



SAFETY DATA SHEET

SDS ID NO.: 0206MAR020
Revision Date 05/20/2015

1. IDENTIFICATION

Product Name: Marathon Petroleum Isobutane/Butane Mix
Synonym: C3-C4 Distillates, Isobutane Rich; C3-C4 Isobutane/Butane Mix; Distillates (Petroleum)
C3-4 Isobutane Rich; Technical Isobutane
Product Code: 0206MAR020
Chemical Family: Hydrocarbon Gas
Recommended Use: Refinery Stream.
Restrictions on Use: All others.

Manufacturer, Importer, or Responsible Party Name and Address:
MARATHON PETROLEUM COMPANY LP
539 South Main Street
Findlay, OH 45840

SDS information: 1-419-421-3070

Emergency Telephone: 1-877-627-5463

2. HAZARD IDENTIFICATION

Classification

OSHA Regulatory Status

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable gases	Category 1
Gases under pressure	Liquefied Gas
Simple Asphyxiant	-

Hazards Not Otherwise Classified (HNOC)

Static accumulating flammable liquid
Liquid product may cause freeze burn

Label elements

EMERGENCY OVERVIEW

Danger

Extremely flammable gas
Contains gas under pressure; may explode if heated
May accumulate electrostatic charge and ignite or explode
May displace oxygen and cause rapid suffocation
Contact with liquid product may cause freeze burn.



Appearance Colorless Liquefied Gas **Physical State** Liquefied Gas **Odor** Hydrocarbon

Precautionary Statements - Prevention

Keep away from heat/sparks/open flames/hot surfaces. - No smoking

Precautionary Statements - Response

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

Precautionary Statements - Storage

Protect from sunlight. Store in a well-ventilated place

Precautionary Statements - Disposal

Dispose of contents/container at an approved waste disposal plant

3. COMPOSITION/INFORMATION ON INGREDIENTS

Composition Information:

Name	CAS Number	% Concentration
Residues (petroleum), alkylation splitter, C4-rich	68513-66-6	100
Isobutane	75-28-5	90-95
n-Butane	106-97-8	1-6
Propane	74-98-6	0-1

All concentrations are percent by weight unless material is a gas. Gas concentrations are in percent by volume.

4. FIRST AID MEASURES

First Aid Measures

General Advice: In case of accident or if you feel unwell, seek medical advice immediately (show directions for use or safety data sheet if possible).

Inhalation: Remove to fresh air. If not breathing, institute rescue breathing. If breathing is difficult, ensure airway is clear, give oxygen and continue to monitor. If heart has stopped, immediately begin cardiopulmonary resuscitation (CPR). GET IMMEDIATE MEDICAL ATTENTION.

Skin Contact: If liquefied product has caused frostbite, remove contaminated clothing. Thaw frost bitten areas slowly with lukewarm water or by wrapping affected areas with blankets. Do not rub affected areas. Let circulation reestablish itself naturally, exercising area if possible. GET IMMEDIATE MEDICAL ATTENTION.

Eye Contact:
Liquid: Flush with large amounts of tepid water for at least 15 minutes. If frostbite is suspected (cloudy lens or greyish white tissue around the eye), GET IMMEDIATE MEDICAL ATTENTION.
Gas: Call a physician if signs or symptoms of contact occur, including irritation.

Ingestion: Ingestion not likely. If swallowed, immediately call a poison control center or physician.

Most important signs and symptoms, both short-term and delayed with overexposure

Adverse Effects: Contact with liquid product may cause freeze burn. Asphyxiant gas. High concentrations in the immediate area can displace oxygen causing the feeling of suffocation and can cause headache, drowsiness, dizziness, loss of coordination, disorientation and fatigue from oxygen deprivation.

Indication of any immediate medical attention and special treatment needed

Notes To Physician: INHALATION: Overexposure to volatile hydrocarbons may sensitize the heart to epinephrine and other catecholamines producing serious cardiac arrhythmias. Careful consideration of this potential adverse effect should precede administration of epinephrine or other cardiac stimulants as well as bronchodilator use. Administration of sympathomimetic drugs should be avoided with hydrocarbon overexposure. Treat symptomatically. Administer supplemental oxygen as needed.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

For small fires, Class B fire extinguishing media such as CO2, dry chemical, foam (AFFF/ATC) or water spray can be used. For large fires, water spray, fog or foam (AFFF/ATC) can be used. Firefighting should be attempted only by those who are adequately trained and equipped with proper protective equipment.

Unsuitable extinguishing media

DO NOT EXTINGUISH A LEAKING GAS FIRE UNLESS LEAK CAN BE STOPPED.

