Tetramer

Material Safety Data Sheet

In Accordance with MOEL Public notice No 2020-130
MSDS Number: P2020031901
Issue date: 3/25/2020 Revision date: 5/5/2025 Supersedes: 8/1/2024 Version: 4.0

1. Product and company identification

1.1. Product Name

Product form	:	Substance (UVCB)
Trade name	:	Tetramer
Chemical name	:	1-Propene tetramer ; Propylene tetramer
IUPAC name	:	Alkenes, C10-14-branched and linear, C12-rich
EC-No.	:	298-697-1
CAS-No.	:	93821-12-6
KECI-No.	:	KE-00612
Product group	:	Trade product
Formula	:	C12H24
Synonyms	:	1-Propene, tetramer / Tetramer, propylene / Propene, tetramer / Tetrapropylene / .alpha.-Dodecylene / Prop-2-ene tetramer

1.2. Recommended use of the chemical and restrictions on use

1.2.1. Recommended use

Recommended use : Distribution of substance. Intermediate. Industrial use. For professional users only.

1.2.2. Restrictions on use

No data available

1.3. Supplier information

- Supplier

Company identification : Manufacturer:
Braskem S.A.
Av. Presidente Costa e Silva, 1178 – Capuava
09270-001 – Santo André – SP – Brasil
www.braskem.com.br
productsafety@braskem.com
CHEMTREC Korea: +080-880-0454
CHEMTREC International: +1 703-741-5970

2. Hazards identification

2.1. Hazard Classification

Flammable liquids, Category 3	H226
Aspiration hazard, Category 1	H304
Hazardous to the aquatic environment – Acute Hazard, Category 1	H400
Hazardous to the aquatic environment – Chronic Hazard, Category 1	H410

2.2. Label elements including precautionary statements

2.2.1. Hazard pictograms (GHS KR)

2.2.2. Signal word (GHS KR)

Danger.

2.2.3. Hazard statements (GHS KR)

H226 - Flammable liquid and vapour.
H304 - May be fatal if swallowed and enters airways.
H400 - Very toxic to aquatic life.

H410 - Very toxic to aquatic life with long lasting effects.

2.2.4. Precautionary statements (GHS KR)

Precaution:

P210 - Keep away from heat/hot surfaces/sparks/open flames/other ignition sources. No smoking.
P233 - Keep container tightly closed.
P240 - Ground container and receiving equipment.
P241 - Use explosion-proof electrical, lighting, ventilating equipment.
P242 - Use only non-sparking tools.
P243 - Take precautionary measures against static discharge.
P273 - Avoid release to the environment.
P280 - Wear eye protection, face protection.

Treatment:

P301+P310 - IF SWALLOWED: Immediately call a POISON CENTER.
P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
P331 - Do NOT induce vomiting.
P370+P378 - In case of fire: Use carbon dioxide (CO2), dry extinguishing powder, foam to extinguish.
P391 - Collect spillage.

Storage:

P403+P235 - Store in a well-ventilated place. Keep cool.
P405 - Store locked up.

Disposal:

P501 - Dispose of contents and container according to waste related regulations.

2.3. Other Hazard which are not included in the classification criteria

None known

3. Composition/information on ingredients

Product form : Substance (UVCB)

Substance name	Other Names	CAS-No. and Identifier number	Concentration (%)
Alkenes, C10-14-branched and linear, C12-rich	1-Propene, tetramer / Tetramer, propylene / Propene, tetramer / Tetrapropylene / .alpha.-Dodecylene / Prop-2-ene tetramer	CAS-No.: 93821-12-6 KECI-No.: KE-00612	100

4. First-aid measures

4.1. Eye contact

Rinse immediately with plenty of water for 15 minutes.
Remove contact lenses, if present and easy to do. Continue rinsing.
Obtain medical attention if pain, blinking or redness persists.

4.2. Skin contact

Take off immediately all contaminated clothing.
Rinse skin with water/shower.
Seek medical attention if ill effect or irritation develops.

4.3. Inhalation

Allow affected person to breathe fresh air.
Allow the victim to rest.
If breathing stops, give artificial respiration.
Seek medical attention immediately.

4.4. Ingestion

Do not induce vomiting.
If vomiting occurs, the head should be kept low so that vomit does not enter the lungs.
May result in aspiration into the lungs, causing chemical pneumonia.
Rinse mouth.
Immediately call a POISON CENTER/doctor.

4.5. Indication of immediate medical attention and notes for physician

Treat symptomatically.

5. Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media	:	Carbon dioxide (CO_2), dry chemical powder, foam. Water fog.
Unsuitable extinguishing media	:	Do not use a water jet since it may cause the fire to spread. Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

Fire hazard	:	Material can accumulate some static charge during transfer. Flammable liquid and vapour. Incomplete combustion releases dangerous carbon monoxide, carbon dioxide and other toxic gases.
Explosion hazard	:	May form flammable/explosive vapour-air mixture. Heat may build pressure, rupturing closed containers, spreading fire and increasing risk of burns and injuries.

5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions	:	Cool down the containers exposed to heat with a water spray. Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire fighting water from entering the environment.
Protective equipment for firefighters	:	Do not enter fire area without proper protective equipment, including respiratory protection. For large fire: Use self-contained breathing apparatus and chemically protective clothing. For small fire: Fight fire from safe distance and protected location. For further information refer to section 8: "Exposure controls/personal protection".

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment as required.
For further information refer to section 8: "Exposure controls/personal protection".
Use non-sparking tools.
Eliminate every possible source of ignition.
Evacuate unnecessary personnel.
Equip cleanup crew with proper protection.
For further information refer to section 8: "Exposure controls/personal protection".
Evacuate unnecessary personnel.
Spill should be handled by trained cleaning personnel properly equipped with respiratory and eye protection.
Ventilate area.

6.2. Environmental precautions and protective procedures

Prevent contamination of soil, drains and surface waters.
Prevent entry to sewers and public waters.
Notify authorities if liquid enters sewers or public waters.

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.
Take up large spills with pump or vacuum.
Use only non-sparking tools.
Absorb remaining liquid with sand or inert absorbent and remove to safe place.
Consult an expert on waste disposal or treatment.
Soak up spills with inert solids, such as clay or diatomaceous earth as soon as possible.
Collect spillage.
Store away from other materials.

7. Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling	:	Ground/bond container and receiving equipment. Carry out operations in the open/under local exhaust/ventilation or with respiratory protection. Do not use compressed air to transfer, discharge or transport the product. Provide good ventilation in process area to prevent formation of vapour. No open flames. No smoking. Take precautionary measures against static discharge. Use only non-sparking tools.
Hygiene measures	:	Handle in accordance with good industrial hygiene and safety practice. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.
Additional hazards when processed	:	Handle empty containers with care because residual vapours are flammable.

7.2. Conditions for safe storage

Technical measures	:	Ground equipment electrically. Keep away from sources of ignition. Avoid static electricity discharges. Proper grounding procedures to avoid static electricity should be followed. Ground/bond container and receiving equipment. Use explosion-proof electrical, lighting, ventilating equipment.
Storage conditions	:	Keep away from ignition sources (including static discharges). Store tightly closed in a dry, cool and well-ventilated place. Keep only in the original container in a cool well ventilated place. Keep container tightly closed.
Incompatible materials	:	Strong oxidizing agents. Strong acids. Strong bases.

8. Exposure controls & personal protection

8.1. Control parameters (e.g. occupational exposure limit values, biological limit values)

Not available

8.2. Appropriate engineering controls

Appropriate engineering controls	:	Local exhaust and general room ventilation are both essential to prevent accumulation of flammable vapour. Use explosion-proof equipment.
Other information	:	Do not eat, drink or smoke during use.

8.3. Personal protection equipment

Respiratory protection

Approved organic vapour respirator.

An approved organic vapour respirator/supplied air or self-contained breathing apparatus must be used when vapour concentration exceeds applicable exposure limits.
Consult a national health and safety authority for further guidance

Device	Filter type	Condition	Standard
Full face mask, with cartridge/filter	A	Concentrations exceed max allowed workplace atmospheric concentrations.	EN 14387

Eye protection

Chemical goggles or face shield with safety glasses

Hand protection

Impermeable protective gloves.
Do not reuse gloves.
It is recommended that the glove supplier be consulted to ensure the protective gloves are resistant to chemicals in this product

Type	Material	Permeation	Thickness (mm)	Penetration	Standard
Disposable gloves, E.g. KCL Type: 717 or 730 or equivalent	Cloro-pren, or, Nitrile	<480 minutes.		Not known	EN 374

