



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

1.1. Product identifier

Trade name : R290
Substance name : Propane
CAS-No. : 74-98-6

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

1.2.1. Relevant identified uses

Use of the substance/mixture : Cryogen

1.2.2. Uses advised against

Restrictions on use : No information available

1.3. Details of the supplier of the safety data sheet

Shandong Yue an new material Co., Ltd.
Danyang Road, Shanghai Road, Heze, Shandong, CHINA
Tel: +86-0530-5333890
Fax: +86-0530-5966185
Email: saleswjw@sdyachem.com

1.4. Emergency telephone number

Emergency number : +86-0530-5725101

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Flammable gases, Category 1 H220
Gases under pressure : Compressed gas H280
Full text of H statements : see section 16

Adverse physicochemical, human health and environmental effects

No information available.

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :



GHS02

Signal word (CLP) : Danger
Hazard statements (CLP) : H220 - Extremely flammable gas.
H280 - Contains gas under pressure; may explode if heated.
Precautionary statements (CLP) : 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.
P403 - Store in a well-ventilated place.
P410+P403 - Protect from sunlight. Store in a well-ventilated place.

2.3. Other hazards

No additional information available

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SECTION 3: Composition/information on ingredients

3.1. Substances

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Propane	(CAS-No.) 74-98-6 (EC-No.) 200-827-9 (EC Index-No.) 601-003-00-5	99.0-99.9	Flam. Gas 1, H220 Compressed gas, H280

3.2. Mixtures

Not applicable
 Full text of H-statements: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general	: Warning before intervention: Before attempting to rescue casualties, isolate area from all potential sources of ignition including disconnecting electrical supply. Ensure adequate ventilation and check that a safe, breathable atmosphere is present before entry into confined spaces. Take care to self-protect by avoiding becoming contaminated – use approved positive pressure air supplied breathing apparatus with a full facepiece. Move contaminated patient(s) out of the dangerous area.
First-aid measures after inhalation	: Move to fresh air. Do not leave the victim unattended. Keep patient warm and at rest. If unconscious place in recovery position. Seek immediate medical attention. If breathing is difficult, give oxygen if possible, or assisted ventilation. In the event of cardiac arrest, (no pulse), apply cardiopulmonary resuscitation.
First-aid measures after skin contact	: Do not remove clothing that adheres due to freezing. Immediately flush affected area with plenty of water – continue for at least 15 minutes. If there are signs of frostbite, (blanching or redness of skin or burning or tingling sensation), do not rub, massage or compress the affected area. Send the casualty immediately to hospital .
First-aid measures after eye contact	: Remove any contact lenses. Flush eyes with water thoroughly and continuously for at least 15 minutes. Keep eye wide open while rinsing. If there are signs of frostbite, pain, swelling, lachrimation or photophobia persists, the patient should be seen in a specialist health care facility.
First-aid measures after ingestion	: Is not considered a likely route of exposure – frostbite to the lips and mouth may occur if in contact with the liquid.

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

Symptoms/effects	: Inhalation: Exposure to high concentrations may cause asphyxiation. Product is relatively nontoxic. Simple hydrocarbons can irritate the eyes, mucous membranes and respiratory system at high concentrations. Inhalation of high concentrations may cause dizziness, disorientation, in coordination, narcosis, or nausea or narcotic. Skin contact: Contact with product in liquid form may cause frostbite. Eye contact: Contact with product in liquid form may cause frostbite.
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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	: LARGE FIRE: Use water spray, water fog or foam. SMALL FIRE: Dry powder or carbon dioxide (CO2) extinguisher, dry sand or fire fighting foam.
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Unsuitable extinguishing media : Do NOT use water jet.
Simultaneous use of foam and water on the same surface is to be avoided as water destroys the foam.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Extremely flammable gas.
Hazardous decomposition products in case of fire : Combustion Products :
Carbon monoxide, carbon dioxide and unburned hydrocarbons (smoke).
Specific hazards during fire fighting : Vapour is denser than air – flashback may be possible over considerable distances.
Cylinders or other containment vessels may explode under fire conditions - use water spray to cool unopened containers.
Do not allow run-off from fire fighting to enter drains or water courses – may cause explosion hazard in drains and may reignite.

5.3. Advice for firefighters

Firefighting instructions : Eliminate all ignition sources if safe to do so. Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : Ventilate spillage area. No open flames, no sparks, and no smoking.
Keep non-involved personnel away from the area of spillage.

