

SAFETY DATA SHEET

Classified in accordance with 29 CFR 1910.1200

1. Identification

Product identifier: Crude Butadiene (Inhibited)**Other means of identification****Common name(s),
synonym(s):** C4 Co-product; C4 Intermediate Hydrocarbon Stream; C4, ethylene-manuf.-by-product; Geismar C4's, Crude Butadiene
SDS number: NOVA-0155**Recommended use and restriction on use****Recommended use:** Raw material used in industrial applications for chemical and elastomers manufacturing.**Restrictions on use:** All uses other than the identified.**Manufacturer/Importer/Supplier/Distributor Information****Manufacturer****Company Name:** NOVA Chemicals Olefins LLC
Address: P.O. Box 470
Geismar, Louisiana, USA 70734
Telephone: Product Information: 1-412-490-4063
SDS Information Email: msdsemail@novachem.com**Emergency telephone number:**1-800-561-6682, 1-403-314-8767 (NOVA Chemicals) (24 hours)
1-800-424-9300 (CHEMTREC-USA) (24 hours)

2. Hazard(s) identification

Hazard Classification**Physical Hazards**Flammable gas Category 1
Gases under pressure Liquefied gas**Health Hazards**Germ Cell Mutagenicity Category 1B
Carcinogenicity Category 1A**OSHA hazard(s)**

Simple asphyxiant

Environmental HazardsAcute hazards to the aquatic environment Category 3
Chronic hazards to the aquatic environment Category 3**Label Elements**

Hazard Symbol:**Signal Word:**

Danger

Hazard Statement:

Extremely flammable gas.
 Contains gas under pressure; may explode if heated.
 May displace oxygen and cause rapid suffocation.
 May cause genetic defects.
 May cause cancer.
 Harmful to aquatic life with long lasting effects.

Precautionary Statements:**Prevention:**

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep container tightly closed. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection. Avoid release to the environment.

Response:

IF exposed or concerned: Get medical advice/attention. Leaking gas fire: Do not extinguish, unless leak can be stopped safely. In case of leakage, eliminate all ignition sources.

Storage:

Store locked up. Protect from sunlight. Store in a well-ventilated place.

Disposal:

Dispose of contents/ container to an approved facility in accordance with local, regional, national and international regulations.

Other hazards which do not result in GHS classification:

Contact with liquefied gas may cause irritation and/or frostbite.

3. Composition/information on ingredients

Mixtures

Chemical Identity	Common name and synonyms	CAS number	Content in percent (%)*
1,3-Butadiene	Vinylethylene	106-99-0	65 - 80%
n-Butane	Butane	106-97-8	5 - 11%
1-Butene	Butene-1	106-98-9	5 - 11%
2-Butene, (2E)-	Trans-2-butene	624-64-6	3 - 7%
2-Butene, (2Z)-	cis-2-Butene	590-18-1	1 - 5%
1-Buten-3-yne	Butenyne, vinyl acetylene	689-97-4	1 - 5%
1-Propene	Propylene	115-07-1	0.01 - 2%
1-Propene, 2-methyl-	Iso-butene, Isobutylene	115-11-7	0.05 - 1%
1-Propyne	Methyl acetylene	74-99-7	0.1 - 0.7%
1,2-Butadiene	Buta-1,2-diene	590-19-2	0.1 - 0.6%
1,2-Propadiene	Propadiene	463-49-0	0 - 0.3%
1-Butyne	Ethylacetylene	107-00-6	0.05 - 0.2%

Propane	Dimethylmethane	74-98-6	0.005 - 0.15%
Propane, 2-methyl-	Isobutane	75-28-5	0.005 - 0.13%
Phenol, 2,6-bis(1,1-dimethylethyl)-4-methyl-	Butylated hydroxytoluene (BHT)	128-37-0	0.003 - 0.03%

* All concentrations are percent by weight.

