
1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Trade Name : C4-LPG (Raffinate-2)

Chemical Name : Petroleum gases, liquefied

Molecular Formula :

Synonyms : -

1.2 Use : Used as a domestic, commercial, industrial and automotive

1.3 Manufacturer/Import : Bangkok Synthetic Company Limited

1.4 Address : 5, I-7 Rd. Maptaphut Industrial Estate, Muang District, Rayong 21150

Tel. : +66(0) 3869-8698 Fax: +66(0) 3869-8690

2. HAZARD IDENTIFICATION

2.1 Classification of Substance or Mixture

- Flammable gas., Category 1

Gases under pressure

2.2 Label Elements :

Hazard Symbol or Symbol :



Signal Words : Danger

Hazard Statement :

PHYSICAL HAZARDS: H220: Extremely flammable gas.

H280: Contains gas under pressure; may explode if heated.

Precautionary Statements :

Prevention : Keep out of reach of children , Keep away from heat/sparks/open flames/hot surfaces. No smoking.

Response : Eliminate all ignition sources if safe to do so.

Storage : Protect from sunlight. Store in a well-ventilated place.

2.3 Other Hazards

Electrostatic charges may be generated during pumping. Electrostatic discharge may cause fire. Vapours are heavier than air. Vapours may travel across the ground and reach remote ignition sources causing a flashback fire danger.

High gas concentrations will displace available oxygen from the air; unconsciousness and death may occur suddenly from lack of oxygen.

3.COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name : : Petroleum gases, liquefied

Synonyms : -

Component

Mixture description : A complex combination of hydrocarbons which consists of hydrocarbons having carbon numbers predominantly in the range of C3 through C4.

Name	CAS No.	%
Petroleum gases, liquefied (LPG)	68476-85-7	≤ 100

4. First - aid measures

4.1 Description of first aid measures

Skin : In the event of frostbite, slowly warm the exposed area by rinsing with warm water.

Otherwise: Obtain medical treatment immediately.

Eye : DO NOT DELAY. Obtain medical treatment immediately. Remove contact lenses, if present and easy to do. Continue rinsing. Flush eye with copious quantities of water.

Inhalation : Remove to fresh air. If breathing but unconscious, place in the recovery position. If breathing has stopped, apply artificial respiration. If heartbeat absent, give external cardiac compression. Seek urgent medical advice..

Ingestion : obtain medical attention immediately

4.2 Potential acute health effects

High concentrations may cause central nervous system depression resulting in headaches, dizziness and nausea; continued exposure may result in unconsciousness and/or death.

4.3 Potential Chronic health effects.

Chronic effects : No known significant effects or critical hazards

Carcinogenicity : No carcinogenic substances as defined by IARC , NTP and/or OSHA.

4.4 Notes to physician : Treat symptomatically. Administer oxygen if necessary.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing Media

Suitable Extinguishing Media : Shut off supply. If not possible and no risk to surroundings, let the fire burn itself out. Use foam, water fog for major fires. Use dry chemical powder, carbon dioxide, sand or earth for minor fires. .

Unsuitable Extinguishing Media : Do not use direct water jets on the burning product as they could cause a steam explosion and spread of the fire.

5.2 Special Hazards Arise from the Substance or Mixture

Hazardous combustion products may include: Carbon monoxide may be evolved if incomplete combustion occurs. Unidentified organic and inorganic compounds. Sustained fire attack on vessels may result in a Boiling Liquid Expanding Vapour Explosion (BLEVE). Contents are under pressure and can explode when exposed to heat or flames. The vapour is heavier than air, spreads along the ground and distant ignition is possible

5.3 Advice for Firefighters

Special Fire-Fighting Procedures : Keep adjacent containers cool by spraying with water. If possible remove containers from the danger zone. If the fire cannot be extinguished the only course of action is to evacuate immediately.

