

SAFETY DATA SHEET



Trimethylolpropane flake
10690

Version / Revision 2
Supersedes Version 1.00***

Revision Date 12-Nov-2020
Issuing date 12-Nov-2020

SECTION 1: Identification of the substance / mixture and of the company / undertaking

1.1. Product identifier

Identification of the
substance/preparation

Trimethylolpropane flake

CAS-No 77-99-6***
EC No. 201-074-9***

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

Use of the Substance /
Preparation Intermediate, Polymerization.***
Uses advised against None

1.3. Details of the supplier of the safety data sheet

Company/Undertaking
Identification **OQ Chemicals GmbH**
Rheinpromenade 4A
D-40789 Monheim
Germany

OQ Chemicals Corporation
15375 Memorial Drive
West Memorial Place I
Suite 300
Houston, TX 77079
USA***

Product Information Product Stewardship
FAX: +49 (0)208 693 2053
email: sc.psq@oq.com

1.4. Emergency telephone number

Emergency telephone number +44 (0) 1235 239 670 (UK) available 24/7***
NCEC +1 202 464 2554
Local emergency telephone
number +61 2 8014 4558 (Australia)
18000 74234 (Australia toll-free number)
+64 9 929 1483 (New Zealand)
0800 446 881 (New Zealand toll-free number)
+65 3158 1195 (Sri Lanka)
007 803 011 0293 (Indonesia toll-free number)
+60 3 6207 4347 (Malaysia)
001 800 120 666 751 (Thailand toll-free number)
+65 3158 1200 (Bangladesh)
+63 2 8231 2149 (Philippines)
+84 28 4458 2388 (Vietnam)

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+65 3165 2217 (Singapore)
available 24/7

SECTION 2: Hazards identification

Europe

2.1. Classification of the substance or mixture

This substance is classified based on Directive 1272/2008/EC and its amendments (CLP Regulation)**

Reproductive toxicity Category 2, H361***

Additional information

For full text of Hazard- and EU Hazard-statements see SECTION 16.***

2.2. Label elements

Labelling according to Regulation 1272/2008/EC and its amendments (CLP Regulation).***

Hazard pictograms



Signal word

Warning***

Hazard statements

H361fd: Suspected of damaging fertility. Suspected of damaging the unborn child.***

Precautionary statements

P201: Obtain special instructions before use.
P202: Do not handle until all safety precautions have been read and understood.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P308 + P313: IF exposed or concerned: Get medical advice/ attention.
P405: Store locked up.
P501: Dispose of contents/container in accordance with local regulation.***

2.3. Other hazards

Dust can form an explosive mixture in air

PBT and vPvB assessment

This substance is not considered to be persistent, bioaccumulating nor toxic (PBT), nor very persistent nor very bioaccumulating (vPvB)

USA

2.1. Classification of the substance or mixture

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

Reproductive toxicity Category 2, H361***

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

2.2. Label elements

Labeling according to §1910.1200 (GHS-US labeling).***

Hazard symbol(s) ***



Signal word

Warning***

Hazard statements

May form combustible dust concentrations in air.
H361fd: Suspected of damaging fertility. Suspected of damaging the unborn child.***

Precautionary statements

Prevention

P201: Obtain special instructions before use.
P202: Do not handle until all safety precautions have been read and understood.
P280: Wear protective gloves/protective clothing/eye protection/face protection.***

Response

P308 + P313: IF exposed or concerned: Get medical advice/ attention.***

Storage

P405: Store locked up.***

Disposal

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

2.3. Other hazards

None known

SECTION 3: Composition / information on ingredients

3.1. Substances

Component	CAS-No	REACH-No	1272/2008/EC	Concentration (%)
Trimethylolpropane (TMP)	77-99-6	01-2119486799-10** *	Repr. 2; H361fd***	> 98,0

SECTION 4: First aid measures

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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

Suitable extinguishing media

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

Unsuitable Extinguishing Media

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

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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

For non-emergency personnel: For personal protective equipment see section 8. 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

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. Handle product only in closed system or provide appropriate exhaust ventilation at machinery.***

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

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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***

Temperature class

T2

7.3. Specific end use(s)

Intermediate

Polymerization***

SECTION 8: Exposure controls / personal protection

8.1. Control parameters

Exposure limits European Union

No exposure limits established

Exposure limits Germany

TRGS 900

Component	AGW (mg/m ³)	AGW (ppm)	STEL factor Peak factor	Peak-limit category
Dust, general threshold limit value (respirable fraction) CAS: -	1,25***		***	***
Dust, general threshold limit value (inhalable fraction) CAS: -	10		2	II

MAK-values from the DFG

Component	MAK (ppm)	MAK (mg/m ³)	listed w/o limits	Ceiling limit value
Dust, general threshold limit value (respirable fraction) CAS: -		0,3***		II (8)***
Dust, general threshold limit value (inhalable fraction) CAS: -		4		
Component	H;S	carcinogenic category	pregnancy group	mutagenicity category
Dust, general threshold limit value (respirable fraction) CAS: -		4***	C***	

Note

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

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: -	3			
Dust, general threshold limit value (inhalable fraction) CAS: -	10			

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: -			5		
Dust, general threshold limit value (inhalable fraction) CAS: -			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.

