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 manly 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 INDENTIFICATION

General indications: Butane and its mixtures are produced, stored, transported and distributed under pressure in liquefied phase. Under normal conditions they are never object of direct manipulation because they are confined, without interruptions, in closed systems until their final distribution for combustion (use). Precautions to be taken are, first of all, the maintenance of the confinement. The temperature increase may cause the explosion of the article. The gas burst causes the explosion.

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

For man: At the gaseous state: the inhalation of vapours in high concentration may cause sleepiness, intoxication, narcosis and in extreme cases, coma due to oxygen rarefaction.

For the environment:	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.
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 CO2, 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:	If a container connected to an appliance takes fire, do not to

throw or 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: Ventilate interiors, let the product evaporate.
Inform everybody staying under wind about the fire and explosion danger, evacuate if necessary. Keep away from heat sources, avoid electric ignitions.

Inform the competent authorities according to the regulations in force.

7. HANDLING AND STRORAGE

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: Do not smoke!
Avoid the accumulation of electrostatic charges.
Never look for gas leaks by means of a flame but use soapy water only.

Storage:

Measures for the storage: Store the product only in well ventilated areas, approved by local firemen and away from heat sources.
Do not expose containers to temperatures exceeding 50°C.
Do not store underground (cellars, taverns).

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:

Exposure control: The odorized gas allows you to detect a 0,5% of gas content in the air.
In case you smell gas, before using the appliance look for the leak with soapy water.
Always use in a ventilated place in order to allow the evacuation of the fumes and the combustion products (CO, CO2).
Respect the instructions on the appliances and on the containers.

Personal protection:

Respiratory protection: Admitted exposure limit: TLV- TWA 800 ppm (simple asphyxiating). In condition of normal exercise no particular individual protection device is requested. Avoid entering in containers, adjacent premises or gas clouds where the presence of L.P.G. has reduced the oxygen percentage of the air under 16/17% (normally is 20/21%).
In such case, even breathing normally, with a lack of oxygen, faint and the dead for asphyxia do not happen immediately if you are not recovered and subjected to artificial respiration.

Hands protection: In case of liquid Butane outflows protect your hands and forearms.
By means of thermal insulation gloves for temperatures in the order of 0 degrees centigrade.

Eyes protection: Use protective goggles or facial screens. A sprinkling of liquid butane in the eyes may cause serious injuries.

Skin protection: Avoid exposing skin, without adequate protection, to liquid butane jets in order to avoid lesions by cold.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state:	Liquefied gas under pressure (in containers) or gaseous at atmospheric pressure.
Colour:	Colourless
Odour:	Characteristic (if odorized)
Smelling point:	0,2 – 0,4%
PH:	neutral
Flash point:	lower than -50°C
Flammable point:	lower 1,8% v/v higher 8,41% V7V
Boiling point / Boiling range:	- 25°C
Vapour pressure:	Max. at about 15°C 2,8 bar Max. at about 50°C 8,6 bar
Liquid volume mas:	0,50 kg/ 1 at 50°C
Density (15°C, 1 atm):	1,95 kg/ Nm3
Solubility in water:	Marginal.
Solvents:	Methanol, ethanol, ether, chloroform.

Materials suitability:	It melts fat and attacks natural rubber. Not corrosive for metallic materials.

10. STABILITY AND REACTIVITY

Decomposition due to fire: CO – CO2
Stability: Stable product.
Dangerous reactions: Forms explosive gas mixtures with air. Danger of bursting. **Incompatible substances:** Strong oxidants.

N.B. avoids strong heating of the product and the unexpected, contemporary and fast decompression.

11. TOXICOLOGICAL INFORMATION

LC 50 (ratto) mg/ mc/ 4h **658**

Acute toxicity: Slightly narcotic product; in high concentrations can cause asphyxia.

Short exposures to concentrations of 10.000 ppm do not cause dangerous effects on man: exposures to 100.000 ppm (10%) can cause a light sense of vertigo in a few minutes.

Chronic toxicity: Cases of such effect have not been noticed.

Corrosiveness/ irritating power:

On skin: Contact with liquid causes lesions by cold; it is not irritating at the gaseous state.

On the eye: Contact with liquid causes possible lesions by cold; it is not irritating at the gaseous state.

Experience on men:	There are no evidences to the following effects: - chronic toxicity - cancer genesis - mutagenesis - teratogenesis

12. ECOLOGICAL INFORMATION

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

13. WASTE DISPOSAL CONSIDERATIONS

Product:

Warnings: LPG containers always contain inflammable vapours: do not pierce or burn a cartridge, even if it is empty.
The emptying of a container, which is not empty, must be carried out only by skilled staff and following the appropriate procedures.

Disposal: Respect the regulations in force concerning the waste disposal of empty cartridges.

PL 401: Aluminium.

Other cartridges: Steel.

Refillable bottles: Steel.

Uncleaned containers:

Warnings: Unusable containers must be cleaned with water or inert gas.

Cleaning material: Water or inert gas.

14. TRANSPORT INFORMATION

General remarks: All containers conform to the requirements of the transport regulations.
For the transport in quantity follow the prescriptions of the relevant regulations (road, sea or air).

Land transport ADR / RID (Cross- border):

Class ADR: 2

Classification code: 5F

Danger label: No. 2.1

No. ONU: 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:	2.1
No. ONU:	2037 for piercing cartridges 1950 for cartridges with valve
Marine pollutant:	
EMS – No.:	2 – 13
MFAG:	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:	Yes
Air Passengers:	No.

15. REGULATORY INFORMATION

General information:	According to Decree 3 February 1997no. 52 and Decree
Ministery	of Health 28April 1997 (concerning the packing
and labelling of codified	the dangerous substances) L.P.G. labelling is
as follows:	
Symbol:	F+ Extremely flammable.
Danger phrases:	12 Extremely flammable.

Precaution suggesstions:

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

16. ADDITIONAL INFORMATION

Other information:

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

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