Special Protective Equipment for Firefighters : Self-Contained

Breathing Apparatus must be worn when approaching a fire

5.4 Flash Point : -104 to -60 oC

5.5 Explosion Limits : LEL : 5 % , UEL 10 %

5.6 Auto ignition : 287-537 oC

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precaution Protective equipment and emergency procedure : Shut off leaks, if possible without personal risks. Remove all possible sources of ignition in the surrounding area and evacuate all personnel. Attempt to disperse the gas or to direct its flow to a safe location for example by using fog sprays. Take precautionary measures against static discharge. Ensure electrical continuity by bonding and grounding (earthing) all equipment. Monitor area with combustible gas meter. Test atmosphere for flammable gas concentrations to ensure safe working conditions before personnel are allowed to enter the area

6.2 Environmental Precaution : Use appropriate containment to avoid environmental Contamination

6.3 Method and Materials for Containment and Cleaning Up

Allow to evaporate. Attempt to disperse the gas or to direct its flow to a safe location, for example by using fog sprays.

7. Handling and Storage

7.1 Precaution for Safe Handling :

This product can create a low temperature exposure hazard when released as a liquid. Extinguish any naked flames. Do not smoke. Remove ignition sources. Avoid sparks. Avoid prolonged or repeated contact with skin. Electrostatic charges may be generated during handling. Electrostatic discharge may cause fire. Earth all equipment. Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols..

7.2 Condition for Safe Storage including any incompatibilities :

Store only in purpose-designed, appropriately labeled pressure vessels or cylinders. Must be stored in a wellventilated area, away from sunlight, ignition sources and other sources of heat. Do not store near cylinders containing compressed oxygen or other strong oxidizers.

7.3 Incompatible Materials : ABS, polymethyl methacrylate (PMMA), polyethylene (PE /HDPE), polypropylene (PP), PVC, natural rubber (NR), Nitrile (NBR) ethylene propylene rubber (EPDM), Butyl (IIR), Hypalon (CSM), polystyrene, polyvinyl chloride (PVC), polyisobutylene.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Exposure limit value

SG OEL-TWA : 1,000 ppm

ACGIH TLV-TWA : Not aplicable

OSHA PEL : Not aplicable

OSHA 15 min STEL : Not aplicable

IDLH : Not aplicable

ค่าควบคุมของไทย : Not aplicable

8.2 Engineer Exposure Control

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances..

Appropriate measures include: Use sealed systems as far as possible. Adequate explosion-proof ventilation to control airborne concentrations below the exposure guidelines/limits.

Local exhaust ventilation is recommended. Exhaust emission systems should be designed in accordance with local conditions; the air should always be moved away from the source of vapour generation and the person working at this point. Firewater monitors and deluge systems are recommended. Always observe good personal hygiene measures, such as washing hands after handling the material and before eating, drinking, and/or smoking.

Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

Define procedures for safe handling and maintenance of controls. Educate and train workers in the hazards and control measures relevant to normal activities associated with this product. Ensure appropriate selection, testing and maintenance of equipment used to

control exposure, e.g. personal protective equipment, local exhaust ventilation. Drain down system prior to equipment break-in or maintenance.

8.3 Personal protection measure

Respiratory protection :

Where air filtering respirators are suitable, select an appropriate combination of mask and filter. Select a filter suitable for organic gases and vapours . Where air-filtering respirators are unsuitable (e.g. airborne concentrations are high, risk of oxygen deficiency, confined space) use appropriate positive pressure breathing apparatus. .

Skin protection :

Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact ect. Neoprene rubber. Nitrile rubber. If contact with liquefied product is possible or anticipated, gloves should be thermally insulated to prevent cold burns.

Eye Protection : Chemical splash goggles (gas-tight mono goggles) and face shield.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 General information Appearance

Physical State : Liquid under pressure

Colour : Colourless

Odour : slight odor

9.2 Odour threshold limit : Data not available.

9.3 pH : Not applicable.

9.4 Melting Point / Freezing point : -187.6 - -138.3 °C.

9.5 Initial boiling point and boiling range : -161.5 - -0.5 °C.

9.6 Flash point : Closed cup : -104 - -60 °C.

9.7 Evaporation Rate : Data not available

9.8 Flammability (Solid/Gas): Extremely flammable

9.9 Upper Flammability/Explosive limits : 15 %

Lower Flammability/Explosive limits : 5%

9.10 Vapor Pressure : 380 - 840 kPa.

9.11 Vapor density : 540 kg/m³

9.12 Relative density : 0.54.

9.13 Solubility : Insoluble in water.

9.14 partition Coefficient : n-octanol / water : No data available

9.15 Auto ignition temperature : 287 - 537 °C.

9.16 Decomposition temperature : No data available.

9.17 Viscosity: No data available.

9.18 Molecular Weight: No data available.

10. STABILITY AND REACTIVITY

10.1 Reactivity : No specific test data related to reactivity available for this product or its ingredients.

10.2 Stability: Stable

10.3 Possibility of hazardous reaction : No hazardous reaction is expected when handled and stored according to provisions.

