

	Safety Data Sheet according to 91/155/EC	Reviewed on: 28.01.2003
	Multigas	Art. No.: 3.5510

1. IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND OF THE COMPANY / UNDERTAKING

Trade name: Multi gas

Company: ROTHENBERGER Werkzeuge GmbH
 Industriestr. 7
 65779 Kelkheim
 Tel.: 06195 / 800 1

2. COMPOSITION / INFORMATION ON INGREDIENTS

Gas Type: Butane - Propane

Chemical characterization:
 Description: Mixture of hydrocarbons mainly composed of Butane (N- Butane
 and Iso- Butane) Butane and Mercaptan odorized Propane.

CAS- Number: 75 – 28 – 5 (ISO Butane) and 106 – 97 – 8 (N- Butane)

Kemler Number: 23

EINACS Number: 2709909

3. HAZARDS IDENTIFICATION

General indications:
 distributed
 are never
 combustion
 of the
 explosion of the

Physical/ chemical:
 heavier than
 intense
 dispersion.

For man:
 concentration may
 coma due

For the environment:

Butane and its mixtures are produced, stored, transported and under pressure in liquefied phase. Under normal conditions they object of direct manipulation because they are confined, without interruptions, in closed systems until their final distribution for (use). Precautions to be taken are, first of all, the maintenance confinement. The temperature increase may cause the article. The gas burst causes the explosion.

Extremely inflammable. In case of leakage the gas, which is the air, accumulates in the lower areas without ventilation. The heating of a container may cause its breaking and the product The vapours burst may cause a deflagration or an explosion.

At the gaseous state: the inhalation of vapours in high cause sleepiness, intoxication, narcosis and in extreme cases, to oxygen rarefaction.

In normal conditions no danger is known.

4. FIRST – AID MEASURES

General indications:
 In case of serious problems call a doctor or seek urgent medical help.

After inhalation:
 Bring the person in the open air, and let him take a rest. In case of respiratory difficulties or loss of consciousness, call a doctor and make artificial ventilation.

After skin contact:
 carefully
 for the
 Wash the affected part of the skin with water; remove clothing and wash the affected part with plenty of water. Seek a doctor treatment of possible lesions caused by cold.

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Eyes contact: soon as	Immediately wash with plenty of water. Seek a specialist as possible.
Ingestion:	Improbable.

5. FIRE – FIGHTING MEASURES	
Extinguishing equipment:	Recommended: powder CO ₂ , in some cases nebulized water. Not recommended: water in a continual stream. Ineffective: Stoam.
Recommendations: whose you are	The incomplete combustion produces, in particular, toxic CO inhalation is dangerous. It is dangerous to extinguish a flame if not in a position to stop the loss completely.
Protection of stored material: and the with plenty of fractionized	From the beginning of the fire remove the inflammable material exposed LPG containers. Cool the containers not evacuated nebulized water. Do not use jet water (n.b. like hydrant). Use jet water.
Fire of a container: throw or to cloth.	If a container connected to an appliance takes fire, do not to turn it. It would increase danger (outflow of liquid gas, breaking of the container). Try to close the cock protecting your hands and forearms with a cloth. Take people away. Never pierce a container on fire.

6. MEASURES in case of accidental outflow	
Measures to protect people: explosion danger, electric force.	Ventilate interiors, let the product evaporate. Inform everybody staying under wind about the fire and evacuate if necessary. Keep away from heat sources, avoid ignitions. Inform the competent authorities according to the regulations in

7. HANDLING AND STORAGE	
Handling:	Follow the instruction manual.
Information for save handling:	Follow the instructions on the container. Use the product only in well ventilated areas. Use the product vertically.
Information about fire fighting's and explosion protection: water only.	Do not smoke! Avoid the accumulation of electrostatic charges. Never look for gas leaks by means of a flame but use soapy
Storage:	
Measures for the storage: local firemen	Store the product only in well ventilated areas, approved by and away from heat sources. Do not expose containers to temperatures exceeding 50°C. Do not store underground (cellars, taverns).

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Store away from low points where vapours may accumulate.
 Avoid contact with strong oxidizers and the proximity with other combustible materials.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Precautionary measures of technical nature:

<p>Exposure control: the air.</p> <p>leak with</p> <p>evacuation of the</p> <p>containers.</p>	<p>The odorized gas allows you to detect a 0,5% of gas content in</p> <p>In case you smell gas, before using the appliance look for the soapy water.</p> <p>Always use in a ventilated place in order to allow the fumes and the combustion products (CO, CO₂).</p> <p>Respect the instructions on the appliances and on the</p>
<p>Personal protection:</p> <p>Respiratory protection: asphyxiating). In device is gas clouds percentage of the faint and</p> <p>Hands protection: forearms.</p> <p>order of 0</p> <p>Eyes protection: butane in</p> <p>Skin protection: butane jets</p>	<p>Admitted exposure limit: TLV- TWA 800 ppm (simple condition of normal exercise no particular individual protection requested. Avoid entering in containers, adjacent premises or where the presence of L.P.G. has reduced the oxygen air under 16/17% (normally is 20/21%).</p> <p>In such case, even breathing normally, with a lack of oxygen, the dead for asphyxia do not happen immediately if you are not recovered and subjected to artificial respiration.</p> <p>In case of liquid Butane outflows protect your hands and</p> <p>By means of thermal insulation gloves for temperatures in the degrees centigrade.</p> <p>Use protective goggles or facial screens. A sprinkling of liquid the eyes may cause serious injuries.</p> <p>Avoid exposing skin, without adequate protection, to liquid in order to avoid lesions by cold.</p>