Specific hazards arising from the chemical

This product has been determined to be an extremely flammable gas per the OSHA Hazard Communication Standard and should be handled accordingly. Vapors may travel along the ground or be moved by ventilation and ignited by many sources such as pilot lights, sparks, electric motors, static discharge, or other ignition sources at locations distant from material handling. Flashback can occur along vapor trail. May accumulate electrostatic charge and ignite or explode. Sealed containers may rupture when heated. A phenomena known as boiling liquid expanding vapor explosions (Bleve) can occur when a liquid in a pressurized container comes in close proximity to a fire and reaches a temperature well above its boiling point. A catastrophic failure of the vessel can occur, resulting in flying equipment fragments, a shock wave and a fireball causing serious damage and death. For additional fire related information see NFPA 30 or the Emergency Response Guidebook 115.

Hazardous combustion products

Smoke, carbon monoxide, and other products of incomplete combustion.

Explosion data

Sensitivity to Mechanical Impact No.
Sensitivity to Static Discharge Yes.

Special protective equipment and precautions for firefighters

Firefighters should wear full protective clothing and positive-pressure self-contained breathing apparatus (SCBA) with a full face-piece, as appropriate. Since this gas could burn with a near invisible flame in daylight, approach with caution. Isolate hazard area. If safe to do so, stop the flow of gas and allow fire to burn out. Extinguishing the flame before shutting off the supply can cause the formation of explosive mixtures. In some cases it may be preferred to allow the flame to continue to burn. Keep surrounding area cool with water spray from a distance and prevent further ignition of combustible material. Avoid use of solid water streams. Contact with water and liquefied product can cause increased vaporization. Use extreme caution when fighting liquefied petroleum gas fires.

Additional firefighting tactics

FIRES INVOLVING TANKS OR CAR/TRAILER LOADS: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Cool containers with flooding quantities of water until well after the fire is out. Do not direct water at source of leak or safety devices; icing may occur. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. ALWAYS stay away from tanks engulfed in fire. For massive fire, use unmanned hose holders or monitor nozzles: if this is impossible, withdraw from area and let fire burn.

EVACUATION: Consider initial downwind evacuation for at least 1000 feet. If tank, rail car or tank truck is involved in a fire,

ISOLATE for 5280 feet (1 mile) in all directions; also, consider initial evacuation of 5280 feet (1 mile) in all directions.

NFPA Health 1 Flammability 4 Instability 0 Special Hazard -

6. ACCIDENTAL RELEASE MEASURES

- Personal precautions:** Keep people away from and upwind of spill/leak. Isolate and evacuate area. Shut off source if safe to do so. Distant ignition and flashback are possible. Eliminate all ignition sources. Use grounded and bonded, explosion-proof equipment. Monitor area for flammable or explosive atmosphere. Before entry, especially into confined areas, check atmosphere with an appropriate monitor.
- Protective equipment:** Use personal protection measures as recommended in Section 8.
- Emergency procedures:** Leaking containers should be moved outdoors or to well-ventilated area and contents transferred to a suitable container. Product vapor is heavier than air and can collect in low areas that are without sufficient ventilation. Notify local health and pollution control agencies, if appropriate.
- Environmental precautions:** If leaking, take appropriate steps to disperse gas.
- Methods and materials for containment:** Prevent further leakage or spillage if safe to do so.
- Methods and materials for cleaning up:** Shut off gas supply, if safe to do so. Allow equipment to depressurize. Isolate area until gas has dispersed.

7. HANDLING AND STORAGE

- Safe Handling Precautions:**

Avoid breathing gas or mists. Use only with adequate ventilation. Gas may accumulate along the ground, settle in low lying areas or be moved by ventilation and ignited by many sources such as pilot lights, sparks, electric motors, static discharge, or other ignition sources at locations distant from material handling. Flashback may occur along vapor trails. Do not expose to heat, open flames, strong oxidizers or other sources of ignition. Use only non-sparking tools. Use appropriate grounding and bonding practices. Bonding and grounding may be insufficient to eliminate the hazard from static electricity. Exercise good personal hygiene including removal of soiled clothing and prompt washing with soap and water. Do not cut, drill, grind or weld on empty containers since explosive residues may remain. Comply with all applicable EPA, OSHA, NFPA and consistent state and local requirements.