Skin and body protection

Wear suitable protective clothing or Rubber apron

9. Physical and chemical properties

a)	Appearance	:	No data available
	Physical state	:	Liquid
	Colour	:	Colourless.
b)	Odour	:	characteristic. petroleum-like odour.
c)	Odour threshold	:	No data available
d)	pH	:	Not applicable
e)	Melting / freezing point	:	< -80 °C
f)	Initial boiling point and boiling range	:	176.5 – 204 °C
g)	Flash point	:	52 °C
h)	Evaporation rate	:	No data available
i)	Flammability (solid, gas)	:	Flammable liquid and vapour.
j)	Upper / lower flammability or explosive limits	:	0.8 – 5.4 vol %
k)	Vapour pressure	:	20 mm Hg (284 hPa; 19°C)
l)	Solubility	:	Soluble in: Benzene. Solubility in water: Insoluble Solubility in ethanol: Soluble
m)	Vapour density	:	5.81 (Air = 1)
n)	Relative density	:	0.2937 Source: Corporate Solution From Thomson Micromedex
o)	Partition coefficient n-octanol/water (Log Kow)	:	No data available
	Partition coefficient n-octanol/water (Log Pow)	:	Not available
p)	Auto-ignition temperature	:	Not applicable
q)	Decomposition temperature	:	Not applicable
r)	Viscosity, kinematic	:	No data available
	Viscosity, dynamic	:	No data available
s)	Molecular mass	:	168.32 g/mol

Other information

Relative evaporation rate (butylacetate=1)	:	Not applicable
Density	:	0.76 – 0.77 (20°C)
Explosive properties	:	Not applicable.
Oxidising properties	:	Not applicable

10. Stability and reactivity

10.1. Chemical stability and Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.
Stabilized product.
Stable at room temperature.
Flammable liquid and vapour.
May form flammable/explosive vapour-air mixture.
No dangerous reactions known.

10.2. Conditions to avoid

Avoid ignition sources.
Avoid static electricity discharges.
Direct sunlight.
Extremely high or low temperatures.
Open flame.
Overheating.
Heat.
Sparks.

10.3. Incompatible materials

Strong oxidizing agents.
Strong acids.
Strong bases.

10.4. Hazardous decomposition products

Carbon oxides (CO, CO2).
Hydrocarbons.
fume.
Carbon monoxide.
Carbon dioxide.
May release flammable gases.

11. Toxicological information

11.1. Information on the likely routes of exposure

Oral : Not classified
Skin and eyes contact : Not classified
Inhalation : Aspiration hazard - May be fatal if swallowed and enters airways.

11.2. Health hazards information

Acute toxicity (oral):

Not classified

Acute toxicity (dermal):

Not classified

Acute toxicity (inhalation):

Not classified

Tetramer (93821-12-6)	
LD50 oral rat	> 5 g/kg (Source: NLM_CIP)
LD50 oral	2500 mg/kg
LD50 dermal rat	> 2000 mg/kg Source: National Library of Medicine
LC50 Inhalation - Rat	> 5060 mg/m³ (Exposure time: 4 h Source: NLM_CIP)

Skin corrosion/irritation:

Not classified

Serious eye damage/irritation:

Not classified

Respiratory sensitization:

Not classified

Skin sensitization:

Not classified

Carcinogenicity:

Not classified

Mutagenicity:

Not classified

Reproductive toxicity:

Not classified

STOT-single exposure:

Not classified

STOT-repeated exposure:

Not classified

Aspiration hazard:

May be fatal if swallowed and enters airways.

12. Ecological information

12.1. Aquatic and terrestrial ecotoxicity

Ecology - water : Very toxic to aquatic life.
Very toxic to aquatic life with long lasting effects.

Hazardous to the aquatic environment, short–term (acute) : Very toxic to aquatic life.

Hazardous to the aquatic environment, long–term (chronic) : Very toxic to aquatic life with long lasting effects.

Tetramer (93821-12-6)	
LC50 - Fish [1]	> 0.014 mg/l Source: National Institute of Technology and Evaluation
EC50 - Crustacea [1]	0.015 mg/l
EC50 72h - Algae [1]	> 0.0032 mg/l Source: National Institute of Technology and Evaluation
Partition coefficient n-octanol/water (Log Pow)	Not available

12.2. Persistence and degradability

Tetramer (93821-12-6)	
Persistence and degradability	This product has little potential to bioaccumulate in aquatic organisms, is expected to rapidly degrade, and is not expected to persist. Will not undergo hydrolysis. May cause long-term adverse effects in the environment.

12.3. Bioaccumulative potential

Tetramer (93821-12-6)	
Partition coefficient n-octanol/water (Log Pow)	Not available
Bioaccumulative potential	Not established.

12.4. Mobility in soil

Tetramer (93821-12-6)	
Mobility in soil	3790 Source: Quantitative Structure Activity Relation
Partition coefficient n-octanol/water (Log Pow)	Not available

12.5. Other adverse effects

Ozone : Not classified
Other adverse effects : No data available
Effect on the ozone layer : No additional information available.
Other information : Avoid release to the environment.

13. Disposal considerations

13.1. Disposal method

Regional legislation (waste) : Dispose of contents/container in accordance with licensed collector's sorting instructions.
Disposal must be done according to official regulations.
Ecological waste information : Avoid release to the environment.
Hazardous waste due to toxicity.

