulations. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapours).

6.4. Reference to other sections

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For personal protective equipment see section 8.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

Avoid dust formation. Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product. Provide sufficient air exchange and/or exhaust in work rooms.

Hygiene measures

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

Advice on the protection of the environment

See Section 8: Environmental exposure controls.

Incompatible products

strong oxidizing agents

7.2. Conditions for safe storage, including any incompatibilities

Advice on protection against fire and explosion

Risk of dust explosion in fine crystalline powder form. Dust can form an explosive mixture in air. Keep away from sources of ignition - No smoking. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapours). In case of fire, emergency cooling with water spray should be available. Ground and bond containers when transferring material.

Technical measures/Storage conditions

Keep containers tightly closed in a cool, well-ventilated place. Handle and open container with care. Protect from moisture.

Unsuitable material

None known***

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure limits United States of America

US ACGIH

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

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Dust, general threshold limit value (inhalable fraction) CAS: None	10			
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US OSHA Z-1

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

Note

For details and further information please refer to the original regulation.

8.2. Exposure controls

Appropriate Engineering controls

General or dilution ventilation is frequently insufficient as the sole means of controlling employee exposure. Local ventilation is usually preferred. Explosion-proof equipment (for example fans, switches, and grounded ducts) should be used in mechanical ventilation systems.

Individual protection measures, such as 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

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

Eye protection

Tightly fitting safety goggles.

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 nitrile rubber
Evaluation according to EN 374: level 6
Glove thickness approx 0,55 mm
Break through time > 480 min

Suitable material polyvinylchloride / nitrile rubber
Evaluation according to EN 374: level 6
Glove thickness approx 0,9 mm
Break through time > 480 min

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Skin and body protection

Impervious clothing. Wear face-shield and protective suit for abnormal processing problems.

Respiratory protection

Respirator with a particle filter (P1). Use the indicated respiratory protection if the occupational exposure limit is exceeded and/or in case of product release (dust). Equipment should conform to NIOSH.

Environmental exposure controls

If possible use in closed systems. If leakage can not be prevented, the substance needs to be suck off at the emersion point, if possible without danger. Observe the exposure limits, clean exhaust air if needed. If recycling is not practicable, dispose of in compliance with local regulations. Inform the responsible authorities in case of leakage into the atmosphere, or of entry into waterways, soil or drains.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	Flakes wax like				
Colour	white				
Odour	odourless				
Odour threshold	No data available				
pH	5,6 @ 25 °C (77 °F)				
Melting point/range	136 °F (58 °C)				
Boiling point/range	579 °F (304 °C) @ 1 atm (101,3 kPa)				
Flash point	300 - 356 °F (149 - 180 °C)				
Evaporation rate	No data available				
Flammability (solid, gas)	Does not apply, the substance is a liquid				
Lower explosion limit	2 Vol %				
Upper explosion limit	11,8 Vol %				
Vapour pressure	***				
Values	Values	Values	@ °C	@ °F	Method
[hPa]	[kPa]	[atm]			
< 0,001***	< 0,0001	< 0,0001	20	68	
Vapour density	4,63 (Air = 1) @ 20 °C (68 °F)				
Relative density	***				
Values	@ °C	@ °F	Method		
1,084 - 1,09***	20	68			
Solubility	No data available				
Water solubility	100 - 1000 g/l @ 68 °F (20 °C)***				
log Pow	-0,47 (measured)				
Autoignition temperature	~ 707 °F (~ 375 °C)				
Method	DIN 51794				
Decomposition temperature	No data available				
Viscosity	No data available				

9.2. Other information

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Molecular weight 134,17
Molecular formula C6 H14 O3
Oxidizing properties Does not apply, substance is not oxidising. There are no chemical groups associated with oxidizing properties
Explosive properties Does not apply, substance is not explosive. There are no chemical groups associated with explosive properties
hygroscopic.

SECTION 10: Stability and reactivity

10.1. 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.

10.2. Chemical stability

Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions

Dust can form an explosive mixture in air.

10.4. Conditions to avoid

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

10.5. Incompatible materials

strong oxidizing agents.

10.6. Hazardous decomposition products

No decomposition if stored and applied as directed.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Likely routes of exposure Ingestion, Inhalation, Eye contact, Skin contact***

Trimethylolpropane (TMP), CAS: 77-99-6

Main symptoms

cough.

Target Organ Systemic Toxicant - Single exposure

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

Target Organ Systemic Toxicant - Repeated exposure

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

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Acute toxicity				
Trimethylolpropane (TMP) (77-99-6)				
Routes of Exposure	Endpoint	Values	Species	Method
Oral	LD50	~ 14700 mg/kg***	rat, male***	OECD 401
Dermal	LD50***	> 10000 mg/kg***	rabbit	OECD 402
Inhalative	LC50***	> 0,85 mg/l (4h)***	rat, male***	

Trimethylolpropane (TMP), CAS: 77-99-6

Assessment

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

Acute oral toxicity
Acute dermal toxicity
Acute inhalation toxicity
STOT SE***

Irritation and corrosion				
Trimethylolpropane (TMP) (77-99-6)				
Target Organ Effects	Species	Result	Method	
Skin	rabbit	No skin irritation		
Eyes	rabbit	No eye irritation		

