

Trade name: R290- Propane 2.5; Tegan®290, Propane 2.5**Product no.:** R290**Current version :** 4.0.0, issued: 08.06.2023**Replaced version:** 3.0.0, issued: 20.04.2022**Region:** GB**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifier****Trade name****R290- Propane 2.5; Tegan®290, Propane 2.5**

Substance name	propane
REACH registration no.	01-2119486944-21

Identification numbers

CAS no.	74-98-6
EC no.	200-827-9
Index no.	601-003-00-5

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

Refrigerant
Aerosol
Propellant

Uses advised against

No data available.

1.3 Details of the supplier of the safety data sheet**Address**

TEGA - Technische Gase und Gasetechnik GmbH
Werner-von-Siemens-Straße 18
97076 Würzburg

Telephone no.	+49 931 2093-220
Fax no.	+49 931 2093-180
e-mail	kaeltemittel@tega.de

Advice on Safety Data Sheet

sdb_info@umco.de

1.4 Emergency telephone number

For medical advice (in German and English):
+49 (0)551 192 40 (Giftinformationszentrum Nord)

SECTION 2: Hazards identification**2.1 Classification of the substance or mixture****Classification in accordance with Regulation (EC) No 1272/2008 (CLP)**

Flam. Gas 1A; H220
Press. Gas liq.; H280

Classification information

This product is assessed and classified using the methods and criteria below referred to in Article 9 of Regulation (EC) n° 1272/2008:

Physical hazards: determined through assessment data based on the methods or standards referred to in part 2 of Annex I to CLP

Health hazards and environmental hazards: determined through toxicological and ecotoxicological assessment data based on the methods or standards referred to in Part 3 and 4 of Annex I to CLP.

2.2 Label elements**Labelling according to Regulation (EC) No 1272/2008 (CLP Regulation)****Product identifier**

74-98-6 (propane)

Hazard pictograms

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GHS02



GHS04

Signal word

Danger

Hazard statement(s)

H220 Extremely flammable gas.
H280 Contains gas under pressure; may explode if heated.

Precautionary statement(s)

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381 In case of leakage, eliminate all ignition sources.
P410+P403 Protect from sunlight. Store in a well-ventilated place.

Supplemental label elements

Use prescribed personal protective equipment. Use only in accordance with safety data sheet. Refilling prohibited.

2.3 Other hazards

Liquefied gas can cause severe frostbite and eye damage. Vapours in higher concentrations may have a narcotic effect.

Vapours may form explosive mixtures with air. Vapours are heavier than air and spread over the ground. This product does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

PBT assessment

The product is not considered to be a PBT.

vPvB assessment

The product is not considered to be a vPvB.

SECTION 3: Composition/information on ingredients**3.1 Substances****Chemical characterization**

Substance name propane
Formula C₃H₈
Molecular weight 44.09

Identification numbers

CAS no. 74-98-6
EC no. 200-827-9
Index no. 601-003-00-5

Components to be mentioned according to Regulation (EU) No. 1907/2006, Annex II, section 3.1

Substance name	Additional information	
CAS / EC / Index / REACH no	Concentration	%
butane	impurity	
106-97-8	<= 2.00	wt%
203-448-7		
601-004-00-0		
-		
isobutane	impurity	
75-28-5	<= 2.00	wt%
200-857-2		
601-004-00-0		
-		

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Note	Specific concentration limits	M-factor (acute)	M-factor (chronic)
U	-	-	-

Full text for the notes: pls. see section 16 "Notes relating to the identification, classification and labelling of substances ((EC) No 1272/2008, Annex VI)".

3.2 Mixtures

Not applicable. The product is not a mixture.

SECTION 4: First aid measures**4.1 Description of first aid measures****General information**

In high concentrations may cause asphyxiation. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation. Remove affected person from danger area, lay him down. Seek medical advice immediately.

After inhalation

Remove affected persons from dangerous area by observing suitable respiratory protection measures. Ensure supply of fresh air. Irregular breathing/no breathing: artificial respiration. Call a doctor immediately.

After skin contact

In case of contact with skin wash off immediately with soap and water. In case of frostbite, rinse with plenty of water. Do not remove clothing.

After eye contact

Remove contact lenses. Rinse eye thoroughly under running water keeping eyelids wide open and protecting the unaffected eye (at least 10 to 15 minutes).

After ingestion

Rinse the mouth thoroughly with water. Do not induce vomiting. Never give anything by mouth to an unconscious person.

