

INTERNATIONAL\_GASES\_AND\_CHEMICALS\_LTD

## MATERIAL SAFETY DATA SHEETS

DATE: 4/07/04

SUPPLIER ADDRESS: SPEEDWELL RD  
PARKHOUSE EAST  
NEWCASTLE-U-LYME

EMERGENCY PHONE: (178) 256-5556  
NUMBER

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1. CHEMICAL PRODUCT

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PRODUCT NAME: 1,3-BUTADIENE

SYNONYMS: None

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2. COMPOSITION, INFORMATION ON INGREDIENTS

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Ingredient Name	Formula	CAS#	Concentration	Exposure Limits (PPM)			
				ACGIH TLV	OSHA PEL	MAC	Other STEL
1,3-BUTADIENE	C4H6	106-99-0	99+%	2	1	50	5

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3. HAZARD IDENTIFICATION

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## \*\*\* EMERGENCY OVERVIEW \*\*\*

Flammable liquid and gas under pressure.

Can cause cancer.

Can form explosive mixtures with air.

May cause irritation to eyes, skin and mucous membranes.

May cause frostbite.

## POTENTIAL HEALTH EFFECTS

ROUTES OF ENTRY: Inhalation

ACUTE EFFECTS: May cause irritation to eyes, skin, mucous membranes and throat. Symptoms include rapid respiration, diminished mental alertness, fatigue, muscular incoordination and loss of consciousness. Can act as an asphyxiant by displacing breathable air. Pressure drop through valves and piping may cause extreme cold and frostbite on contact.

CHRONIC EFFECTS: Material is a carcinogen. Exposure can cause leukemia, non-Hodgkins lymphoma, and anemia.

MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE: None known

OTHER EFFECTS OF OVEREXPOSURE: None

## CARCINOGENICITY (US Only):

NTP - Yes

IARC MONOGRAPHS - Yes

OSHA REGULATED - Yes

Continued ...

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#### 4. FIRST AID MEASURES

INHALATION: Immediately remove victim to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen.

EYE CONTACT: Immediately flush with copious amounts of water for at least 15 minutes.

SKIN CONTACT: If frostbite occurs, flush affected areas with lukewarm water.

INGESTION: None

IN EVENT OF EXPOSURE, CONSULT A PHYSICIAN

NOTE TO PHYSICIAN: None

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#### 5. FIRE FIGHTING MEASURES

FLASH POINT: -76 deg.C

AUTOIGNITION TEMPERATURE: 420 deg.C

FLAMMABLE LIMITS:

LOWER: 2%

UPPER: 11.5%

EXTINGUISHING MEDIA: Dry chemical or carbon dioxide. Do not extinguish burning gas if flow cannot be shut off.

SPECIAL FIRE FIGHTING INSTRUCTION AND EQUIPMENT: Wear self-contained breathing apparatus and full protective clothing. Keep fire exposed cylinders cool with water spray. If possible, stop the product flow.

HAZARDOUS COMBUSTION PRODUCTS: Toxic carbon monoxide may be given off during combustion.

UNUSUAL FIRE AND EXPLOSION HAZARDS: High explosion hazard exists if heated under pressure in air and mixed with phenol, CLO<sub>2</sub>, and crontonaldehyde. Vapors may travel a considerable distance to the source of ignition and flash back.

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#### 6. ACCIDENTAL RELEASE MEASURES

CLEAN UP PROCEDURES: Evacuate and ventilate area. Shut off source if possible and remove source of heat. Remove leaking cylinder to exhaust hood or safe outdoor area.

SPECIALIZED EQUIPMENT: None

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#### 7. HANDLING AND STORAGE

PRECAUTIONS TO BE TAKEN IN HANDLING: Secure cylinder when using to protect from falling. Use suitable hand truck to move cylinders.

PRECAUTIONS TO BE TAKEN IN STORAGE: Store in well ventilated areas. Keep valve protection cap on cylinders when not in use.