Additional Information: This product has been assigned a CAS # of 68476-52-8 - Hydrocarbons, C4, ethylene-manuf.-by-product. It is comprised of the above listed components. Other components are below required disclosure limits. This product is considered hazardous by the OSHA Hazard Communication Standard, (29 CFR 1910.1200).

4. First-aid measures

Inhalation: IF INHALED: Remove person to fresh air and keep comfortable for breathing. Get medical attention immediately.

Ingestion: Ingestion of this product is not a likely route of exposure. Do NOT induce vomiting. Seek medical attention.

Skin Contact: Contact with liquefied gas may cause irritation and/or frostbite. Seek medical attention immediately in the event of frostbite. IF ON SKIN: Gently wash with plenty of soap and water. Thaw frosted parts with lukewarm water. Do not rub affected area. Remove non-adhering contaminated clothing. Do not remove adherent material or clothing. Seek medical attention.

Eye contact: Contact with liquefied gas may cause irritation and/or frostbite. Seek medical attention immediately in the event of frostbite. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Seek medical attention.

Most important symptoms/effects, acute and delayed

Symptoms: Frostbite, headache, dizziness, drowsiness, suffocation, nausea, heartbeat irregularities.

Indication of immediate medical attention and special treatment needed

Treatment: Administer oxygen by mask if there is respiratory distress, any change in level of consciousness, or cardiac rhythm disturbance. Treat unconsciousness, hypotension, seizures, cardiac dysrhythmias, and frostbite in the conventional manner. Adrenergic (epinephrine, norepinephrine) and dopaminergic agonists should be avoided during treatment or used with caution (lowest effective dose) because of possible cardiac sensitization by this product mixture.

5. Fire-fighting measures

General Fire Hazards: Extremely flammable liquefied gas. Vapors may travel considerable distance to a source of ignition and flash back. DO NOT ATTEMPT TO EXTINGUISH A GAS FIRE UNLESS LEAK SOURCE CAN BE ISOLATED AND SHUT OFF. Be aware of possibility of reignition. Vapors may form explosive mixture with air. Consider need for immediate emergency isolation and evacuation. If a pipeline or a storage vessel is involved in a fire, ISOLATE for 1600 meters (1 mile) in all directions. Keep containers away from source of heat or fire. Contains gas under pressure; may explode if heated.

Suitable (and unsuitable) extinguishing media

Suitable extinguishing Use dry chemical, foam, carbon dioxide (CO₂), water spray or fog to
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media:	extinguish. Use water to cool fire-exposed containers and to protect personnel.
Unsuitable extinguishing media:	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical:	Upon combustion, this product emits carbon monoxide, carbon dioxide, low molecular weight hydrocarbons. May undergo violent self polymerization if inhibitor is lost. Product may oxidize rapidly if exposed to air and iron uninhibited.
Special protective equipment and precautions for fire-fighters	
Special fire-fighting procedures:	Keep upwind. Keep unauthorized personnel away. Move containers from fire area if you can do so without risk. Fight fire from maximum distance or use unmanned holders or monitor nozzles. Immediately withdraw in case of fire and container venting or heat discoloration of a container. Let uncontrolled fires burn off. Avoid inhaling any smoke and combustion materials. Remove and isolate contaminated clothing and shoes. 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 as icing may occur. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. Reference Emergency Response Guidebook No. 116P for additional details and instructions.
Special protective equipment for fire-fighters:	Wear positive pressure self-contained breathing apparatus (SCBA).

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures:	Wear appropriate personal protective equipment. Isolate area. Keep unauthorized personnel away. Alert stand-by emergency and fire-fighting personnel. Monitor surrounding area for buildup of flammable concentrations in air.
Methods and material for containment and cleaning up:	<p>Do not touch or walk through spilled material. Eliminate all ignition sources if safe to do so. Keep upwind. Keep out of low areas. Stop leak if safe to do so. All equipment used when handling the product must be grounded. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. Keep area isolated until any detectable flammable gas has been fully dispersed.</p> <p>Small Spills: Isolate spill or leak area for at least 100 meters (330 feet) in all directions.</p> <p>Large Spills: Consider initial downwind evacuation for at least 800 meters (1/2 mile). Evacuate personnel to upwind of the spill area, and position at a safe distance. Use water spray to reduce gas or divert gas cloud drift. Soil remediation may be required.</p>