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

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

Skin and body protection

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

Respiratory protection

Respirator with a dust filter. 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, EN or other applicable national standards.

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. 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	58 °C				
Boiling point/range	304 °C @ 1013 hPa				
Flash point	149 - 180 °C				
Evaporation rate	No data available				
Flammability (solid, gas)	No data available***				
Lower explosion limit	2 Vol %				
Upper explosion limit	11,8 Vol %				
Vapour pressure	***				
Values [hPa]	Values [kPa]	Values [atm]	@ °C	@ °F	Method
< 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	100 - 1000 g/l @ 20 °C, in water***				
log Pow	-0,47 (measured)				
Autoignition temperature	~ 375 °C				
Method	DIN 51794				
Decomposition temperature	No data available				
Viscosity	No data available				
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				

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9.2. Other information

Molecular weight 134,17
Molecular formula C6 H14 O3
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***

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

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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

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

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
Reproductive toxicity	NOAEL 800 mg/kg/d	rat, parental		OECD 422, Oral	in vivo***
Reproductive toxicity	NOAEL 800 mg/kg/d	rat, 1. Generation, male/female		OECD 422, Oral	in vivo***

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Reproductive toxicity***	NOAEL: 740 ppm***	rat rat, parental***		OECD 443 Oral***	in vivo***
Reproductive toxicity***	NOAEL: 2200 ppm***	rat, 1. Generation, male/female***		OECD 443 Oral***	in vivo***
Developmental Toxicity***	NOAEL 100 mg/kg/d***	rat***		OECD 414, Oral***	in vivo***
Developmental Toxicity***	NOAEL 100 mg/kg/d***	rabbit***		OECD 414, Oral***	in vivo***

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

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

The substance has been classified as:

Repr. 2***

Evaluation

In vitro tests did not show mutagenic effects

In the absence of specific alerts no cancer testing is required

Suspected of damaging fertility or the unborn child***

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***

Aspiration toxicity

no data available***

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://echa.europa.eu/information-on-chemicals/registered-substances>.

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	DIN 38412, part 11***

Long term toxicity			
Trimethylolpropane (TMP) (77-99-6)			
Type	Species	Dose	Method
Mortality	Daphnia magna	NOEC: > 1000 mg/l	

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	(Water flea)	(21d)		
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12.2. Persistence and degradability

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

Biodegradation

6 % (28 d), activated sludge, industrial, non-adapted, OECD 301 E, Not readily biodegradable,
100 % (28*** d), activated sludge, OECD 302 B (Zahn-Wellens Test), Inherently biodegradable.***

Abiotic Degradation		
Trimethylolpropane (TMP) (77-99-6)		
Type	Result	Method
Hydrolysis***	Half-life (DT50): > 356 d @ 25°C***	OECD 111***
Photolysis***	Half-life (DT50): 1,2 days***	calculated***

12.3. Bioaccumulative potential

Trimethylolpropane (TMP) (77-99-6)		
Type	Result	Method
log Pow***	-0,47***	measured***
log BCF***	< 2***	calculated, OECD 305 C***

12.4. Mobility in soil

Trimethylolpropane (TMP) (77-99-6)		
Type	Result	Method
Surface tension***	71 mN/m @ 20 °C (68 °F)***	measured***
Adsorption/Desorption***	Koc: 1,5***	calculated***
Distribution to environmental compartments***	Air: 0,32 Soil: 59,7 Water: 39,9 Sediment: 0,07***	Calculation according Mackay, Level III***

12.5. Results of PBT and vPvB assessment

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

PBT and vPvB assessment

This substance is not considered to be persistent, bioaccumulating nor toxic (PBT), nor very persistent nor very bioaccumulating (vPvB)***

12.6. Other adverse effects

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

No data available***

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product Information

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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.

Hazardous waste according to European Waste Catalogue (EWC)***

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 ***

ICAO-TI / IATA-DGR Not restricted

IMDG Not restricted

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

ADR/RID Not restricted

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Regulation 1272/2008, Annex VI not listed***

DI 2012/18/EU (Seveso III) ***

Category not subject***

DI 1999/13/EC (VOC Guideline)

Component	Status
Trimethylolpropane (TMP) CAS: 77-99-6	not subject***

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)***

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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

Full text of H-Statements referred to under sections 2 and 3

H361fd: Suspected of damaging fertility. Suspected of damaging the unborn child.***

Abbreviations

A table of terms and abbreviations can be found under the following link:

http://echa.europa.eu/documents/10162/13632/information_requirements_r20_en.pdf

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 OQ 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

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 OQ homepage (www.chemicals.oq.com).

Disclaimer

For industrial use only. The information contained herein is accurate to the best of our knowledge. We do not suggest or guarantee that any hazards listed herein are the only ones which exist. OQ makes no warranty of any kind, express or implied, concerning the safe use of this material in your process or in combination with other substances. User has the sole responsibility to determine the suitability of the materials for any use and the manner of use contemplated. User must meet all applicable safety and health standards.

End of Safety Data Sheet