Trimethylolpropane (TMP), CAS: 77-99-6

Assessment

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

skin irritation/corrosion
eye irritation/corrosion
For respiratory irritation, no data are available***

Sensitization				
Trimethylolpropane (TMP) (77-99-6)				
Target Organ Effects	Species	Evaluation	Method	
Skin***	mouse***	not sensitizing***	OECD 429***	

Trimethylolpropane (TMP), CAS: 77-99-6

Assessment

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

Skin sensitization
For respiratory sensitization, no data are available***

Subacute, subchronic and prolonged toxicity				
Trimethylolpropane (TMP) (77-99-6)				
Type	Dose	Species	Method	
Subchronic toxicity	NOAEL: ~ 67 mg/kg/d (90d)***	rat, male/female***		Oral

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Assessment

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

Carcinogenicity, Mutagenicity, Reproductive toxicity					
Trimethylolpropane (TMP) (77-99-6)					
Type	Dose	Species	Evaluation	Method	
Mutagenicity		Salmonella typhimurium	negative	OECD 471 (Ames)	In vitro study
Mutagenicity***		CHL ***	negative***	OECD 473 (Chromosomal Aberration)***	In vitro study***
Mutagenicity***		V79 cells, Chinese hamster***	negative***	OECD 476 (Mammalian Gene Mutation)***	In vitro study***
Developmental Toxicity***	NOAEL 800 mg/kg/d***	rat***		OECD 422, Oral***	Maternal toxicity, Developmental toxicity, Teratogenicity***
Reproductive toxicity***	NOAEL 800 mg/kg/d***	rat, parental***		OECD 422, Oral***	
Reproductive toxicity***	NOAEL 800 mg/kg/d***	rat, 1. Generation, male/female***		OECD 422, Oral***	

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CMR Classification

The available data on CMR properties are summarized in the table above. They do not indicate a classification into categories 1A or 1B***

Note

Handle in accordance with good industrial hygiene and safety practice. Further details on substance data can be found in the registration dossier under the following link: <http://apps.echa.europa.eu/registered/registered-sub.aspx>.***

SECTION 12: Ecological information

12.1. Toxicity

Acute aquatic toxicity			
Trimethylolpropane (TMP) (77-99-6)			
Species	Exposure time	Dose	Method
Daphnia magna (Water flea)	48h	EC50: 13000 mg/l	
Alburnus alburnus***	96h***	LC50: > 1000 mg/l***	DEV L8
Pseudokirchneriella subcapitata	72h	EC50: > 1000 mg/l***	
Activated sludge (domestic)***	3 h***	EC50: > 1000 mg/l***	

Long term toxicity

Trimethylolpropane (TMP) (77-99-6)			
Type	Species	Dose	Method

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Mortality***	Daphnia magna (Water flea)***	NOEC: > 1000 mg/l (21d)***		
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12.2. Persistence and degradability

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Biodegradation

6 % (28*** d), activated sludge, industrial, non-adapted, OECD 301 E.***

12.3. Bioaccumulative potential

log Pow -0,47 (measured)

12.4. Mobility in soil

Trimethylolpropane (TMP), CAS: 77-99-6

No data available***

12.5 Other adverse effects

Trimethylolpropane (TMP), CAS: 77-99-6

No data available***

Note

Avoid release to the environment.

SECTION 13: Disposal considerations

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.

SECTION 14: Transport information

Section 14.1 - 14.6 ***

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

ICAO/IATA Not restricted

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IMDG

Not restricted

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code not applicable***

SECTION 15: Regulatory information

Federal and State Regulations

Components of the product are listed in the quoted regulations. For details please refer to the regulations directly. This list is not exhaustive, please check for other applicable regulations.

Federal Regulations

This product is listed on the TSCA inventory

Trimethylolpropane (TMP), CAS: 77-99-6
40CFR 63.100-.106, Table 1: Group I***

International Inventories

Trimethylolpropane (TMP), CAS: 77-99-6

AICS (AU)
DSL (CA)
IECSC (CN)
EC-No. 2010749 (EU)
ENCS (2)-245 (JP)
ISHL (2)-245 (JP)
KECI KE-13838 (KR)
INSQ (MX)***
PICCS (PH)
TSCA (US)
NZIoC-NZ May be used as single component chemical
TCSI (TW)***

SECTION 16: Other information

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Hazard Rating Systems

NFPA (National Fire Protection Association)

Health Hazard 1
Fire Hazard 1
Reactivity 0

HMIS (Hazardous Material Information System)

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Flammability	1
Physical Hazard	0

Training advice

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

Sources of key data used to compile the datasheet

Information contained in this safety data sheet is based on Oxea owned data and public sources deemed valid or acceptable. The absence of data elements required by ANSI or Annex II, Regulation 1907/2006/EC indicates, that no data meeting these requirements is available.

Further information for the safety data sheet

Changes against the previous version are marked by ***. Observe national and local legal requirements. For more information, other material safety data sheets or technical data sheets please consult the Oxea homepage (www.oxea-chemicals.com).***

Disclaimer

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End of Safety Data Sheet