9. PHYSICAL AND CHEMICAL PROPERTIES

<p>Physical state: atmospheric</p> <p>Colour:</p> <p>Odour:</p> <p>Smelling point:</p> <p>PH:</p> <p>Flash point:</p> <p>Flammable point:</p> <p>Boiling point / Boiling range:</p> <p>Vapour pressure:</p> <p>Liquid volume mas:</p>	<p>Liquefied gas under pressure (in containers) or gaseous at pressure.</p> <p>Colourless</p> <p>Characteristic (if odorized)</p> <p>0,2 – 0,4%</p> <p>neutral</p> <p>lower than -50°C</p> <p>lower 1,8% v/v higher 8,41% V7V</p> <p>- 25°C</p> <p>Max. at about 15°C 2,8 bar</p> <p>Max. at about 50°C 8,6 bar</p> <p>0,50 kg/ 1 at 50°C</p>
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Density (15°C, 1 atm): Solubility in water: Solvents: Materials suitability:	1,95 kg/ Nm ³ Marginal. Methanol, ethanol, ether, chloroform. It melts fat and attacks natural rubber. Not corrosive for metallic materials.
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10. <u>STABILITY AND REACTIVITY</u>	
Decomposition due to fire: Stability: Dangerous reactions: Incompatible substances:	CO – CO ₂ Stable product. Forms explosive gas mixtures with air. Danger of bursting. Strong oxidants.
N.B. avoids strong heating of the product and the unexpected, contemporary and fast decompression.	

11. <u>TOXICOLOGICAL INFORMATION</u>	
LC 50 (ratto) mg/ mc/ 4h	658
Acute toxicity: asphyxia. can cause a	Slightly narcotic product; in high concentrations can cause Short exposures to concentrations of 10.000 ppm do not cause dangerous effects on man: exposures to 100.000 ppm (10%) light sense of vertigo in a few minutes.
Chronic toxicity:	Cases of such effect have not been noticed.
Corrosiveness/ irritating power:	
On skin: the	Contact with liquid causes lesions by cold; it is not irritating at gaseous state.
On the eye: irritating at	Contact with liquid causes possible lesions by cold; it is not the gaseous state.
Experience on men:	There are no evidences to the following effects: - chronic toxicity - cancer genesis - mutagenesis - teratogenesis

12. <u>ECOLOGICAL INFORMATION</u>	
General notes: high therefore it is the product organic atmospheric radical and handling in a	There are no data of ecotoxicity and biodegradability due to the volatility of the product: it doesn't persist in aqueous means not possible to close the tests. The release of big quantities of in the environment can increase the air content in volatile compounds (V.O.C.) and than helping the formation of polluting substances like ozone or nitric oxide by means of phytochemical reactions. Therefore you have to avoid releases by carrying out the closed cycle. Potential ozone reduction (O.D.P.): zero.

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13. WASTE DISPOSAL CONSIDERATIONS

Product: Warnings: pierce or carried out only	LPG containers always contain inflammable vapours: do not burn a cartridge, even if it is empty. The emptying of a container, which is not empty, must be by skilled staff and following the appropriate procedures.
Disposal: of empty PL 401: Other cartridges: Refillable bottles:	Respect the regulations in force concerning the waste disposal cartridges. Aluminium. Steel. Steel.
Uncleaned containers: Warnings: Cleaning material:	Unusable containers must be cleaned with water or inert gas. Water or inert gas.

14. TRANSPORT INFORMATION

General remarks: regulations. relevant	All containers conform to the requirements of the transport regulations. For the transport in quantity follow the prescriptions of the regulations (road, sea or air).
Land transport ADR / RID (Cross- border): Class ADR: Classification code: Danger label: No. ONU:	2 5F No. 2.1 2037 for piercing cartridges 1950 for cartridges with valve
Additions:	Place containers vertically. Do not park under the sun.
Sea transport IMDG / GGV sea: Class IATA: No. ONU:	2.1 2037 for piercing cartridges 1950 for cartridges with valve
Marine pollutant: EMS – No.: MFAG:	2 – 13 Table no. 620
Air transport ICAO – TI und IATA – DGR:	
Class/ UN- Number/ PG:	2.1 2037 for piercing cartridges 1950 for cartridges with valve
Air cargo: Air Passengers:	Yes No.

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15. REGULATORY INFORMATION

General information:

Ministry and labelling of codified as follows:

According to Decree 3 February 1997no. 52 and Decree of Health 28April 1997 (concerning the packing the dangerous substances) L.P.G. labelling is

Symbol:

F+ Extremely flammable.

Danger phrases:

12 Extremely flammable.

Precaution suggestions:

S 2 Keep away from children.
 S 9 Keep the container in an well ventilated area.
 S 16 Keep away from flames or sparks. Do not smoke!
 S 33 Avoid the constitution of electrostatic charges. It contains butadiene 1 - 3

16. ADDITIONAL INFORMATION

Other information:

containers container

those releases not quantity causes

the their

indicated product others or for

possession on

Use the product only with the appliances on the container. The conform to the safety regulations in force. Never try to fill up a a second time.
 Dangers which may occur, due to a not correct use, are mainly relative to fires or explosion or asphyxia in the case of big ignited in confined zones if the remarkable dispersed gas a substantial reduction of the oxygen percentage in the air. Therefore it is necessary that all L.P.G. workers and users know precautions to adopt for the handling and the use in relation to characteristics.
 Workers must than be trained according on their specific jobs. The information contained in this sheet refers only to the and can't be valid if the product is used in conjunction with uses different from those foreseen.
 Above information are based on the knowledge in our "January 2003".