Components of this product are basically non-conductors of electricity and can become electrostatically charged during mixing, filtering or pumping at high flow rates. If this charge reaches a sufficiently high level, sparks can form that may ignite the vapors of flammable liquids. Sudden release of hot organic vapors or mists from process equipment operating at elevated temperature and pressure, or sudden ingress of air into vacuum equipment, may result in ignitions without the presence of obvious ignition sources.
- Storage Conditions:** Product is stored as a liquid but used in the gaseous state. Store in properly closed containers that are appropriately labeled and in a cool, well-ventilated area. Keep product and empty container away from heat and sources of ignition. Do not puncture or incinerate container.
- Incompatible Materials** Strong oxidizing agents.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Name	ACGIH TLV	OSHA PELS:	OSHA - Vacated PELs	NIOSH IDLH
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Residues (petroleum), alkylation splitter, C4-rich 68513-66-6	-	-	-	-
Isobutane 75-28-5	1000 ppm STEL	-	-	-
n-Butane 106-97-8	1000 ppm STEL	-	800 ppm TWA 1900 mg/m ³ TWA	-
Propane 74-98-6	Simple asphyxiant	TWA: 1000 ppm TWA: 1800 mg/m ³	1000 ppm TWA 1800 mg/m ³ TWA	2100 ppm

Notes: The manufacturer has voluntarily elected to provide exposure limits contained in OSHA's 1989 air contaminants standard in its SDSs, even though certain of those exposure limits were vacated in 1992.

Engineering measures: Local or general exhaust required in an enclosed area or when there is inadequate ventilation. Use mechanical ventilation equipment that is explosion-proof. Monitor atmospheric oxygen levels.

Personal protective equipment

Eye protection: Goggles or faceshield may be needed when handling pressurized gases.

Skin and body protection: Wear insulated gloves to prevent skin contact and frostbite or freeze burn. Contact the glove manufacturer for specific advice on glove selection and breakthrough times.

Respiratory protection: Use atmosphere supplying respirators in the event of oxygen deficiency, when material produces gases and/or vapors that exceed permissible limits, or when excessive gases and/or vapors are generated. Observe respirator assigned protection factors (APFs) criteria cited in federal OSHA 29 CFR 1910.134. Self-contained breathing apparatus should be used for fire fighting.

Note: Air purifying respirators are not to be used in atmospheres that exceed the maximum use concentration (as directed by regulation or the manufacturers instructions), in oxygen deficient atmospheres, (less than 19.5% oxygen) or under conditions that are immediately dangerous to life and health (IDLH).

Hygiene measures: Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes and clothing. Do not smoke while handling.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical State Liquefied Gas
Appearance Colorless Liquefied Gas
Color Colorless
Odor Hydrocarbon
Odor Threshold No data available.

<u>Property</u>	<u>Values (Method)</u>
Melting Point / Freezing Point	No data available.
Initial Boiling Point / Boiling Range	-12 to -0.5 °C / 11 to 31 °F
Flash Point	-83 to -60 °C / -117 to -76 °F
Evaporation Rate	No data available.
Flammability (solid, gas)	Extremely flammable gas
Flammability Limit in Air (%):	
Upper Flammability Limit:	8.4
Lower Flammability Limit:	1.6
Explosion limits:	No data available.
Vapor Pressure	No data available.
Vapor Density	2.1
Specific Gravity / Relative Density	0.59

Water Solubility	No data available.
Solubility in other solvents	No data available.
Partition Coefficient	No data available.
Decomposition temperature	No data available.
pH:	Not applicable
Autoignition Temperature	No data available.
Kinematic Viscosity	No data available.
Dynamic Viscosity	No data available.
Explosive Properties	No data available.
VOC Content (%)	No data available.
Density	4.8-4.9 lbs/gal
Bulk Density	Not applicable

10. STABILITY AND REACTIVITY

<u>Reactivity</u>	The product is non-reactive under normal conditions.
<u>Chemical stability</u>	The material is stable at 70°F (21°C), 760 mmHg pressure.
<u>Possibility of hazardous reactions</u>	None under normal processing.
<u>Hazardous polymerization</u>	Will not occur.
<u>Conditions to avoid</u>	Sources of heat or ignition.
<u>Incompatible Materials</u>	Strong oxidizing agents.
<u>Hazardous decomposition products</u>	None known under normal conditions of use.

11. TOXICOLOGICAL INFORMATION

Potential short-term adverse effects from overexposures

Inhalation	May cause central nervous system depression with nausea, headache, dizziness, vomiting, and incoordination. In high concentration the gas may cause suffocation. Victim may not be aware of asphyxiation.
Eye contact	Vapor may cause irritation. Direct contact with liquefied product can cause freeze burn or frostbite.
Skin contact	Gas or vapor is generally non-irritating to skin. Direct contact with liquefied product can cause freeze burn or frostbite.
Ingestion	Ingestion not likely.

