

## 1. Identification

<b>Product identifier</b>	<b>Isobutane-rich C3-C4</b>
<b>Other means of identification</b>	
<b>Product code</b>	50110
<b>CAS number</b>	68477-33-8
<b>Recommended use</b>	Combustion fuel source.
<b>Recommended restrictions</b>	None known.
<b>Manufacturer/Importer/Supplier/Distributor information</b>	
<b>Company name</b>	Martinez Refining Company LLC
<b>Address</b>	3485 Pacheco Blvd Martinez, CA 94553 United States of America
<b>Telephone</b>	925-313-3601
<b>Emergency telephone</b>	CHEMTREC (24 hour) 800-424-9300

## 2. Hazard(s) identification

<b>Physical hazards</b>	Flammable gases	Category 1
	Gases under pressure	Liquefied gas

**Health hazards** Not classified.

**OSHA defined hazards** Simple asphyxiant

### Label elements



**Signal word** Danger

**Hazard statement** Extremely flammable gas. Contains gas under pressure; may explode if heated. May displace oxygen and cause rapid suffocation.

### Precautionary statement

**Prevention** Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Use only with adequate ventilation. Do not enter storage areas or confined spaces unless adequately ventilated.

**Response** Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so.

**Storage** Keep container tightly closed. Protect from sunlight. Store in a well-ventilated place.

**Disposal** Dispose of contents/container in accordance with local/regional/national/international regulations.

**Hazard(s) not otherwise classified (HNOC)** None known.

**Supplemental information** Contact with rapidly expanding gas near the point of release may cause frostbite.

## 3. Composition/information on ingredients

### Substances

Chemical name	Common name and synonyms	CAS number	%
Isobutane-rich C3-C4		68477-33-8	100

### Constituents

Chemical name	Common name and synonyms	CAS number	%
Isobutane		75-28-5	75 - 85

## Constituents

Chemical name	Common name and synonyms	CAS number	%
Butane		106-97-8	15 - 20
Propane		74-98-6	1 - 5

**Composition comments** Gas concentrations are in percent by volume.

## 4. First-aid measures

### Inhalation

Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory tract irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation. Get medical attention immediately.

### Skin contact

Contact with rapidly expanding compressed gas near the point of release may cause frostbite. If frostbite occurs, immerse involved area in warm water (between 100°F/38°C and 110°F/43°C, not exceeding 112°F/44°C). Keep immersed for 20 to 40 minutes. Seek medical assistance.

### Eye contact

Immediately flush with plenty of water for at least 15 minutes occasionally lifting upper and lower eyelids. If easy to do, remove contact lenses. Obtain medical attention without delay, preferably from an ophthalmologist.

### Ingestion

Not likely, due to the form of the product.

### Most important symptoms/effects, acute and delayed

Headache. Dizziness. Fatigue. Nausea, vomiting. Very high exposure can cause suffocation from lack of oxygen. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation. Asphyxiation may bring about unconsciousness without warning and so rapidly that victim may be unable to protect themselves. Contact with rapidly expanding gas near the point of release may cause frostbite.

### Indication of immediate medical attention and special treatment needed

Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.

### General information

Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

## 5. Fire-fighting measures

### Suitable extinguishing media

Water spray. Water fog. Foam. Dry chemical powder. Carbon dioxide (CO<sub>2</sub>). Use fire-extinguishing media appropriate for surrounding materials.

### Unsuitable extinguishing media

Do not use a solid water stream as it may scatter and spread fire.

### Specific hazards arising from the chemical

Vapors may form explosive mixtures with air. Vapors may travel considerable distance to a source of ignition and flash back. During fire, hazardous combustion products are released that may include: Carbon oxides.

### Special protective equipment and precautions for firefighters

Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

### Fire fighting equipment/instructions

In case of fire and/or explosion do not breathe fumes. Do not extinguish a leaking gas fire unless leak can be stopped. In case of fire: Stop leak if safe to do so. Do not move cargo or vehicle if cargo has been exposed to heat. If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also consider initial evacuation for 800 meters (1/2 mile) in all directions. ALWAYS stay away from tanks engulfed in flame. Move containers from fire area if you can do so without risk. Do not direct water at source of leak or safety devices as icing may occur. Use water spray to cool unopened containers. Withdraw immediately in case of rising sound from venting safety device or any discoloration of tanks due to fire. For massive fire in cargo area, use unmanned hose holder or monitor nozzles, if possible. If not, withdraw and let fire burn out.

### Specific methods

Use standard firefighting procedures and consider the hazards of other involved materials. Cool containers exposed to flames with water until well after the fire is out.

