

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Raffinate 2 Butadiene free

Version 3.1

Revision Date: 29.03.2023

Former date: 14.11.2022

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name : Raffinate 2 Butadiene free, Borvida™ Raffinate 2 Butadiene free

REACH Registration Number : 01-2119474696-22-XXXX

Substance name : Hydrocarbons, C4, 1,3-butadiene- and isobutene-free

EC-No. : 306-004-1

1.2 Relevant identified uses of the substance or mixture and uses advised against

Use of the Substance/Mixture : Manufacture, Use as an intermediate

1.3 Details of the supplier of the safety data sheet

Manufacturer : Borealis AB
S-444 86 Stenungsund, Sweden
Telephone: +46 303 86000

Supplier : Borealis AG
Trabrennstrasse 6-8, 1020 Vienna, Austria
Telephone: +43 1 22400 0

E-mail address : sds@borealisgroup.com

1.4 Emergency telephone number

||+44 (0) 1235 239 670 (NCEC Carechem 24)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Flammable gases, Category 1A H220: Extremely flammable gas.

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

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2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :



Signal word : Danger

Hazard statements : H220 Extremely flammable gas.
H280 Contains gas under pressure; may explode if heated.

Precautionary statements : **Prevention:**

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P243 Take action to prevent static discharges.

Response:

P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381 In case of leakage, eliminate all ignition sources.

Storage:

P410 + P403 Protect from sunlight. Store in a well-ventilated place.

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Ecological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.1 Substances

Substance name : Hydrocarbons, C4, 1,3-butadiene- and isobutene-free

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Components

Chemical name	CAS-No. EC-No.	Concentration (% w/w)	M-Factor, SCL, ATE
Substance of unknown or variable composition, complex reaction products or biological material (UVCB) :			
Hydrocarbons, C4, 1,3-butadiene-and isobutene-free; Petroleum gas	95465-89-7 306-004-1	<= 100	
Main constituents :			
butane	106-97-8 203-448-7	>= 10 - < 55	
butene, mixed-1-and-2-isomers	107-01-7 203-452-9	>= 10 - < 55	
butene	25167-67-3 246-689-3	>= 35 - < 50	
isobutane	75-28-5 200-857-2	>= 0 - <= 10	
2-methylpropene	115-11-7 204-066-3	>= 0 - < 5	

SECTION 4: First aid measures

4.1 Description of first aid measures

- General advice : Where there is potential for exposure:
First aider needs to protect himself.
- Move out of dangerous area.
Obtain medical attention.
- If inhaled : Move to fresh air.
Do not leave the victim unattended.
Causes asphyxiation in high concentrations. The victim will not realize that he/she is suffocating.
Keep patient warm and at rest.
Seek medical advice immediately.
If breathing is irregular or stopped, administer artificial respiration.
If unconscious place in recovery position.
- In case of skin contact : Contact with liquid or refrigerated gas can cause cold burns and frostbite.
Wash frost-bitten areas with plenty of water. Do not remove

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- clothing.
Seek medical advice.
- In case of eye contact : Remove contact lenses.
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.
Keep eye wide open while rinsing.
If symptoms persist, call a physician.
- If swallowed : Not probable:
The product evaporates readily.
Contact with liquid or refrigerated gas can cause cold burns and frostbite.

4.2 Most important symptoms and effects, both acute and delayed

- Symptoms : Shortness of breath
Unconsciousness
Frostbite
- Risks : May cause effects on the central nervous system, resulting in lowering of consciousness.

4.3 Indication of any immediate medical attention and special treatment needed

- Treatment : Artificial respiration and/or oxygen may be necessary.
There is no specific antidote available.
Treat frost-bitten areas as needed.

SECTION 5: Firefighting measures

5.1 Extinguishing media

- Suitable extinguishing media : Dry powder
Carbon dioxide (CO₂)
Foam
Water mist

- Unsuitable extinguishing media : Do NOT use water jet.

