

## Safety technical specification

Safety technical specification No. : 102101

R290



## Part I Chemical and enterprise identification

Chinese name of chemical: propane

common or trade name of chemical: R290

English name of chemical: propane

## Company Information:

Enterprise name: Hubei Shengfuyuan Chemical Co., LTD

Address: Chengnan Industrial Park, Chengguan Town, Nanzhang County, Xiangyang City, Hubei Province

xflslzl@126.com

Email Address:

Fax Number: 0710-3821625

Effective Date: 2017.08.20

Emergency information: Emergency telephone number: 0710-3822225

## Part 2 is danger overview

Danger class: Class 2.1 Flammable gas

Route of entry: inhalation

Health hazard: This product has simple asphyxia and anesthetic effects. Temporary exposure to 1% propane in humans does not cause symptoms: only mild dizziness occurs at concentrations below 10%; When exposed to high concentration, anesthesia and loss of consciousness may occur; Very high concentration can cause choking.

Dangerous characteristics: In case of high heat, the pressure inside the container increases, there is the risk of cracking and explosion.

Combustion (decomposition) products: carbon monoxide, carbon dioxide, hydrogen fluoride.

Explosion hazard: flammable gas

Part 3 Component/composition information

	Pure stocking	Mixture <input type="checkbox"/>
Name of chemical:	propane	
Hazardous substance composition content		CAS No.
	propane	99.05%
		71-98-6

Part 4 First aid measures

Skin contact: Flush cold and red areas immediately with cool water, not hot water. If you have frostbite, see a doctor immediately.

Eye contact: Splash into eyes immediately rinse with plenty of cold water for at least 15 minutes and see a doctor immediately.

Inhalation: Quickly remove from the scene to fresh air. Keep your airway clear. Give oxygen if breathing is difficult. If breathing stops, give artificial respiration immediately. Seek medical attention.

Ingestion: In case of accidental ingestion, seek medical attention immediately.

Part 5 fire control measures

Hazardous characteristics: flammable gas. When mixed with air, it can form an explosive mixture, which has the risk of combustion and explosion in case of heat source and open flame. Reacts violently in contact with an oxidant. Gas is heavier than air, can spread to a considerable distance at a lower place, and will be ignited in a fire.

Harmful combustion products: carbon monoxide, carbon dioxide.

Fire extinguishing method and extinguishing agent: cut off the air source. If the air source cannot be cut off, it is no area if possible. Extinguishing agent: mist water, foam, carbon dioxide, dry powder. area if possible. Extinguishing agent: mist water, foam, carbon dioxide, dry powder.

Part 6 leakage emergency treatment





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Emergency treatment: quickly evacuate the contaminated area to the upper wind, and quarantine, strictly restrict access. Cut off the fire source. It is recommended that emergency personnel wear self-contained positive pressure breathing apparatus and static protective clothes. Cut off the source of leakage as much as possible. Cover areas such as drains near the leak with industrial mulch or adsorption/absorbent to prevent gas from entering. Reasonable ventilati off. The leak container should be properly disposed of, repaired and inspected before use. off. The leak container should be properly disposed of, repaired and inspected before use. off. The leak container should be properly disposed of, repaired and inspected before use.

Elimination method: cut off the valve, bandage leakage.

### Part VII operation, disposal and storage

Operation precautions: closed operation, full ventilation. Operators must be specially trained and strictly foll ow the operating schedule. Keep away from fire, heat source, no smoking in the workplace. Use explosion-proof ventilation systems and equipment. Prevent gas leakage into the workplace air. Avoid contact with oxidants and halogens . Cylinders and containers must be grounded and bonded during transfer to prevent static electricity. Light loading and and quantity of fire equipment and leakage emergency treatment equipment.and quantity of fire equipment and leakage emergency treatment equipment.

Storage precautions: Store in a cool, ventilated warehouse. Keep away from fire and heat. The temperature of the warehouse should not exceed 30°C. It should be stored separately from oxidants and halogens, and should not be mix generate sparks. The storage area should be equipped with leak emergency treatment equipment. generate sparks. The storage area should be equipped with leak emergency treatment equipment.

### Part VIII Contact Control/Personal Protection

Engineering control: closed production process, strengthen ventilation.

Respiratory system protection: Generally, no special protection is required, but it is recommended to wear a self-priming filter gas mask (half mask) under special circumstances.

Eye protection: Generally no special protection is required. Wear chemical safety protective glasses when exposed to high concentrations.

Body protection: Wear static protective clothing.

Hand protection: Wear general operation protective gloves.

Others: Smoking is strictly prohibited on site. Avoid prolonged and repeated exposure. Be supervised when entering tanks, restricted Spaces or other areas of high concentration.

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### Part 9 Physical and chemical properties

Main components:	Pure goods
Appearance and properties:	Colorless gas, pure product odorless.
Melting point (°C) :	-187.6
Boiling point (° C) :	-42.1
Relative density (water =1) :	0.58 (-44.5 °C)
Relative vapor density (air =1) :	1.56
Saturated vapor pressure (kPa) :	53.32 (-55.6 °C)
Heat of combustion (kJ/mol) :	2217.8
Critical temperature (° C) :	96.8
Critical pressure (MPa) :	4.25
Flash point (° C) :	- 104.
Ignition temperature (° C) :	450
Maximum explosion %(V/V) :	9.5
Lower explosive Limit %(V/V):	2.1

Solubility: slightly soluble in water, soluble in ethanol, ether.

Main Applications: organic synthesis, chemical synthesis refrigerant, synthetic rubber, aviation gasoline, lighting.

### Part 10 Stability and reactivity

Stability: Avoiding contact with flames and heat.

Forbidden compound: strong oxidant, halogen.

Conditions to avoid contact; Open flame, high thermal decomposition products: carbon monoxide, carbon dioxide.

Polymerization hazard: does not occur

### Part 11 Toxicological information



Acute toxicity :LC<sub>50</sub> = 220, 000 ppm/4h(rat inhalation)

Subacute and chronic toxicity: rabbits, rats and mice were inhaled at 0.2% concentration for 6 hours per day for 10 months, and no toxic reaction was observed. At 1.4% concentration, body weight was decreased, seru of lung, degeneration of heart, liver, kidney and nervous system. of lung, degeneration of heart, liver, kidney and nervous system.

Mutagenicity: Microbial mutagenicity: Salmonella Typhimurium 33pph(24 h), continuous. Microsomal mutagenesis: Salmonella murine 33pph(24 h)(continuous).

Reproductive toxicity: The lowest inhaled toxic concentration (TCL<sub>0</sub>) in rats :50000 PPM (5 h, 56 days for males), the effect on prostate, seminal vesicle, Cowper's glands, accessory glands, and urethra.

Stimulation: No stimulation

#### Part 12 ecological data

Ecologic toxicity :EC<sub>50</sub> = 433 mg/L/48h(Daphnia magna)

#### Part 13 Waste disposal

Nature of waste:  Hazardous waste  Industrial solid waste

Waste disposal method: Waste cylinders are sent to professional manufacturers for recycling.

#### Part 14: Transportation Information

UN number :1978

Packing mark: Flammable gas

Dangerous Goods No. : 21011

Packing method: Steel cylinder, ISO container or transport tank

Transportation notes: This product will be shipped in tank cars provided by pressure resistant liquefied gas enterprises within the time n transporting cylinders. Cylinders are generally laid flat and should have their mouths facing the same way n transporting cylinders. Cylinders are generally laid flat and should have their mouths facing the same way.