### General fire hazards

Extremely flammable gas. Contents under pressure. Pressurized container may explode when exposed to heat or flame.

## 6. Accidental release measures

### Personal precautions, protective equipment and emergency procedures

In the event of a leak evacuate all personnel until ventilation can restore oxygen concentrations to safe levels. Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Wear appropriate protective equipment and clothing during clean-up. Emergency personnel need self-contained breathing equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

**Methods and materials for containment and cleaning up**

Stop leak if you can do so without risk. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep combustibles (wood, paper, oil, etc.) away from spilled material. Isolate area until gas has dispersed.

**Environmental precautions**

Prevent further leakage or spillage if safe to do so.

**7. Handling and storage****Precautions for safe handling**

Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Do not smoke. All equipment used when handling the product must be grounded. Avoid breathing gas. Avoid prolonged exposure. Do not enter storage areas or confined spaces unless adequately ventilated. Use only outdoors or in a well-ventilated area. Oxygen concentration should not fall below 19.5 % at sea level (pO<sub>2</sub> = 135 mmHg). Mechanical ventilation or local exhaust ventilation may be required. Wear appropriate personal protective equipment. Avoid release to the environment. Observe good industrial hygiene practices.

**Conditions for safe storage, including any incompatibilities**

Keep away from heat, sparks and open flame. Store in a cool, dry place out of direct sunlight. Store in tightly closed container. Store in a well-ventilated place. Store at temperatures below: 125°F. Stored containers should be periodically checked for general condition and leakage. Store away from incompatible materials (see Section 10 of the SDS).

**8. Exposure controls/personal protection****Occupational exposure limits****US. OSHA Table Z-1 Permissible Exposure Limits (PEL) for Air Contaminants (29 CFR 1910.1000)**

Constituents	Type	Value
Propane (CAS 74-98-6)	PEL	1800 mg/m <sup>3</sup>
		1000 ppm

**US. ACGIH Threshold Limit Values (TLV)**

Constituents	Type	Value
Butane (CAS 106-97-8)	STEL	1000 ppm
Isobutane (CAS 75-28-5)	STEL	1000 ppm

**NIOSH. Immediately Dangerous to Life or Health (IDLH) Values, as amended**

Constituents	Type	Value
Butane (CAS 106-97-8)	IDLH	1.6 %
		2000 ppm
		1600 ppm
Propane (CAS 74-98-6)	IDLH	2.1 %
		2100 ppm

**US. NIOSH: Pocket Guide to Chemical Hazards**

Constituents	Type	Value
Butane (CAS 106-97-8)	TWA	1900 mg/m <sup>3</sup>
		800 ppm
Propane (CAS 74-98-6)	TWA	1800 mg/m <sup>3</sup>
		1000 ppm
Isobutane (CAS 75-28-5)	TWA	1900 mg/m <sup>3</sup>
		800 ppm

**Biological limit values**

No biological exposure limits noted for the ingredient(s).

**Appropriate engineering controls**

Explosion-proof general and local exhaust ventilation. Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

**Individual protection measures, such as personal protective equipment****Eye/face protection**

Wear safety glasses with side shields (or goggles).

**Skin protection****Hand protection**

Wear protective gloves. Suitable gloves can be recommended by the glove supplier.

<b>Skin protection</b>	
<b>Other</b>	Wear suitable protective clothing. When there is a risk of ignition from static electricity, wear antistatic protective clothing.
<b>Respiratory protection</b>	If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. WARNING! Air-purifying respirators do not protect workers in oxygen deficient atmospheres. Use a positive-pressure air-supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air-purifying respirators may not provide adequate protection. Follow OSHA respirator regulations (29CFR 1910.134) and use NIOSH/MSHA approved respirators. Appropriate respirator selection should be made by a qualified professional.
<b>Thermal hazards</b>	Wear appropriate thermal protective clothing, when necessary.
<b>General hygiene considerations</b>	When using do not smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