7. Handling and storage

Precautions for safe handling:	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep container tightly closed. Ground and bond container and receiving equipment. For additional information on equipment bonding and grounding, refer to the American Petroleum Institute (API) Recommended Practice 2003, "Protection Against Ignitions Arising out of Static, Lightning, and Stray Currents" or National Fire Protection Association (NFPA) 77, "Recommended Practice on Static Electricity". Procedures and design should exclude oxygen from the handling and processing systems. Take
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special precautions when cold cutting or breaking into lines, or when cleaning and disposing of empty containers. Equipment and piping should be checked for possible treatment (decontamination) prior to maintenance or disposal/salvage. Equipment preparation may include nitrogen purge, acid wash (to remove iron oxides), sodium nitrate pacification, and final oxygen removal using diethylhydroxylamine (DEHA) or other suitable materials. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection. Avoid release to the environment.

Conditions for safe storage, including any incompatibilities:

Protect from sunlight. Store in a well-ventilated place. Keep container tightly closed. Store locked up. Only allow access to authorized persons. Store and handle in properly designed pressure vessels and equipment. Store and use away from heat, sparks, open flame, or any other ignition source. Have appropriate extinguishing capability in storage area (e.g. sprinkler system, portable fire extinguishers) and flammable gas detectors. Storage pressure vessels should be above ground and diked. Store away from incompatible materials. Store according to applicable regulations and standards for flammable materials.

For road, rail and marine shipments, ensure product is transported with the addition of an approved inhibitor / stabilizer. Consider addition of an approved inhibitor / stabilizer to storage system if it cannot be maintained entirely free of oxygen.

8. Exposure controls/personal protection

Control Parameters

Occupational Exposure Limits

In the ACGIH TLVs® and BEIs® book, n-butane (CAS# 106-97-8) (as Butane, isomers), 1-Propyne (methylacetylene) (CAS# 74-99-7), propane (CAS# 74-98-6), and Propane, 2-Methyl- (75-28-5) have been identified as being an "Explosion hazard". Propane (CAS# 74-98-6) has also been identified as a "Simple asphyxiant". Please refer to the ACGIH TLVs® and BEIs® book, latest edition, for additional information.

Chemical Identity	Type	Exposure Limit Values	Source
1,3-Butadiene	TWA	2 ppm	US. ACGIH Threshold Limit Values, as amended
	IDLH	2,000 ppm	US. NIOSH. Immediately Dangerous to Life or Health (IDLH) Values, as amended
	TWA	1 ppm	US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053), as amended
	OSHA_ACT	0.5 ppm	US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053), as amended
	STEL	5 ppm	US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053), as amended
n-Butane	TWA	1,000 ppm 2,200 mg/m3	US. OSHA Table Z-1-A (29 CFR 1910.1000), as amended
	STEL	1,000 ppm	US. ACGIH Threshold Limit Values, as amended
	REL	800 ppm 1,900 mg/m3	US. NIOSH: Pocket Guide to Chemical Hazards, as amended
	IDLH	1,600 ppm	US. NIOSH. Immediately Dangerous to Life or Health (IDLH) Values, as amended
1-Butene	TWA	800 ppm 1,900 mg/m3	US. OSHA Table Z-1-A (29 CFR 1910.1000), as amended
	TWA	250 ppm	US. ACGIH Threshold Limit Values, as amended
	TWA	250 ppm	US. ACGIH Threshold Limit Values, as amended
	TWA	250 ppm	US. ACGIH Threshold Limit Values, as amended
	TWA	500 ppm	US. ACGIH Threshold Limit Values, as amended