4.2 Most important symptoms and effects, both acute and delayed**Symptoms**

Shortness of breath; Frostbite; respiratory arrest. Unconsciousness

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Firefighting measures**5.1 Extinguishing media****Suitable extinguishing media**

Extinguishing powder; Water spray jet; Foam; Carbon dioxide

Unsuitable extinguishing media

High power water jet

5.2 Special hazards arising from the substance or mixture

In the event of fire, the following can be released: Carbon monoxide and carbon dioxide; May explode if exposed to heat. Liquefied gas: Spilled liquid can cause cold burns. This gas is heavier than air and may accumulate in low areas. Vapours can form a highly flammable mixture with air.

5.3 Advice for firefighters

Use self-contained breathing apparatus. Wear full protective suit. Containers close to fire should be transferred to a safe place. Cool closed containers exposed to fire with water. Pressure increase, bursting and explosion hazard during heating. Fire residues and contaminated firefighting water must be disposed of in accordance with the local regulations.

SECTION 6: Accidental release measures**6.1 Personal precautions, protective equipment and emergency procedures**

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Refer to protective measures listed in sections 7 and 8. Ensure adequate ventilation. Keep away from ignition sources. Do not breathe gas. Cordon and mark contaminated area. Remove persons to safety. Risk of explosion.

For emergency responders

No data available. Personal protective equipment (PPE) - see Section 8.

6.2 Environmental precautions

Avoid release in the environment. Suppress gases/vapours/mists with water spray jet.

6.3 Methods and material for containment and cleaning up

Ensure adequate ventilation. Dispose of absorbed material in accordance with the regulations.

6.4 Reference to other sections

Information regarding safe handling, see section 7. Information regarding personal protective measures, see section 8. Information regarding waste disposal, see section 13.

SECTION 7: Handling and storage**7.1 Precautions for safe handling****Advice on safe handling**

Only qualified and trained persons are authorised to handle. Provide good ventilation at the work area (local exhaust ventilation, if necessary). To be used only according to instructions for use. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose containers heat or sources of ignition. In case of accidental release: danger due to low temperature of the liquid product. The product should only be used in areas from which all naked lights and other sources of ignition have been excluded. Prevent the creation of flammable or explosive concentrations of vapour in air and avoid vapour concentration higher than the occupational exposure limits. Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50 °C. Do not pierce or burn, even after use. Comply with the health and safety at work laws.

General protective and hygiene measures

Wash hands before breaks and after work. Do not inhale gases. Do not eat, drink or smoke during work time. Keep away from foodstuffs and beverages. Have emergency shower available.

Advice on protection against fire and explosion

Vapours can form an explosive mixture with air. Isolate from sources of heat, sparks and open flame. Take precautionary measures against electrostatic loading (earthing necessary during loading operations). Use explosion-proof equipment/fittings and non-sparking tools. Electrical equipment should be protected to the appropriate standard.

7.2 Conditions for safe storage, including any incompatibilities**Technical measures and storage conditions**

Keep container tightly closed in a cool, well-ventilated place, open and handle carefully. Protect from heat and direct sunlight.

Recommended storage temperature

Value < 50 °C

Requirements for storage rooms and vessels

Containers which are opened must be carefully closed and kept upright to prevent leakage. Always keep in containers of same material as the original.

Appropriate Material steel

Incompatible products

Substances to be avoided, see section 10.

7.3 Specific end use(s)

No data available.

SECTION 8: Exposure controls/personal protection**8.1 Control parameters****Occupational exposure limit values**

No	Substance name	CAS no.	EC no.
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1	butane	106-97-8	203-448-7
List of approved workplace exposure limits (WELs) / EH40			
Butane			
	WEL short-term (15 min reference period)	1810 mg/m ³	750 ppm
	WEL long-term (8-hr TWA reference period)	1450 mg/m ³	600 ppm
	Comments	Carc, (only applies if Butane contains more than 0.1% of buta-1,3-diene)	

8.2 Exposure controls

Appropriate engineering controls

Ensure adequate ventilation, local exhaust at the work station if necessary. If these are not sufficient to maintain concentrations of particulates and solvent vapour below the OEL, suitable respiratory protection must be worn.

Personal protective equipment

Respiratory protection

In case of insufficient ventilation or long-term effect use breathing apparatus. Breathing apparatus: gas filter AX, code colour: brown

Eye / face protection

Tightly fitting safety glasses (EN 166).

Hand protection

Low-temperature-resistant gloves (EN 511). Sufficient protection is given wearing suitable protective gloves checked according to i.e. EN 374, in the event of risk of skin contact with the product. Before use, the protective gloves should be tested in any case for its specific work-station suitability (i.e. mechanical resistance, product compatibility and antistatic properties). Adhere to the manufacturer's instructions and information relating to the use, storage, care and replacement of protective gloves. Protective gloves shall be replaced immediately when physically damaged or worn. Design operations thus to avoid permanent use of protective gloves.