5.2 Special hazards arising from the substance or mixture

- Specific hazards during firefighting : Vapours are heavier than air and may spread along floors.
Flash back possible over considerable distance.
Cool closed containers exposed to fire with water spray.
Do not allow run-off from fire fighting to enter drains or water courses.
Hazardous decomposition products formed under fire conditions.

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See chapter 10.

5.3 Advice for firefighters

Special protective equipment for firefighters : Wear self-contained breathing apparatus and protective suit.

Further information : Attempt to stop leakage without personal risk.
If conditions permit, let fire burn itself out.
Cool tanks with water spray.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Wear personal protective equipment.
Avoid breathing vapours, mist or gas.
Ensure adequate ventilation, especially in confined areas.
Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
Eliminate all ignition sources if safe to do so.
To avoid ignition of vapours by static electricity discharge, all metal parts of the equipment must be grounded.
Pay attention to flashback.
Keep people away from and upwind of spill/leak.

6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so.
Prevent product from entering environment and drains.
If major spillage occurs, contact the proper local authorities.

6.3 Methods and material for containment and cleaning up

Attempt to stop leakage without personal risk.
Dam up.
Ventilate the area.
Allow to evaporate.

6.4 Reference to other sections

For personal protection see section 8.
For disposal considerations see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on safe handling : Smoking, eating and drinking should be prohibited in the

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application area.

Ensure adequate ventilation, especially in confined areas.

Dispose of rinse water in accordance with local and national regulations.

Advice on protection against fire and explosion : Vapours may form explosive mixtures with air. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapours). To avoid ignition of vapours by static electricity discharge, all metal parts of the equipment must be grounded. Ensure adequate ventilation. Keep product and empty container away from heat and sources of ignition.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Keep only in the original container in a cool, well-ventilated place. Keep product and empty container away from heat and sources of ignition. No smoking. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Bund storage facilities to prevent soil and water pollution in the event of spillage. Store in accordance with the particular national regulations.

Further information on storage conditions : Ensure adequate ventilation.

Advice on common storage : Keep away from incompatible materials. See chapter 10.

Storage class (TRGS 510) : 2A, Compressed, liquefied or pressurised gas

7.3 Specific end use(s)

Specific use(s) : Not applicable

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Contains no substances with occupational exposure limit values.

Derived No Effect Level (DNEL) according to Regulation (EC) No. 1907/2006:

Substance name	End Use	Exposure routes	Potential health effects	Value
Raffinate 2 Butadiene free	Workers	Inhalation	Long-term local effects	769 mg/m ³
	Consumers	Inhalation	Long-term local effects	229,4 mg/m ³

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Predicted No Effect Concentration (PNEC) according to Regulation (EC) No. 1907/2006:

Substance name	Environmental Compartment	Value
Raffinate 2 Butadiene free		
Remarks:	Not relevant, (gaseous)	

8.2 Exposure controls

Engineering measures

Regularly inspect, test and maintain all control measures.

Personal protective equipment

- Eye protection : Safety goggles or face-shield.
(EN 166)
- Hand protection
- Material : Cold-insulating gloves (e.g. nitrile rubber).
- Remarks : Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it. This recommendation is only valid for the product mentioned in the safety data sheet and provided by us and for the application specified by us.
- Skin and body protection : Wear suitable protective clothing and rubber boots.
- Respiratory protection : In case of insufficient ventilation: Respirator with AX filter or self-contained breathing apparatus.
Vapours are heavier than air and can cause suffocation by reducing oxygen available for breathing.
- Protective measures : Ensure that eyewash stations and safety showers are close to the workstation location.