## 9. Physical and chemical properties

### Appearance

<b>Physical state</b>	Gas.
<b>Form</b>	Gas under normal atmospheric conditions; liquid under pressure.
<b>Color</b>	Colorless.
<b>Odor</b>	Slight gasoline-like, petroleum.
<b>Odor threshold</b>	10 - 1200 ppm
<b>pH</b>	Not applicable.
<b>Melting point/freezing point</b>	-225 °F (-142.78 °C) (approximately)
<b>Initial boiling point and boiling range</b>	10 °F (-12.22 °C) (approximately)
<b>Flash point</b>	-117 °F (-82.78 °C) Closed Cup (approximately)
<b>Evaporation rate</b>	Not available.
<b>Flammability (solid, gas)</b>	Extremely flammable gas.
<b>Upper/lower flammability or explosive limits</b>	
<b>Explosive limit - lower (%)</b>	1.4 %
<b>Explosive limit - upper (%)</b>	8 %
<b>Vapor pressure</b>	50 - 60 psig (65 °F (18.33 °C))
<b>Vapor density</b>	Not available.
<b>Relative density</b>	0.57 (Water=1) (liquified) (60 °F (15.56 °C))
<b>Solubility(ies)</b>	
<b>Solubility (water)</b>	49 mg/l (approximately) (77 °F (25 °C))
<b>Solubility (other)</b>	Miscible in hydrocarbons.
<b>Partition coefficient (n-octanol/water)</b>	Not applicable.
<b>Auto-ignition temperature</b>	850 °F (454.44 °C) (approximately)
<b>Decomposition temperature</b>	Not available.
<b>Viscosity</b>	Not applicable.
<b>Other information</b>	
<b>Explosive properties</b>	Not explosive.
<b>Oxidizing properties</b>	Not oxidizing.

## 10. Stability and reactivity

<b>Reactivity</b>	The product is stable and non-reactive under normal conditions of use, storage and transport.
<b>Chemical stability</b>	Material is stable under normal conditions.
<b>Possibility of hazardous reactions</b>	No dangerous reaction known under conditions of normal use.

<b>Conditions to avoid</b>	Avoid heat, sparks, open flames and other ignition sources. Protect against direct sunlight. Contact with incompatible materials.
<b>Incompatible materials</b>	Strong oxidizing agents.
<b>Hazardous decomposition products</b>	Thermal decomposition or combustion may produce: carbon monoxide, carbon dioxide and other asphyxiants.

## 11. Toxicological information

### Information on likely routes of exposure

<b>Inhalation</b>	Suffocation (asphyxiant) hazard - if allowed to accumulate to concentrations that reduce oxygen below safe breathing levels.
<b>Skin contact</b>	Contact with compressed gas can cause damage (frostbite) due to rapid evaporative cooling.
<b>Eye contact</b>	Direct contact with compressed gas can cause damage (frostbite).
<b>Ingestion</b>	Not likely, due to the form of the product.

**Symptoms related to the physical, chemical and toxicological characteristics** Headache. Dizziness. Fatigue. Nausea, vomiting. Very high exposure can cause suffocation from lack of oxygen. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation. Asphyxiation may bring about unconsciousness without warning and so rapidly that victim may be unable to protect themselves. Contact with rapidly expanding gas near the point of release may cause frostbite.

### Information on toxicological effects

**Acute toxicity** Not expected to be acutely toxic.

### Toxicological data

Constituents	Species	Test Results
Butane (CAS 106-97-8)		
<b><u>Acute</u></b>		
<b>Inhalation</b>		
LC50	Rat	658 mg/l, 4 Hours
Propane (CAS 74-98-6)		
<b><u>Acute</u></b>		
<b>Inhalation</b>		
Gas		
LC50	Rat	> 80000 ppm, 15 Minutes

**Skin corrosion/irritation** Not classified.

**Serious eye damage/eye irritation** Not classified.

### Respiratory or skin sensitization

**Respiratory sensitization** Not a respiratory sensitizer.

**Skin sensitization** This product is not expected to cause skin sensitization.

**Germ cell mutagenicity** No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

**Carcinogenicity** Not classifiable as to carcinogenicity to humans.

#### IARC Monographs. Overall Evaluation of Carcinogenicity

Not listed.

#### NTP Report on Carcinogens

Not listed.

#### OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

**Reproductive toxicity** This product is not expected to cause reproductive or developmental effects.

**Specific target organ toxicity - single exposure** Not classified.

**Specific target organ toxicity - repeated exposure** Not classified.

**Aspiration hazard** Not relevant, due to the form of the product.

**Chronic effects** Prolonged inhalation may be harmful.

## 12. Ecological information

<b>Ecotoxicity</b>	The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.
<b>Persistence and degradability</b>	No data is available on the degradability of this substance.
<b>Bioaccumulative potential</b>	No data available on bioaccumulation.
<b>Mobility in soil</b>	Not relevant, due to the form of the product.
<b>Other adverse effects</b>	The product is a volatile organic compound which has a photochemical ozone creation potential.