10.4 Conditions to Avoid : Heat, open flames, sparks and flammable atmospheres.

10.5 Incompatible material: Strong oxidising agents.

10.6 Hazardous Decomposition Products : Hazardous decomposition products are not expected to form during normal storage.

11. TOXICOLOGICAL INFORMATION

11.1 Potential acute health effects

Skin : Not applicable.

Eye : May cause mechanical irritation (abrasion).

Inhalation : Low toxicity: LC50 >20 mg/l , 4.00 h, Rat High concentrations may cause central nervous system depression resulting in headaches, dizziness and nausea; continued inhalation may result in unconsciousness and/or death.

Ingestion : Not applicable..

11.2 Potencial Chronic health effects.

Chronic effects : No known significant effects or critical hazards

Carcinogenicity : No carcinogenic substances as defined by IARC , NTP and/or OSHA.

11.3 Acute Toxicity Level :

Acute oral toxicity : Not available

Acute dermal toxicity : Not available

Acute inhalation toxicity : Not available

12. ECOLOGICAL INFORMATION

12.1 Eco-Toxicity: Physical properties indicate that petroleum gases will rapidly volatilise from the aquatic environment and that acute and chronic effects would not be observed in practice

12.2 persistence and Degradability : Expected to be readily biodegradable. Oxidises rapidly by photo-chemical reactions in air..

12.3 Bioaccumulative Potential : Not expected to bioaccumulate significantly.

12.4 Mobility in soil : Because of their extreme volatility, air is the only environmental compartment that hydrocarbon gases will be found.

12.5 Other Adverse effect : No data available.

13. DISPOSAL CONSIDERATIONS

13.1 It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods compliance with applicable regulations. Return part-used or empty cylinders to the supplier.

14. TRANSPORT INFORMATION

14.1 UN No. : 1965

14.2 UN Proper shipping name : HYDROCARBON GAS MIXTURE, LIQUEFIED (LPG)

14.3 Transport Hazard class : 2.1

14.4 Packing group : Not available

14.5 Marine pollutants : Not available

14.6 Transport in bulk according to annex II of MARPOL73/78 and the ICB code : Not available

14.7 Special precautions for user/Additional information :

15. REGULATORY INFORMATION

15.1 Thailand Regulation

- **Labour Protection Act B.E.2541** : Material is not listed

- **Hazardous Substance Act B.E. 2535** : Material is not listed

15.2 EINECS :All components listed or polymer exempt.

15.3 OSHA : No data available.

15.4 TSCA : All components listed.

15.5 SARA : No data available

15.6 REACH Regulation : Environmental Protection and Management Act. Workplace Safety and Health Act 2006

16. OTHER INFORMATION

Key or legend to abbreviations and acronyms used in the safety data sheet

ACGIH : American Conference of Government Industrial Hygienists

NFPA : National Fire Protection Agency

NIOSH : National Institute for Occupational Safety & Health

OSHA : Occupational Safety & Health Administration

IARC : International Agency for Research on Cancer

SARA : Superfund Amendments and Reauthorization Act.

GHS : Globally Harmonized System

TSCA : Toxic Substance Control Act

WHMIS : Workplace Hazardous Materials Information System

LD50 : Lethal Dose 50%

CNS : Central Nervous System NTP National Toxicology Program

EC50 : Effective Concentration NOAEL No Observable Adverse EffectLevel

EC50 : Effective Concentration 50% NOEC No Observed Effect Concentration

PEL : Permissible Exposure Limit

STEL : Short-term Exposure Limit

TLV : Threshold Limit Value

TWA : Time Weighted Average

Remark

Additional Information Available from

Name: Bangkok Synthetic Company Limited

Address: 5, I-7 Road. Maptaput Industrial Estate, Muang District, Rayong 21150

Tel. : +66(0) 3869-8698 Fax. : +66(0) 3869-8690