6.1.2. For emergency responders

Emergency procedures : Stop leak if safe to do so. Avoid direct contact with released material and breathing vapours. Stay upwind.
Enter area only if strictly necessary. A combustible gas detector can be used to check for flammable gas or vapours.
Eliminate all ignition sources if safe to do so (e.g. electricity, sparks, fires, flares, etc.).
If required, notify relevant authorities according to applicable regulations.
Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Land spillage :
Prevent further leakage or spillage if safe to do so.
Prevent spillage from entering drains or any place where accumulation may occur.
Ensure adequate ventilation, especially in confined areas.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Contain spillage – ventilate area and allow to evaporate.
Spillages in water or at sea : Prevent further leakage or spillage if safe to do so.
Spillages of liquid product in the water will likely result in a quick and complete vaporization of the product. Isolate the area and prevent fire/explosion hazard for ships and other structures, taking into account wind direction and speed, until the material is completely dispersed.
If the spillage contaminates rivers, lakes or drains inform respective authorities.
Other information : Spillages of liquid product will create a fire hazard and form an explosive atmosphere.
Ensure all equipment is non sparking or electrically bonded.
Dispose of wastes safely.

6.4. Reference to other sections

For further information refer to section 13.



SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling

- : Consider technical advances and process upgrades (including automation) for the elimination of releases.
- Minimise exposure using measures such as closed systems, dedicated facilities and suitable general/local exhaust ventilation.
- Drain down systems and clear transfer lines prior to breaking containment.
- Clean/flush equipment, where possible, prior to maintenance.
- Consider the need for risk based health surveillance.
- Ensure safe systems of work or equivalent arrangements are in place to manage risks.
- Regularly inspect, test and maintain all control measures.
- Avoid all sources of ignition, oxidising agents, chlorine and hydrogen chloride or hydrogen fluoride..
- Take precautionary measures against static discharges, use proper bonding and/or grounding procedures.
- Use piping and equipment designed to withstand the pressures to be encountered.
- Use a check valve or other protective device to prevent reverse flow.
- Cleaning, inspection and maintenance of the internal structure of storage tanks must be done only by properly equipped and qualified personnel as defined by national, local or company regulations.
- Handle empty containers with care; vapour residue may be flammable.
- Do not pressurise, cut, weld, braze, solder, drill, or grind on containers.
- Dispose of rinse water in accordance with local and national regulations.
- The vapour is heavier than air, beware of accumulation in pits and confined spaces.
- Ensure that all relevant regulations regarding explosive atmospheres, and handling and storage facilities of flammable products are followed.
- : Do not eat, drink or smoke when using this product. Always wash hands after handling the product.
- Use only in well ventilated areas.

Hygiene measures

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions

- : Store in a well-ventilated place. Keep cool.
- To store only in supplied cylinders or approved vessels.
- No smoking.
- Store in a designated cool and well-ventilated place.
- Cylinders should be secured vertical - and only transported in a secure position in a well ventilated vehicle or hand truck.
- Cylinders which have been are opened must be carefully resealed and kept upright.
- For maintenance work or conservation, emptied tanks should be purged, and blanketed with inert gas (i.e. nitrogen).

7.3. Specific end use(s)

No information available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Propane (74-98-6)

Belgium	Limit value (ppm)	1000 ppm (gas)
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8.2. Exposure controls

Appropriate engineering controls:

Ensure good ventilation of the work station.

Hand protection:
Protective gloved made of plastic of rubber.
Eye protection:
Safety goggles or glasses
Skin and body protection:
Wear suitable protective clothing
Respiratory protection:
Positive pressure air line with full-face mask and escape bottle or self-contained breathing apparatus should be available for emergency use.



Other/general protection:

Safety shoes, safety shower, eyewash.

Environmental exposure controls:

Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Gas
Appearance	: A colorless, odourless gas.
Molecular mass	: No data available
Colour	: Colorless
Odour	: Odourless
Odour threshold	: No data available
pH	: No data available
pH solution	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Relative evaporation rate (ether=1)	: No data available
Melting point	: -187.6°C
Freezing point	: No data available
Boiling point	: -42.1°C
Flash point	: -104°C
Critical temperature	: No data available
Auto-ignition temperature	: -778°F (420°C)
Decomposition temperature	: No data available
Flammability (solid, gas)	: Extremely flammable gas.
Vapour pressure	: 0.95 at 25 °C
Critical pressure	: No data available
Vapour density	: 0.58 g/cm ³ at 25 °C
Relative density	: No data available
Relative density of saturated gas/air mixture	: No data available
Density	: No data available
Relative gas density	: No data available
Solubility	: Water: Very slight
Log Pow	: 2.3
Log Kow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available.
Oxidising properties	: No data available.
Explosive limits	: No data available
Lower explosive limit (LEL)	: 2.1
Upper explosive limit (UEL)	: 9.5
Dust deflagration index	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Extremely flammable gas.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

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10.4. Conditions to avoid

Avoid contact with hot surfaces. Heat. No flames, no sparks. Eliminate all sources of ignition.
 Avoid high temperatures. Product will start to decompose at 450 °C

10.5. Incompatible materials

Oxidizers

10.6. Hazardous decomposition products

Carbon Dioxide and Carbon monoxide if sufficient oxygen is present.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral) : Not classified
 Acute toxicity (dermal) : Not classified
 Acute toxicity (inhalation) : Not classified

Propane (74-98-6)