Acute toxicological data

Name	Oral LD50	Dermal LD50	Inhalation LC50
Residues (petroleum), alkylation splitter, C4-rich 68513-66-6	-	-	-
Isobutane 75-28-5	-	-	570,000 ppm (Rat) 15 min
n-Butane 106-97-8	-	-	658 mg/L (Rat) 4 h
Propane 74-98-6	-	-	> 1,464 mg/L (Rat) 15 min

Delayed and immediate effects as well as chronic effects from short and long-term exposure

BUTANES: Studies in laboratory animals indicate exposure to extremely high levels of

butanes (1-10 or higher vol.% in air) may cause cardiac arrhythmias (irregular heartbeats) which may be serious or fatal.

PROPANE: Studies in laboratory animals indicate exposure to extremely high levels of propane (1 to 10 vol.% in air) may cause cardiac arrhythmias (irregular heartbeats) which may be serious or fatal.

Adverse effects related to the physical, chemical and toxicological characteristics

Signs and Symptoms Contact with liquid product may cause freeze burn. Asphyxiant gas. High concentrations in the immediate area can displace oxygen causing the feeling of suffocation and can cause headache, drowsiness, dizziness, loss of coordination, disorientation and fatigue from oxygen deprivation.

Sensitization Not expected to be a skin or respiratory sensitizer.

Mutagenic effects None known.

Carcinogenicity None known.

Cancer designations are listed in the table below

Name	ACGIH (Class)	IARC (Class)	NTP	OSHA
Residues (petroleum), alkylation splitter, C4-rich 68513-66-6	Not Listed	Not Listed	Not Listed	Not Listed
Isobutane 75-28-5	Not Listed	Not Listed	Not Listed	Not Listed
n-Butane 106-97-8	Not Listed	Not Listed	Not Listed	Not Listed
Propane 74-98-6	Not Listed	Not Listed	Not Listed	Not Listed

Reproductive toxicity None known.

Specific Target Organ Toxicity (STOT) - single exposure Not classified.

Specific Target Organ Toxicity (STOT) - repeated exposure Not classified.

Aspiration hazard Not applicable.

12. ECOLOGICAL INFORMATION

Ecotoxicity This product is not expected to be harmful to aquatic organisms.

Name	Algae/aquatic plants	Fish	Toxicity to Microorganisms	Crustacea
Residues (petroleum), alkylation splitter, C4-rich 68513-66-6	-	-	-	-
Isobutane 75-28-5	-	-	-	-
n-Butane 106-97-8	-	-	-	-
Propane 74-98-6	-	-	-	-

Persistence and degradability Readily biodegradable in the environment.

Bioaccumulation Not expected to bioaccumulate in aquatic organisms.

Mobility in soil Not classified in terms of mobility in air, soil and water. Due to physical properties, the mobility of this material is expected to be negligible.

Other adverse effects No information available.

13. DISPOSAL CONSIDERATIONS

Description of Waste Residues
No information available.

Safe Handling of Wastes
Handle in accordance with applicable local, state, and federal regulations. Use personal protection measures as required. Use appropriate grounding and bonding practices. Use only non-sparking tools. Do not expose to heat, open flames, strong oxidizers or other sources of ignition. No smoking.

Disposal of Wastes / Methods of Disposal
The user is responsible for determining if any discarded material is a hazardous waste (40 CFR 262.11). Dispose of in accordance with federal, state and local regulations.

Methods of Contaminated Packaging Disposal
Empty containers should be completely drained and then discarded or recycled, if possible. Do not cut, drill, grind or weld on empty containers since explosive residues may be present. Dispose of in accordance with federal, state and local regulations.

14. TRANSPORT INFORMATION

DOT (49 CFR 172.101):
UN Proper Shipping Name: Isobutane mixture
UN/Identification No: UN 1969
Class: 2.1
Packing Group: Not applicable.

TDG (Canada):
UN Proper Shipping Name: Isobutane mixture
UN/Identification No: UN 1969
Transport Hazard Class(es): 2.1
Packing Group: Not applicable.

15. REGULATORY INFORMATION

US Federal Regulatory Information:

US TSCA Chemical Inventory Section 8(b): This product and/or its components are listed on the TSCA Chemical Inventory.

EPA Superfund Amendment & Reauthorization Act (SARA):

SARA Section 302: This product does not contain any component(s) included on EPA's Extremely Hazardous Substance (EHS) List.

Name	CERCLA/SARA - Section 302 Extremely Hazardous Substances and TPQs
Residues (petroleum), alkylation splitter, C4-rich	NA
Isobutane	NA
n-Butane	NA
Propane	NA

SARA Section 304: This product does not contain any component(s) identified as an EHS or a CERCLA Hazardous substance, which in case of a spill or release may be subject to SARA reporting requirements.