Biological Limit Values

Chemical Identity	Exposure Limit Values	Source
1,3-Butadiene (1,2-Dihydroxy-4-(N-acetylcysteinyl)-butane: Sampling time: End of shift.)	2.5 mg/l (Urine)	ACGIH BEI
1,3-Butadiene (Mixture of N-1- and N-2-(hydroxybutenyl)valine hemoglobin (Hb) adducts: Sampling time: Not critical.)	2.5 pmol/g (Blood)	ACGIH BEI

Appropriate Engineering Controls

Engineering methods to reduce hazardous exposure are preferred controls. Methods include mechanical ventilation (dilution and local exhaust) process or personal enclosure, remote and automated operation, control of process conditions, leak detection and repair systems, and other process modifications. Ensure all exhaust ventilation systems are discharged to outdoors, away from air intakes and ignition sources. Supply sufficient replacement air to make up for air removed by exhaust systems. Administrative (procedure) controls and use of personal protective equipment may also be required.

Individual protection measures, such as personal protective equipment**General information:**

Personal protective equipment (PPE) should not be considered a long-term solution to exposure control. Employer programs to properly select, fit, maintain and train employees to use equipment must accompany PPE. Consult a competent industrial hygiene resource, the PPE manufacturer's recommendation, and/or applicable regulations to determine hazard potential and ensure adequate protection.

Eye/face protection:

Safety glasses. Chemical goggles under a full-face shield are recommended if contact with liquefied gas is possible.

Skin Protection**Hand Protection:**

Wear protective gloves. Wear cold insulating gloves. Use impervious gloves when handling material.

Skin and Body Protection:

Wear appropriate clothing to prevent any possibility of skin contact. Wear work clothes with long sleeves and pants. Fire resistant (i.e., Nomex) or natural fiber clothing (i.e., cotton or wool) is recommended. Synthetic clothing can generate static electricity and is not recommended where a flammable vapor release may occur. Wear chemical-resistant safety footwear with good traction to prevent slipping. Static Dissipative (SD) rated footwear is also recommended.

Respiratory Protection:

Appropriate NIOSH approved air-purifying respirator or self-contained breathing apparatus should be used. Supplied air breathing apparatus must be used when oxygen concentrations are low or if airborne concentrations exceed the limits of the air-purifying respirators or IDLH levels.

Hygiene measures:

Use effective control measures and PPE to maintain worker exposure to concentrations that are below these limits. Ensure that eyewash stations and safety showers are in close proximity to work locations.

9. Physical and chemical properties**Appearance****Physical state:**

Gas

Form:

Stabilized. Liquefied gas

Color:

Colorless

Odor:	Faint aromatic odor
Odor Threshold:	0.45 ppm (detectable), (1,3-butadiene)
pH:	not applicable
Melting point/freezing point:	-128.4 °C (-199.1 °F)
Initial boiling point and boiling range:	-4.44 °C (24.01 °F)
Flash Point:	-76.1 °C (-105.0 °F)
Evaporation rate:	not applicable
Flammability (solid, gas):	Extremely flammable.
Upper/lower limit on flammability or explosive limits	
Flammability Limit - Upper (%):	12.5 %(V)
Flammability Limit - Lower (%):	2.0 %(V)
Vapor pressure:	59.5 psia (37.8 °C (100.0 °F))
Vapor density:	1.92 (Air=1)
Density:	643 kg/m ³
Relative density:	0.643 (-17.78 °C (-0.00 °F))
Solubility(ies)	
Solubility in water:	Insoluble
Solubility (other):	No data available.
Partition coefficient (n-octanol/water):	1.99 (1,3-butadiene)
Auto-ignition temperature:	450 °C (842 °F)
Decomposition temperature:	No data available.
Viscosity:	not applicable