LC50 inhalation rat (ppm)	> 800000 ppm (Exposure time: 15 min)
Skin corrosion/irritation	: Not classified pH: No data available
Serious eye damage/irritation	: Not classified pH: No data available
Respiratory or skin sensitisation	: Not classified
Germ cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
STOT-single exposure	: Not classified
STOT-repeated exposure	: Not classified
Aspiration hazard	: Not classified
Other information	: Oxygen deficiency during pregnancy has produced development abnormalities in humans and experimental animals.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.
 Acute aquatic toxicity : Not classified
 Chronic aquatic toxicity : Not classified

12.2. Persistence and degradability

R290 (74-98-6)

Persistence and degradability	No information available.
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12.3. Bioaccumulative potential

R290 (74-98-6)

Log Pow	2.3
Log Kow	No data available
Bioaccumulative potential	No information available.

Propane (74-98-6)

Log Pow	2.3
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12.4. Mobility in soil

R290 (74-98-6)

Ecology - soil	No information available.
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12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

Other adverse effects : No information available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

ADR	IMDG	IATA	ADN	RID
14.1. UN number				
1978	1978	1978	1978	1978
14.2. UN proper shipping name				
PROPANE	PROPANE	Propane	PROPANE	PROPANE
Transport document description				
UN 1978 PROPANE, 2.1, (B/D)	UN 1978 PROPANE, 2.1	UN 1978 Propane, 2.1	UN 1978 PROPANE, 2.1	UN 1978 PROPANE, 2.1
14.3. Transport hazard class(es)				
2.1	2.1	2.1	2.1	2.1
14.4. Packing group				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
14.5. Environmental hazards				
Dangerous for the environment : No	Dangerous for the environment : No Marine pollutant : No	Dangerous for the environment : No	Dangerous for the environment : No	Dangerous for the environment : No

No supplementary information available

14.6. Special precautions for user

Overland transport

Classification code (ADR) : 2F
 Special provisions (ADR) : 652, 657, 660, 662
 Limited quantities (ADR) : 0
 Excepted quantities (ADR) : E0
 Packing instructions (ADR) : P200
 Mixed packing provisions (ADR) : MP9
 Portable tank and bulk container instructions (ADR) : (M), T50
 Tank code (ADR) : PxBN(M)
 Tank special provisions (ADR) : TA4, TT9
 Vehicle for tank carriage : FL
 Transport category (ADR) : 2
 Special provisions for carriage - Loading, unloading and handling (ADR) : CV9, CV10, CV36
 Special provisions for carriage - Operation (ADR) : S2, S20

R290
Safety Data Sheet
according to Regulation (EU) 2015/830



Hazard identification number (Kemler No.) : 23
Orange plates :



Tunnel restriction code (ADR) : B/D

Transport by sea

Packing instructions (IMDG) : P200
Tank instructions (IMDG) : T50
EmS-No. (Fire) : F-D
EmS-No. (Spillage) : S-U
Stowage category (IMDG) : E
Stowage and handling (IMDG) : SW2
Properties and observations (IMDG) : Flammable hydrocarbon gas. Explosive limits: 2.3% to 9.5% Heavier than air (1.56).

Air transport

PCA Excepted quantities (IATA) : E0
PCA Limited quantities (IATA) : Forbidden
PCA limited quantity max net quantity (IATA) : Forbidden
PCA packing instructions (IATA) : Forbidden
PCA max net quantity (IATA) : Forbidden
CAO packing instructions (IATA) : 200
CAO max net quantity (IATA) : 150kg
Special provisions (IATA) : A1
ERG code (IATA) : 10L

Inland waterway transport

Classification code (ADN) : 2F
Special provisions (ADN) : 657, 660, 662
Limited quantities (ADN) : 0
Excepted quantities (ADN) : E0
Carriage permitted (ADN) : T
Equipment required (ADN) : PP, EX, A
Ventilation (ADN) : VE01
Number of blue cones/lights (ADN) : 1

Rail transport

Classification code (RID) : 2F
Special provisions (RID) : 657, 660, 662
Limited quantities (RID) : 0
Excepted quantities (RID) : E0
Packing instructions (RID) : P200
Mixed packing provisions (RID) : MP9
Portable tank and bulk container instructions (RID) : T50(M)
Tank codes for RID tanks (RID) : PxBN(M)
Special provisions for RID tanks (RID) : TU38, TE22, TA4, TT9, TM6
Transport category (RID) : 2
Special provisions for carriage - Loading, unloading and handling (RID) : CW9, CW10, CW36
Colis express (express parcels) (RID) : CE3
Hazard identification number (RID) : 23

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable



SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

Contains no REACH substances with Annex XVII restrictions
Contains no substance on the REACH candidate list
Contains no REACH Annex XIV substances

15.1.2. National regulations

No additional information available

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Data sources : LOLI.

Training advice : Normal use of this product shall imply use in accordance with the instructions on the packaging.

Full text of H- and EUH-statements:

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

SDS EU (REACH Annex II)

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

TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou Branch
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