Appropriate Material

Leather

Other

Chemical-resistant work clothes. Fire-resistant antistatic protective clothing. Protective shoes.

Environmental exposure controls

No data available.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

State of aggregation	
gas	
Form	
liquified gas	
Colour	
colourless	
Odour	
characteristic	
pH value	
Not applicable	
Source	supplier
Boiling point / boiling range	
Value	-42.1 °C
Reference pressure	101.32 kPa
Source	supplier
Melting point/freezing point	
Value	-187.6 °C
Source	supplier

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Decomposition temperature

No data available

Pour point

Not applicable

Source supplier

Flash point

Value supplier -80 °C

Source supplier

Ignition temperature

Value supplier 450 °C

Source supplier

Explosive properties

May form explosive gas-air mixtures.

Flammability

Extremely flammable gas.

Source supplier

Lower explosion limit

Value appr. 1.7 % vol

Source supplier

Upper explosion limit

Value appr. 10.8 % vol

Source supplier

Vapour pressure

Value 8300 hPa

Reference temperature 20 °C

Source supplier

Relative vapour density

No data available

Relative density

No data available

Density

Value 0.493 g/cm³

Reference temperature 25 °C

Source supplier

Bulk density

Not applicable

Source supplier

Solubility in water

Value < 0.1 g/l

Source supplier

Solubility

No data available

Partition coefficient n-octanol/water (log value)

No	Substance name	CAS no.	EC no.
1	propane	74-98-6	200-827-9

log Pow appr. 1.8

Method QSAR

Source ECHA

Kinematic viscosity

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Not applicable

Source

supplier

Solids content

Not applicable

Particle characteristics

No data available

9.2 Other information**Other information**

Critical Temp.: 96,7 °C

SECTION 10: Stability and reactivity**10.1 Reactivity**

Dangerous reactions are not expected if the product is handled according to its intended use.

10.2 Chemical stability

Stable under recommended storage and handling conditions (See section 7).

10.3 Possibility of hazardous reactions

Risk of formation of explosive gas mixtures in air. May ignite when exposed to strong oxydising agents.

10.4 Conditions to avoid

Heat, naked flames and other ignition sources. Contact with incompatible substances.

10.5 Incompatible materials

strong oxidizing agents; Chlorine; Hydrogen chloride; Fluorine; oxygen

10.6 Hazardous decomposition products

None if stored, handled and transported properly. In case of fire: see section 5.

SECTION 11: Toxicological information**11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008****Acute oral toxicity**

No data available

Acute dermal toxicity

No data available

Acute inhalational toxicity

No	Substance name	CAS no.	EC no.
1	propane	74-98-6	200-827-9
LC50	>	800000	ppmV
Duration of exposure		0.25	h
State of aggregation	Gas		
Species	rat		
Source	ECHA		
Evaluation/classification	Based on available data, the classification criteria are not met.		

Skin corrosion/irritation

No data available

Serious eye damage/irritation

No data available

Respiratory or skin sensitisation

No data available

Germ cell mutagenicity

No data available

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Reproduction toxicity			
No	Substance name	CAS no.	EC no.
1	propane	74-98-6	200-827-9
Route of exposure		inhalational	
NOAEC		12000	ppm
Type of examination		Combined Repeated Dose Toxicity Study with the Reproduction/Developmental Toxicity Screening Test	
Species		rat	
Method		OECD 422	
Source		ECHA	
Evaluation/classification		Based on available data, the classification criteria are not met.	

Carcinogenicity	
No data available	

STOT - single exposure	
No data available	

STOT - repeated exposure			
No	Substance name	CAS no.	EC no.
1	propane	74-98-6	200-827-9
Route of exposure		inhalational	
LOAEC		12000	ppm
Species		rat	
Method		OECD 422	
Source		ECHA	
Evaluation/classification		Based on available data, the classification criteria are not met.	

Aspiration hazard	
No data available	

11.2 Information on other hazards**Endocrine disrupting properties**

No data available.

Other information

No data available.

SECTION 12: Ecological information**12.1 Toxicity**

Toxicity to fish (acute)	
No data available	

Toxicity to fish (chronic)	
No data available	

Toxicity to Daphnia (acute)	
No data available	

Toxicity to Daphnia (chronic)	
No data available	

Toxicity to algae (acute)	
No data available	

Toxicity to algae (chronic)	
No data available	

Bacteria toxicity	
No data available	

12.2 Persistence and degradability

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Biodegradability			
No	Substance name	CAS no.	EC no.
1	propane	74-98-6	200-827-9
Type	aerobic biodegradation		
Value		50	%
Duration		3	d
Method	QSAR		
Source	ECHA		
Evaluation	readily biodegradable		

12.3 Bioaccumulative potential

Partition coefficient n-octanol/water (log value)			
No	Substance name	CAS no.	EC no.
1	propane	74-98-6	200-827-9
log Pow	appr.	1.8	
Method	QSAR		
Source	ECHA		

12.4 Mobility in soil

No data available.