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#### 8. EXPOSURE CONTROLS/ PERSONAL PROTECTION

ENGINEERING CONTROLS: Provide adequate general and local exhaust ventilation to maintain concentration below exposure limits.

##### PERSONAL PROTECTION

EYE/FACE PROTECTION: Safety glasses

SKIN PROTECTION: Protective gloves to prevent contact with cold equipment.

RESPIRATORY PROTECTION: In case of leakage, use self-contained breathing apparatus.

OTHER PROTECTIVE EQUIPMENT: Safety shoes when handling cylinders.

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#### 9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Colorless

ODOR: Slightly aromatic

PHYSICAL STATE: Gas

VAPOR PRESSURE: @ 20 deg.C: 309 mm Hg

VAPOR DENSITY (AIR=1): 1.9

BOILING POINT (C): -4

SOLUBILITY IN WATER: Insoluble

SPECIFIC GRAVITY (H<sub>2</sub>O=1): Gas

EVAPORATION RATE: Gas

ODOR THRESHOLD: N/Av

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## 10. STABILITY AND REACTIVITY

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STABILITY: Unstable. Stable when inhibited.

CONDITIONS TO AVOID: Storage in poorly ventilated areas. Storage near a heat source.

MATERIALS TO AVOID: Avoid oxidizers, copper, and copper alloys, halogens.

HAZARDOUS POLYMERIZATION: May occur due to lowered levels of inhibitor, or elevated temperatures.

HAZARDOUS DECOMPOSITION: Toxic carbon monoxide.

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## 11. TOXICOLOGICAL INFORMATION

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LETHAL CONCENTRATION (LC50): 220,000 ppm, rat 1 hour

LETHAL DOSE 50 (LD50): N/Ap

TERATOGENICITY: N/Ap

REPRODUCTIVE EFFECTS: N/Ap

MUTAGENICITY: N/Ap

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## 12. ECOLOGICAL INFORMATION

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No adverse ecological effects are expected.

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## 13. DISPOSAL CONSIDERATIONS

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WASTE DISPOSAL METHOD: Dispose of non-refillable cylinders in accordance with federal, state and local regulations. Allow gas to vent slowly to atmosphere in an unconfined area or exhaust hood. If the cylinders are the refillable type, return cylinders to supplier with any valve outlet plugs or caps secured and valve protection caps in place.

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## 14. TRANSPORT INFORMATION

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CONCENTRATION: 99+%

DOT DESCRIPTION (US ONLY):

PROPER SHIPPING NAME: Butadienes, inhibited

HAZARD CLASS: 2.1 (flammable)

IDENTIFICATION NUMBER: UN1010

REPORTABLE QUANTITIES: 10 lb.

LABELING: FLAMMABLE GAS

ADR/RID (EU Only): Class 2, 2F

SPECIAL PRECAUTIONS: Cylinders should be transported in a secure upright position in a well ventilated truck.

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## 15. REGULATORY INFORMATION

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OSHA: Process Safety Management: Material is not listed in appendix A of 29 CFR 1910.119 as highly hazardous chemical.

TSCA: Material is listed in TSCA inventory.

SARA: The threshold planning quantity for material is 10,000 lbs.

EU NUMBER: 203-450-8

NUMBER IN ANNEX 1 OF DIR 67/548: Material is listed in annex 1.

EU CLASSIFICATION: N/Av

R: 45-13

S: 53-9-16-33

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## 16. OTHER INFORMATION

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OTHER PRECAUTIONS: Protect containers from physical damage. Do not deface cylinders or labels. Cylinders should be refilled by qualified producers of compressed gas. Shipment of a compressed gas cylinder which has not been filled by the owner or with his written consent is a violation of federal law (49 CFR).

ABBREVIATIONS:

N/Ap - Not Applicable

N/Av - Not Available

SA - Simple Asphyxiant

NE - None Established

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