10. Stability and reactivity

Reactivity:	Product may become self-reactive under conditions of shock or increased temperature or pressure. In the presence of air, explosive peroxides and/or pyrophoric polymers may be produced. Procedures and design should exclude oxygen from the handling and processing systems, including removing oxygen before introducing the product. May form acetylides with copper, silver, mercury or alloys that are explosive and very hazardous when dry. Contact with incompatible materials. Sources of ignition. Exposure to heat.
Chemical Stability:	This product is unstable . Product may undergo vigorous polymerization in contact with air.
Possibility of hazardous reactions:	This product may undergo dangerous decomposition, condensation or polymerization. It may become self-reactive under conditions of shock or increased temperature or pressure. In the presence of air, explosive peroxides and/or pyrophoric polymers may be produced. May form acetylides with copper, silver, mercury or alloys that are explosive and very hazardous when dry. Hazardous polymerization can occur. Storage and processing requires review of risks and use of an approved inhibitor / stabilizer. Liquefied gas may explode on contact with hot water (45 °C to 75 °C) (113 °F to 167 °F).
Conditions to avoid:	Keep away from heat, sparks and open flame. Contact with incompatible materials.
Incompatible Materials:	Oxidizing agents. Organic compounds. Acids. Copper-containing alloys. Certain plastics and rubbers. Many materials become brittle after contact with liquefied gases and may fail without warning. Carefully select and test equipment, gaskets and hoses periodically to ensure integrity and compatibility.
Hazardous Decomposition	Upon decomposition, this product emits carbon monoxide, carbon dioxide,

Products: low molecular weight hydrocarbons.

11. Toxicological information

Information on likely routes of exposure

Inhalation:	Product is not acutely toxic. May displace oxygen and cause rapid suffocation.
Ingestion:	Ingestion of this product is not a likely route of exposure.
Skin Contact:	The liquefied form will cause freezing burns (frostbite).
Eye contact:	The liquefied form will cause freezing burns (frostbite).

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation:	Headache, drowsiness, dizziness, nausea, heartbeat irregularities. Suffocation (asphyxiant) hazard - if allowed to accumulate to concentrations that reduce oxygen below safe breathing levels.
Ingestion:	No adverse effects due to ingestion are expected.
Skin Contact:	Frostbite.
Eye contact:	Frostbite.

Information on toxicological effects

Acute toxicity (list all possible routes of exposure)

Oral	
Product:	Not classified for acute toxicity based on available data.
Dermal	
Product:	Not classified for acute toxicity based on available data.
Inhalation	
Product:	Not classified for acute toxicity based on available data.

Repeated dose toxicity

Product: Mild toxic effect.

Skin Corrosion/Irritation

Product: No data available.

Components:

1,3-Butadiene	Not likely, due to the form of the product. Frostbite hazard - rapidly expanding gas or liquid may cause frostbite.
n-Butane	Gas may be mildly irritating. Contact with the liquefied or pressurized gas may cause frostbite.
1-Butene	Gas may be mildly irritating. Contact with liquid form may cause frostbite.
1-Propyne	Contact with the liquefied or pressurized gas may cause frostbite.
1,2-Propadiene	Contact with liquid form may cause frostbite.
1-Butyne	May cause frostbite or freezing of skin.
Propane	Contact with liquid form may cause frostbite.

Serious Eye Damage/Eye Irritation**Product:** No data available.**Components:**

1,3-Butadiene	Irritant of eyes and mucous membranes. Frostbite hazard - rapidly expanding gas or liquid may cause frostbite.
n-Butane	Gas may be mildly irritating. Contact with the liquefied or pressurized gas may cause momentary freezing followed by swelling and eye damage.
1-Butene	Gas may be mildly irritating. Contact with liquefied gas might cause frostbites, in some cases with tissue damage.
1-Propyne	Contact with the liquefied or pressurized gas may cause momentary freezing followed by swelling and eye damage.
1,2-Propadiene	Contact with liquefied gas might cause frostbites, in some cases with tissue damage.
1-Butyne	May cause frostbite or freezing of skin.
Propane	Contact with liquefied gas might cause frostbites, in some cases with tissue damage.