12.5 Results of PBT and vPvB assessment

Results of PBT and vPvB assessment	
PBT assessment	The product is not considered to be a PBT.
vPvB assessment	The product is not considered to be a vPvB.

12.6 Endocrine disrupting properties

No data available.

12.7 Other adverse effects

No data available.

12.8 Other information

Other information
Do not discharge product unmonitored into the environment.

SECTION 13: Disposal considerations**13.1 Waste treatment methods****Product**

Allocation of a waste code number, according to the European Waste Catalogue, should be carried out in agreement with the regional waste disposal company.
dispose of in accordance with local regulation.

Packaging

Compressed gas packaging under pressure. Do not open by force. Do not heat above 50°C. Dispose of compressed gas packagings only if completely discharged. Do not burn empty compressed gas packagings. Do not pierce, cut or weld uncleaned containers.

SECTION 14: Transport information**14.1 Transport ADR/RID/ADN**

Class	2
Classification code	2F
Hazard identification no.	23
UN number	UN1978
Proper shipping name	PROPANE
Tunnel restriction code	B/D
Label	2.1 RID: (+13)

14.2 Transport IMDG

Class	2.1
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UN number	UN1978
Proper shipping name	PROPANE
EmS	F-D, S-U
Label	2.1

14.3 Transport ICAO-TI / IATA

Class	2.1
UN number	UN1978
Proper shipping name	Propane
Label	2.1

14.4 Other information

No data available.

14.5 Environmental hazards

Information on environmental hazards, if relevant, please see 14.1 - 14.3.

14.6 Special precautions for user

To be transported always in closed, upright and safe containers. Make sure that persons handling these containers are aware of the rules of conduct in case of incident or spillage.

14.7 Maritime transport in bulk according to IMO instruments

Not relevant

SECTION 15: Regulatory information**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture****EU regulations****Regulation (EC) No 1907/2006 (REACH) Annex XIV (List of substances subject to authorisation)**

In accordance with the REACH regulation (EC) 1907/2006, the product does not contain any substances that are considered as subject to listing in annex XIV, inventory of substances requiring authorisation.

REACH candidate list of substances of very high concern (SVHC) for authorisation

In accordance with article 57 and article 59 of the Reach regulation (EC) 1907/2006, this substance is not considered as subject to listing in annex XIV, inventory of substances requiring authorisation ("Authorization list").

Regulation (EC) No 1907/2006 (REACH) Annex XVII: RESTRICTIONS ON THE MANUFACTURE, PLACING ON THE MARKET AND USE OF CERTAIN DANGEROUS SUBSTANCES, MIXTURES AND ARTICLES

The product is considered being subject to REACH regulation (EC) 1907/2006 annex XVII. No 40

Directive 2012/18/EU on the control of major-accident hazards involving dangerous substances

This product is subject to Part I of Annex I, risk category: P2

Other regulations

Adhere to the national sanitary and occupational safety regulations when using this product.

15.2 Chemical safety assessment

A chemical safety assessment has been carried out for this substance.

SECTION 16: Other information**Sources of key data used to compile the data sheet:**

Regulation (EC) No 1907/2006 (REACH), 1272/2008 (CLP) as amended in each case.

Directives 2000/39/EC, 2006/15/EC, 2009/161/EU, (EU) 2017/164.

National Threshold Limit Values of the corresponding countries as amended in each case.

Transport regulations according to ADR, RID, IMDG, IATA as amended in each case.

The data sources used to determine physical, toxic and ecotoxic data, are indicated directly in the corresponding section.

Notes relating to the identification, classification and labelling of substances and mixtures ((EC) No 1272/2008, Annex VI)

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U

When put on the market gases have to be classified as 'Gases under pressure', in one of the groups compressed gas, liquefied gas, refrigerated liquefied gas or dissolved gas. The group depends on the physical state in which the gas is packaged and therefore has to be assigned case by case.

Creation of the safety data sheet

UMCO GmbH

This information is based on our present knowledge and experience.

The safety data sheet describes products with a view to safety requirements.

It does not however, constitute a guarantee for any specific product properties and shall not establish a legally valid contractual relationship.

Alterations/supplements:

Alterations to the previous edition are marked in the left-hand margin.

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