Name	Hazardous Substances RQs
Residues (petroleum), alkylolation splitter, C4-rich	NA
Isobutane	NA
n-Butane	NA
Propane	NA

SARA Section 311/312: The following EPA hazard categories apply to this product:

- Acute Health Hazard
- Fire Hazard
- Sudden Release Of Pressure

SARA Section 313: This product does not contain components, which if in exceedance of the de minimus threshold, may be subject to the reporting requirements of SARA Title III Section 313 Toxic Release Reporting (Form R):

Name	CERCLA/SARA 313 Emission reporting:
Residues (petroleum), alkylolation splitter, C4-rich	None
Isobutane	None
n-Butane	None
Propane	None

State and Community Right-To-Know Regulations:

The following component(s) of this material are identified on the regulatory lists below:

Residues (petroleum), alkylolation splitter, C4-rich

- Louisiana Right-To-Know: Not Listed
- California Proposition 65: Not Listed
- New Jersey Right-To-Know: Not Listed
- Pennsylvania Right-To-Know: Not Listed
- Massachusetts Right-To Know: Not Listed
- Florida Substance List: Not Listed
- Rhode Island Right-To-Know: Not Listed
- Michigan Critical Materials Register List: Not Listed
- Massachusetts Extraordinarily Hazardous Substances: Not Listed
- California - Regulated Carcinogens: Not Listed
- Pennsylvania RTK - Special Hazardous Substances: Not Listed
- New Jersey - Special Hazardous Substances: Not Listed
- New Jersey - Environmental Hazardous Substances List: Not Listed
- Illinois - Toxic Air Contaminants: Not Listed
- New York - Reporting of Releases Part 597 - List of Hazardous Substances: Not Listed

Isobutane

- Louisiana Right-To-Know: Not Listed
- California Proposition 65: Not Listed
- New Jersey Right-To-Know: SN 1040
- Pennsylvania Right-To-Know: Present
- Massachusetts Right-To Know: Present
- Florida Substance List: Not Listed
- Rhode Island Right-To-Know: Not Listed
- Michigan Critical Materials Register List: Not Listed
- Massachusetts Extraordinarily Hazardous Substances: Not Listed
- California - Regulated Carcinogens: Not Listed
- Pennsylvania RTK - Special Hazardous Substances: Not Listed
- New Jersey - Special Hazardous Substances: Flammable - fourth degree
- New Jersey - Environmental Hazardous Substances List: SN 1040 TPQ: 500 lb
- Illinois - Toxic Air Contaminants: Not Listed

New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed
n-Butane	
Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	SN 0273
Pennsylvania Right-To-Know:	Present
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Toxic; Flammable
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Flammable - fourth degree
New Jersey - Environmental Hazardous Substances List:	SN 0273 TPQ: 500 lb
Illinois - Toxic Air Contaminants:	Not Listed
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed
Propane	
Louisiana Right-To-Know:	Not Listed
California Proposition 65:	Not Listed
New Jersey Right-To-Know:	SN 1594
Pennsylvania Right-To-Know:	Present
Massachusetts Right-To Know:	Present
Florida Substance List:	Not Listed
Rhode Island Right-To-Know:	Toxic; Flammable
Michigan Critical Materials Register List:	Not Listed
Massachusetts Extraordinarily Hazardous Substances:	Not Listed
California - Regulated Carcinogens:	Not Listed
Pennsylvania RTK - Special Hazardous Substances:	Not Listed
New Jersey - Special Hazardous Substances:	Flammable - fourth degree
New Jersey - Environmental Hazardous Substances List:	SN 1594 TPQ: 500 lb
Illinois - Toxic Air Contaminants:	Not Listed
New York - Reporting of Releases Part 597 - List of Hazardous Substances:	Not Listed

Canada DSL/NDSL Inventory: This product and/or its components are listed either on the Domestic Substances List (DSL) or are exempt.

Canadian Regulatory Information: This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the SDS contains all of the information required by those regulations.

Name	Canada - WHMIS: Classifications of Substances:	Canada - WHMIS: Ingredient Disclosure:
Residues (petroleum), alkylation splitter, C4-rich	A,B1	1%
Isobutane	A,B1	1%
n-Butane	A,B1	1%
Propane	A,B1	1%



Note: Not applicable.

16. OTHER INFORMATION

Prepared By Toxicology and Product Safety

Revision Notes

Revision Date 05/20/2015
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Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information is intended as guidance for safe handling, use, processing, storage, transportation, accidental release, clean-up and disposal and is not considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.