

Safety Data Sheet

Product : **1,3-Butadiene** Page :1/4
MSDS Nr : 360-00-0001BOC(U) Version : 1.01 Date : 23/04/2001
Replaces version dated : 09/07/1996

1 IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY

Product name 1,3-Butadiene
Chemical formula $\text{CH}_2=\text{CH}-\text{CH}=\text{CH}_2$
Company identification see heading and/or footer
Emergency phone numbers see heading and/or footer

2 COMPOSITION/INFORMATION ON INGREDIENTS

Substance/Preparation Substance.
Components/Impurities Contains no other components or impurities which will influence the classification of the product.
CAS Nr 00106-99-0
EC Nr (from EINECS) 203-450-8

3 HAZARDS IDENTIFICATION

Hazards identification Extremely flammable
May cause cancer.
Liquefied gas

4 FIRST AID MEASURES

Inhalation In low concentrations may cause narcotic effects. Symptoms may include dizziness, headache, nausea and loss of co-ordination.
In high concentrations may cause asphyxiation. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation.
Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped.
Delayed adverse effects possible.

Skin/eye contact In case of frostbite spray with water for at least 15 minutes. Apply a sterile dressing.
Immediately flush eyes thoroughly with water for at least 15 minutes.
Obtain medical assistance

Ingestion Ingestion is not considered a potential route of exposure.

5 FIRE FIGHTING MEASURES

Specific hazards Exposure to fire may cause containers to rupture/explode.
Hazardous combustion products Incomplete combustion may form carbon monoxide.
Suitable extinguishing media All known extinguishants can be used.
Specific methods If possible, stop flow of product.
Move away from the container and cool with water from a protected position.
Do not extinguish a leaking gas flame unless absolutely necessary. Spontaneous/explosive re-ignition may occur. Extinguish any other fire.

Special protective equipment for fire fighters Use self-contained breathing apparatus.

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6 ACCIDENTAL RELEASE MEASURES

Personal precautions	Evacuate area. Ensure adequate air ventilation. Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe. Eliminate ignition sources.
Environmental precautions	Try to stop release. Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.
Clean up methods	Ventilate area. Keep area evacuated and free from ignition sources until any spilled liquid has evaporated. (Ground free from frost).

7 HANDLING AND STORAGE

Handling and storage	Ensure equipment is adequately earthed. Suck back of water into the container must be prevented. Purge air from system before introducing gas. Do not allow backfeed into the container. Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt. Keep away from ignition sources (including static discharges). Segregate from oxidant gases and other oxidants in store. Refer to supplier's container handling instructions. Keep container below 50°C in a well ventilated place.
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8 EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure limit value for country	UK: LTEL: 10ppm (EH40/2002) Germany: TRK: 5 ppm
Personal protection	Ensure adequate ventilation. Do not smoke while handling product. Protect eyes, face and skin from liquid splashes.

9 PHYSICAL AND CHEMICAL PROPERTIES

Molecular weight	54
Melting point	-109 °C
Boiling point	-4.5 °C
Critical temperature	152 °C
Relative density, gas	1.9 (air=1)
Relative density, liquid	0.65 (water=1)
Vapour Pressure 20°C	2.4 bar

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Solubility mg/l water	1025 mg/l
Appearance/Colour	Colourless gas
Odour	Mildly aromatic
	Poor warning properties at low concentrations.
Flammability range	1,4-16,3 vol% in air.
Autoignition temperature	415 °C
Other data	Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.

10 STABILITY AND REACTIVITY

Stability and reactivity	Can form explosive mixture with air.
	May react violently with oxidants.
	May polymerise.
	Inhibitor usually added.

11 TOXICOLOGICAL INFORMATION

General	Irritation to eyes, skin and respiratory tract.
	May have carcinogenic effect.

12 ECOLOGICAL INFORMATION

General	No known ecological damage caused by this product.
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13 DISPOSAL CONSIDERATIONS

General	Avoid discharge to atmosphere.
	Do not discharge into areas where there is a risk of forming an explosive mixture with air.
	Waste gas should be flared through a suitable burner with flash back arrestor.
	Do not discharge into any place where its accumulation could be dangerous.
	Contact supplier if guidance is required.

14 TRANSPORT INFORMATION

UN Nr	1010
Class	2.1
ADR/RID Classification code	2F
ADR/RID Hazard Nr	239
Labelling ADR	Label 2.1: flammable gas
Other transport 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 they are firmly secured and:
	- cylinder valve is closed and not leaking

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- valve outlet cap nut or plug (where provided) is correctly fitted
- valve protection device (where provided) is correctly fitted
- there is adequate ventilation.
- compliance with applicable regulations.

15 REGULATORY INFORMATION

Number in Annex I of Dir 67/548	601-013-00-X.
EC Classification	F+;R12 Carc.Cat.2;R45
-Symbols	T: Toxic F+: Extremely flammable
Labelling of cylinders	
-Symbols	Label 2.1: flammable gas
-Risk phrases	R12 Extremely flammable. R45 May cause cancer.
-Safety phrases	S9 Keep container in well ventilated place. S16 Keep away from ignition sources - No smoking. S33 Take precautionary measures against static discharges. S45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). S53 Avoid exposure, obtain special instructions before use.

16 OTHER INFORMATION

- Ensure all national/local regulations are observed.
- Ensure operators understand the toxicity hazard.
- Ensure operators understand the flammability hazard.
- Contact with liquid may cause cold burns/frost bite.
- The hazard of asphyxiation is often overlooked and must be stressed during operator training.
- Users of breathing apparatus must be trained.
- Before using this product in any new process or experiment, a thorough material compatibility and safety study should be carried out.
- Details given in this document are believed to be correct at the time of going to press. Whilst proper care has been taken in the preparation of this document, no liability for injury or damage resulting from its use can be accepted.

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