Environmental exposure controls

- General advice : Prevent further leakage or spillage if safe to do so. Prevent product from entering environment and drains. If major spillage occurs, contact the proper local authorities.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

- Physical state : Liquefied gas
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Colour	:	clear
Odour	:	odourless, sweet, hydrocarbon-like
Odour Threshold	:	No data available
Melting point/range	:	-185 - -106 °C
Boiling point/boiling range	:	-40 - -1 °C
Flammability	:	Extremely flammable.
Upper explosion limit / Upper flammability limit	:	Upper explosion limit 10 %(V)
Lower explosion limit / Lower flammability limit	:	Lower explosion limit 1,6 %(V)
Flash point	:	Not applicable
Auto-ignition temperature	:	385 °C (1.013 hPa)
Decomposition temperature	:	Hazardous decomposition products formed under fire conditions.
pH	:	No data available
Viscosity		
Viscosity, kinematic	:	Not applicable
Solubility(ies)		
Water solubility	:	190,1 g/l
Partition coefficient: n-octanol/water	:	log Pow: 2,35 (20 °C)
Vapour pressure	:	963 kPa
Relative density	:	0,5
Density	:	0,51 - 60,2 g/cm ³
Relative vapour density	:	1,9
Particle size	:	Not applicable

9.2 Other information

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Explosives	:	Not applicable
Oxidizing properties	:	Not applicable
Evaporation rate	:	No data available
Molecular weight	:	Not applicable

SECTION 10: Stability and reactivity

10.1 Reactivity

Stable under recommended storage conditions.
Vapours may form explosive mixture with air.
Risk of violent reaction.

10.2 Chemical stability

No decomposition if stored and applied as directed.

10.3 Possibility of hazardous reactions

Hazardous reactions : Vapours may form explosive mixtures with air.

10.4 Conditions to avoid

Conditions to avoid : Keep away from heat and sources of ignition.

10.5 Incompatible materials

Materials to avoid : Air
Oxidizing agents

10.6 Hazardous decomposition products

Under fire conditions:
Carbon monoxide, carbon dioxide and unburned hydrocarbons (smoke).

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity

Not classified based on available information.
Based on available data, the classification criteria are not met.

Product:

Acute oral toxicity : Remarks: study technically not feasible

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(gaseous)

Acute inhalation toxicity : No observed effect concentration (Rat): 10000 ppm

Acute dermal toxicity : Remarks: study technically not feasible
(gaseous)

Acute toxicity (other routes of administration) : Remarks: No data available

Skin corrosion/irritation

Not classified based on available information.
Based on available data, the classification criteria are not met.

Product:

Remarks : Not applicable

Serious eye damage/eye irritation

Not classified based on available information.
Based on available data, the classification criteria are not met.

Product:

Remarks : Not applicable

Respiratory or skin sensitisation

Skin sensitisation

Not classified based on available information.

Skin sensitisation

Based on available data, the classification criteria are not met.

Respiratory sensitisation

Not classified based on available information.

Respiratory sensitisation

Based on available data, the classification criteria are not met.

Product:

Remarks : Not applicable

Remarks : Not applicable

Germ cell mutagenicity

Not classified based on available information.
Based on available data, the classification criteria are not met.

Product:

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Genotoxicity in vitro : Remarks: Information given is based on data of the components.

Carcinogenicity

Not classified based on available information.
Based on available data, the classification criteria are not met.

Product:

Remarks : Information given is based on data on the components and the toxicology of similar products.

Reproductive toxicity

Not classified based on available information.
Based on available data, the classification criteria are not met.

STOT - single exposure

Not classified based on available information.
Based on available data, the classification criteria are not met.

STOT - repeated exposure

Not classified based on available information.
Based on available data, the classification criteria are not met.

Repeated dose toxicity

Product:

Remarks : The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Aspiration toxicity

Not classified based on available information.
Based on available data, the classification criteria are not met.

11.2 Information on other hazards

Endocrine disrupting properties

Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

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SECTION 12: Ecological information

12.1 Toxicity

Product:

Toxicity to fish : LC50 : 19 mg/l
Exposure time: 96 h
Method: QSAR

Toxicity to daphnia and other aquatic invertebrates : LC50 : 11 mg/l
Exposure time: 48 h
Method: QSAR

Toxicity to algae/aquatic plants : EC50 : 7,7 mg/l
Exposure time: 96 h
Method: QSAR

12.2 Persistence and degradability

Product:

Biodegradability : Remarks: Readily biodegradable.