Respiratory or Skin Sensitization**Product:** No data available.**Carcinogenicity****Product:** May cause cancer.**IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:**

1,3-Butadiene Overall evaluation: 1. Carcinogenic to humans.

US. National Toxicology Program (NTP) Report on Carcinogens:

1,3-Butadiene Known To Be Human Carcinogen.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050), as amended:

1,3-Butadiene Cancer

Germ Cell Mutagenicity**In vitro****Product:** May cause genetic defects.**In vivo****Product:** May cause genetic defects.**Reproductive toxicity****Product:** Not classified.**Specific Target Organ Toxicity - Single Exposure****Product:** Not classified**Specific Target Organ Toxicity - Repeated Exposure****Product:** No data available.**Components:**

1,3-Butadiene	Liver, Blood, Lungs, ovaries, testes
Phenol, 2,6-bis(1,1-dimethylethyl)-4-methyl-	Lungs, Liver, Kidney, thyroid gland

Aspiration Hazard**Product:** not applicable**Other effects:** No data available.**12. Ecological information****Ecotoxicity:****Acute hazards to the aquatic environment:****Fish****Product:** Harmful to aquatic life.**Aquatic Invertebrates****Product:** Harmful to aquatic life.**Toxicity to Aquatic Plants****Product:** Harmful to aquatic life.**Chronic hazards to the aquatic environment:****Fish****Product:** Harmful to aquatic life with long lasting effects.**Aquatic Invertebrates****Product:** Harmful to aquatic life with long lasting effects.**Toxicity to Aquatic Plants****Product:** Harmful to aquatic life with long lasting effects.**Persistence and Degradability****Biodegradation****Product:** Product is likely to biodegrade.**BOD/COD Ratio****Product:** No data available.**Bioaccumulative potential****Bioconcentration Factor (BCF)****Product:** No data available.**Components:**

1,3-Butadiene Bioconcentration Factor (BCF): 10

Partition Coefficient n-octanol / water (log Kow)**Product:** 1.99 (1,3-butadiene)**Mobility in soil:** Expected to have high mobility in soil. (1,3-butadiene)**Other adverse effects:** No data available.**13. Disposal considerations****Disposal instructions:** Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal. Waste generator is advised to carefully consider hazardous properties and control measures needed for other materials that may be found in the waste.**Contaminated Packaging:** Check local, federal and state environmental regulations prior to disposal.

14. Transport information**DOT**

UN number or ID number:	UN 1010
UN Proper Shipping Name:	Butadienes and Hydrocarbon mixture, stabilized containing more than 40% butadienes
Transport Hazard Class(es)	
Class:	2.1
Label(s):	2.1
Packing Group:	–
Marine Pollutant:	No
Special precautions for user:	Emergency Response Guidebook No. 116P, latest revision.
Reportable quantity	1,3-Butadiene 10 lbs

15. Regulatory information**US Federal Regulations****TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)**

None present or none present in regulated quantities.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050), as amended

<u>Chemical Identity</u>	<u>OSHA hazard(s)</u>
1,3-Butadiene	Cancer Central nervous system Flammability respiratory tract irritation Eye irritation

CERCLA Hazardous Substance List (40 CFR 302.4):

<u>Chemical Identity</u>	<u>Name on List:</u>	<u>Reportable quantity</u>
1,3-Butadiene	1,3-BUTADIENE	10 lbs.
2-Butene, (2E)-	RCRA Hazardous Waste No. D001	100 lbs.
2-Butene, (2Z)-	RCRA Hazardous Waste No. D001	100 lbs.
1-Propene, 2-methyl-	RCRA Hazardous Waste No. D001	100 lbs.
Propane, 2-methyl-	RCRA HAZARDOUS WASTE NO. D001	100 lbs.

Superfund Amendments and Reauthorization Act of 1986 (SARA)**Hazard categories**

Flammable (gases, aerosols, liquids, or solids), Gas under pressure, Germ Cell Mutagenicity, Carcinogenicity, Simple asphyxiant

US. EPCRA (SARA Title III) Section 304 Extremely Hazardous Substances Reporting Quantities and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Hazardous Substances

None present or none present in regulated quantities.