13.2. Disposal precaution

Product/Packaging disposal recommendations : Dispose of this material and its container at hazardous or special waste collection point.
Do not allow to enter into surface water or drains.
Do not re-use empty containers.
Dispose of in a safe manner in accordance with local/national regulations.
Additional information : Handle empty containers with care because residual vapours are flammable.

14. Transport information

In accordance with UN RTDG / ADR / IMDG / IATA

UN RTDG	ADR	IMDG	IATA
14.1. UN number			
2850	2850	2850	2850
14.2. UN proper shipping name			
PROPYLENE TETRAMER	PROPYLENE TETRAMER	PROPYLENE TETRAMER	Propylene tetramer
Transport document description			
UN 2850 PROPYLENE TETRAMER, 3, III, ENVIRONMENTALLY HAZARDOUS	UN 2850 PROPYLENE TETRAMER, 3, III, (D/E), ENVIRONMENTALLY HAZARDOUS	UN 2850 PROPYLENE TETRAMER, 3, III, MARINE POLLUTANT/ENVIRONMENTALLY HAZARDOUS	UN 2850 Propylene tetramer, 3, III, ENVIRONMENTALLY HAZARDOUS
14.3. Transport hazard class(es)			
3	3	3	3

UN RTDG	ADR	IMDG	IATA
			
14.4. Packing group			
III	III	III	III
14.5. Marine pollutant			
Dangerous for the environment: Yes	Dangerous for the environment: Yes	Dangerous for the environment: Yes Marine pollutant: Yes	Dangerous for the environment: Yes
No data available			

14.6. Special precaution which a user to be aware of or meeds to comply with in connection with transport or conveyance either within or outside their premises

No data available

15. Regulatory information

15.1. Occupational Safety and Health Act

Hazardous Substances Prohibited for Manufacturing	Not applicable
Hazardous Substances Requiring Permission	Not applicable
Threshold Limit Values Chemicals	Not applicable
Hazardous Substances Below Permissible Level	Not applicable
Hazardous Substances Subject to Working Environment Measurement	Not applicable
Hazardous Substances Subject to Workers Requiring Health Examination	Not applicable
Hazardous Substances Subject to Control	Not applicable
Substance Subject to Submission of PSM	Not applicable

15.2. Chemical Substances Control Act

Toxic Substances	Not applicable
Prohibited Substances	Not applicable
Restricted Substances	Not applicable
Substances Requiring Preparation for Accident	Not applicable

Alkenes, C10-14-branched and linear, C12-rich is currently under consideration for designation as a hazardous chemical substance by the Korean Ministry of Environment (MOE). Users and handlers should monitor updates and comply with additional regulatory obligations once designation is finalized.

15.3. Safety Control of Dangerous Substances Act

Safety Control of Dangerous Substances Act	Applicable	93821-12-6: Tetramer (Class 4 Flammable liquid - category 4 Second class Petroleum)

15.4. Wastes Control Act

Hazardous Substances in Designated wastes	Not applicable
Types of wastes	No data available

15.5. Other requirements in domestic and other countries

Act on Registration and Evaluation of Chemicals (K-REACH)

Korea Existing Chemicals Inventory (KECI)	Applicable	93821-12-6: Alkenes, branched(C=10-14) and linear, (C=12)-rich (KECI-No. : KE-00612)
Priority Existing Chemicals (PEC)	Not applicable	
Substances Subject to Intensive Control	Not applicable	
CMR Substances	Not applicable	

Other Domestic Regulations

Persistent Organic Pollutants(POPs) Control Act	Not applicable
Ozone Depleting Substances(ODS)	Not applicable
PRTR Substances	Not applicable

EU Regulatory Information

EU Candidate list (SVHC)	Not listed on the REACH Candidate List
EU authorization list (REACH Annex XIV)	Not listed on REACH Annex XIV (Authorisation List)
EU restriction list (REACH Annex XVII)	Applicable

US Regulatory Information

CERCLA Section 103 (40CFR302.4)	Not applicable
EPCRA Section 302 (40CFR355.30)	Not applicable
EPCRA Section 304 (40CFR355.40)	Not applicable
EPCRA Section 313 (40CFR372.65)	Not applicable

16. Other information

16.1. Information source and references

Data arise from reference works and literature.

16.2. Issue date

3/25/2020

16.3. Revision number and Revision date

Version	:	4.0
Revision date	:	5/5/2025

16.4. Others

No data available

16.5. Indication of changes

No data available

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product. It warns that the handling of any chemical substance requires the previous knowledge of its hazards for the user. It is up to the user of the product company providing this SDS to and promote the training of its employees about possible risks come upon of the product. The information contained herein is not absolute, but only general information on the use of the chemical and indication of safety and security measures.