## 13. Disposal considerations

<b>Disposal instructions</b>	Dispose of contents/container in accordance with local/regional/national/international regulations.
<b>Hazardous waste code</b>	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
<b>Waste from residues / unused products</b>	Dispose in accordance with local regulations.
<b>Contaminated packaging</b>	Empty containers should be taken to an approved waste handling site for recycling or disposal.

## 14. Transport information

### DOT

<b>UN number</b>	UN1075
<b>UN proper shipping name</b>	Petroleum gases, liquefied
<b>Transport hazard class(es)</b>	
<b>Class</b>	2.1
<b>Subsidiary hazard</b>	-
<b>Label(s)</b>	2.1
<b>Packing group</b>	-
<b>Environmental hazards</b>	
<b>Marine pollutant</b>	No
<b>Special precautions for user</b>	Read safety instructions, SDS and emergency procedures before handling.
<b>Special provisions</b>	T50
<b>Packaging exceptions</b>	306
<b>Packaging non bulk</b>	304
<b>Packaging bulk</b>	314, 315

### IATA

<b>UN number</b>	UN1075
<b>UN proper shipping name</b>	Petroleum gases, liquefied
<b>Transport hazard class(es)</b>	
<b>Class</b>	2.1
<b>Subsidiary hazard</b>	-
<b>Label(s)</b>	2.1
<b>Packing group</b>	-
<b>Environmental hazards</b>	No
<b>ERG Code</b>	10L
<b>Special precautions for user</b>	Read safety instructions, SDS and emergency procedures before handling.

### IMDG

<b>UN number</b>	UN1075
<b>UN proper shipping name</b>	PETROLEUM GASES, LIQUEFIED
<b>Transport hazard class(es)</b>	
<b>Class</b>	2.1
<b>Subsidiary hazard</b>	-
<b>Packing group</b>	-
<b>Environmental hazards</b>	
<b>Marine pollutant</b>	No
<b>EmS</b>	F-D, S-U
<b>Special precautions for user</b>	Read safety instructions, SDS and emergency procedures before handling.
<b>Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code</b>	Not applicable.

## General information

Avoid transport on vehicles where the load space is not separated from the driver's compartment. Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency. Before transporting product containers: Ensure that containers are firmly secured. Ensure cylinder valve is closed and not leaking. Ensure valve outlet cap nut or plug (where provided) is correctly fitted. Ensure valve protection device (where provided) is correctly fitted. Ensure adequate ventilation. Ensure compliance with applicable regulations.

## 15. Regulatory information

### US federal regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

#### TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

#### CERCLA Hazardous Substance List (40 CFR 302.4)

Butane (CAS 106-97-8)	Listed.
Isobutane (CAS 75-28-5)	Listed.
Propane (CAS 74-98-6)	Listed.

#### SARA 304 Emergency release notification

Not regulated.

#### OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

#### Toxic Substances Control Act (TSCA)

This substance is on the TSCA 8(b) inventory and is designated "active".

### Superfund Amendments and Reauthorization Act of 1986 (SARA)

#### SARA 302 Extremely hazardous substance

Not listed.

#### SARA 311/312 Hazardous chemical

Yes

#### Classified hazard categories

Flammable (gases, aerosols, liquids, or solids)  
Gas under pressure  
Simple asphyxiant

#### SARA 313 (TRI reporting)

Not regulated.

### Other federal regulations

#### Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

#### Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Butane (CAS 106-97-8)  
Isobutane (CAS 75-28-5)  
Propane (CAS 74-98-6)

#### Safe Drinking Water Act (SDWA)

Not regulated.

### US state regulations

#### US. Massachusetts RTK - Substance List

Butane (CAS 106-97-8)  
Isobutane (CAS 75-28-5)  
Propane (CAS 74-98-6)

#### US. New Jersey Worker and Community Right-to-Know Act

Butane (CAS 106-97-8)  
Isobutane (CAS 75-28-5)  
Propane (CAS 74-98-6)

#### US. Pennsylvania Worker and Community Right-to-Know Law

Butane (CAS 106-97-8)  
Isobutane (CAS 75-28-5)  
Propane (CAS 74-98-6)

#### US. Rhode Island RTK

Butane (CAS 106-97-8)  
Propane (CAS 74-98-6)

## California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

### International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Industrial Chemicals (AICIS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	No
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	No
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	No
Taiwan	Taiwan Chemical Substance Inventory (TCSI)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

\*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

## 16. Other information, including date of preparation or last revision

Issue date	06-August-2024
Revision date	-
Version #	01
HMIS® ratings	Health: 2 Flammability: 4 Physical hazard: 3

### NFPA ratings



### Disclaimer

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