US. EPCRA (SARA Title III Section 313 Toxic Chemical Release Inventory (TRI) Reporting

<u>Chemical Identity</u>	<u>Reporting threshold for other users</u>	<u>Reporting threshold for manufacturing and processing</u>
1,3-Butadiene	10000 lbs	25000 lbs.
1-Propene	10000 lbs	25000 lbs.

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

<u>Chemical Identity</u>	<u>Reportable quantity</u>
1,3-Butadiene	10000 lbs
n-Butane	10000 lbs

1-Butene	10000 lbs
2-Butene, (2E)-	10000 lbs
2-Butene, (2Z)-	10000 lbs
1-Buten-3-yne	10000 lbs
1-Propene	10000 lbs
1-Propene, 2-methyl-	10000 lbs
1-Propyne	10000 lbs
1,2-Propadiene	10000 lbs
1-Butyne	10000 lbs
Propane	10000 lbs
Propane, 2-methyl-	10000 lbs

Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3)

<u>Chemical Identity</u>	<u>Reportable quantity</u>
Benzene, dimethyl-	100 lbs.
Benzene, ethyl-	1000 lbs.

US State Regulations**US. California Proposition 65**

WARNING: This product can expose you to chemicals including, 1,3-Butadiene; which is [are] known to the State of California to cause cancer and birth defects or other reproductive harm.

This product can expose you to chemicals including, Benzene, ethyl-; which is [are] known to the State of California to cause cancer.

For more information go to www.P65Warnings.ca.gov.

Inventory Status

Canada DSL Inventory List:	On or in compliance with the inventory
US TSCA Inventory:	On or in compliance with the inventory

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

Issue Date: 07/24/2023

Revision Information: 07/24/2023: SDS Update – OEL updates, section 15 updates and phrase edits
12/12/2019: SDS Update

Version #: 3.1

Abbreviations and acronyms: ACC = American Chemistry Council; ACGIH = American Conference of Governmental Industrial Hygienists; BOD = Biochemical Oxygen Demand; C = Ceiling; CAS = Chemical Abstracts Service; CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act; CFR = Code of Federal Regulations; COD = Chemical Oxygen Demand; DOT = Department of Transportation; DSL = Domestic Substances List; EC50 = Effective Concentration 50%; EPA = Environmental Protection Agency; GHS = Globally Harmonized System for the Classification and Labelling of Chemicals; HPV = High Production Volume; IARC = International Agency for Research on Cancer; LC50 = Lethal Concentration 50%; LD50 = Lethal Dose 50%; NFPA = National Fire Protection Association; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration; PEL = Permissible Exposure Limit; PMCC = Pensky-Martens Closed Cup; PPE = Personal Protective Equipment; RCRA = Resource Conservation and Recovery Act; REL = Recommended Exposure Limit; SARA = Superfund Amendments and Reauthorization Act; SCBA = Self Contained Breathing Apparatus; SDS = Safety Data Sheet; STEL = Short Term Exposure Limit; TLV = Threshold Limit Value; TSCA = Toxic Substances Control Act; TWA = Time Weighted Average

Further Information: For additional information on equipment bonding and grounding, refer to the American Petroleum Institute (API) Recommended Practice 2003, "Protection Against Ignitions Arising out of Static, Lightning, and Stray Currents" or National Fire Protection Association (NFPA) 77, "Recommended Practice on

Static Electricity".

For additional information on properties, health and environmental hazard information, regulatory overview, handling, transport and storage, fire safety and emergency response, please refer to the, "Butadiene Product Stewardship Guidance Manual", updated November 27, 2019, by the American Chemistry Council (www.americanchemistry.com)

For additional information on the safe handling of butadiene, please refer to the "Butadiene Popcorn Polymer Resource Book" (in CD format), published by the International Institute of Synthetic Rubber Producers, Inc. (IISRP) (www.iisrp.com)

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