12.3 Bioaccumulative potential

Product:

Bioaccumulation : Remarks: Bioaccumulation not expected: Partition coefficient (n-octanol/water) log Kow < 3.

12.4 Mobility in soil

Product:

Mobility : Remarks: Not expected to adsorb on soil.

12.5 Results of PBT and vPvB assessment

Product:

Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher..

12.6 Endocrine disrupting properties

Product:

Assessment : The substance/mixture does not contain components

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considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7 Other adverse effects

Product:

Additional ecological information : The product should not be allowed to enter drains, water courses or the soil.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product : Dispose of as hazardous waste in compliance with local and national regulations.
European waste code:
07 01 99 (wastes not otherwise specified (basic organic chemicals))
Where possible recycling is preferred to disposal or incineration.

Contaminated packaging : Handle with care.
These safety instructions also apply to empty packaging which may still contain product residues.

SECTION 14: Transport information

14.1 UN number or ID number

ADR : UN 1965

IMDG : UN 1965

14.2 UN proper shipping name

ADR : HYDROCARBON GAS MIXTURE, LIQUEFIED, N.O.S.
(butane, 2-butene, 1-butene)

IMDG : HYDROCARBON GAS MIXTURE, LIQUEFIED, N.O.S.
(butane, 2-butene, 1-butene)

14.3 Transport hazard class(es)

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ADR : 2
IMDG : 2.1

14.4 Packing group

ADR
Packing group : Not assigned by regulation
Classification Code : 2F
Hazard Identification Number : 23
Labels : 2.1
Tunnel restriction code : (B/D)

IMDG
Packing group : Not assigned by regulation
Labels : 2.1
EmS Code : F-D, S-U

14.5 Environmental hazards

ADR
Environmentally hazardous : no

IMDG
Marine pollutant : no

14.6 Special precautions for user

Remarks : SDS: No specific instructions needed.

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

14.7 Maritime transport in bulk according to IMO instruments

Remarks : Not applicable

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

Category		Quantity 1	Quantity 2
P2	FLAMMABLE GASES	10 t	50 t

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15.2 Chemical safety assessment

A Chemical Safety Assessment has been carried out for this substance.

SECTION 16: Other information

H220 : Extremely flammable gas.
H280 : Contains gas under pressure; may explode if heated.

Full text of other abbreviations

Further information

Issuer : Borealis, Group Product Stewardship / Mikaela Eriksson.

Sources of key data used to compile the Safety Data Sheet : Chemical Safety Report, C4, 1,3-butadiene- and isobutene-free. Lower Olefins and Aromatics REACH Consortium, 2019
International Chemical Safety Card, Butane, July 2007
(http://www.ilo.org/dyn/icsc/showcard.display?p_lang=en&p_card_id=0232)
International Chemical Safety Card, n-Butene, October 2005
(http://www.ilo.org/dyn/icsc/showcard.display?p_lang=en&p_card_id=0396)
Information given is based on tests on the mixture itself.

Disclaimer

To the best of our knowledge, the information contained herein is accurate and reliable as of the date of publication; however we do not assume any liability whatsoever for the accuracy and completeness of such information.

Borealis makes no warranties which extend beyond the description contained herein. Nothing herein shall constitute any warranty of merchantability or fitness for a particular purpose.

It is the customer's responsibility to inspect and test our products in order to satisfy itself as to the suitability of the products for the customer's particular purpose. The customer is responsible for the appropriate, safe and legal use, processing and handling of our products.

No liability can be accepted in respect of the use of Borealis' products in conjunction with other materials. The information contained herein relates exclusively to our products when not used in conjunction with any third party materials.