

MATERIAL SAFETY DATA SHEET OF *MOTA BUTANE GAS CARTRIDGE*

1. IDENTIFICATION OF THE SUBSTANCE :

Product name and/or code: MOTA BUTANE GAS CARTRIDGE

Manufacturer: Mota Herramientas S.L. (www.mota.com.es)

Departmental Information: Department of hygiene and safety

Emergency information: +34 937 765 890

2. COMPOSITION/INFORMATION ON INGREDIENTS :

Item – Chemical Name	Percentage
01 Propane	0-5
02 Iso-Butane	20-40
03 n-Butane	55-80

Additional information: For the wording of the listed risk phrases refer to section 3

3. HAZARDS IDENTIFICATION:

Extremely flammable-readily forms explosive air-vapor mixtures at ambient temperature(in concentrations ranging from 1.8% to 9.5%,approximately).Vapor is heavier than air and may travel to remote sources of ignition (e.g along drainage systems , into basements etc.). Liquid leaks generate large volumes of flammable vapor (approximately 250º). Cold burns (frostbite) will result from skin/ eye contact with liquid. Liquid release or vapor pressure jets present a risk of serious damage to the eyes. Abuse involving willful inhalation of very high concentrations of vapor, even for shorter periods, can produce unconsciousness or might prove fatal. Inhalation may cause irritation to the nose and throat ,headache , nausea, vomiting, dizziness and drowsiness.

Unconsciousness or asphyxiation may result in poorly ventilation or confined spaces.

4. FIRST AID MEASURES:

General information: You can feel symptoms of poisoning even after several hours. Medical observation is recommended for at least the following 48 hours after the accident.

Skin contact: In case of cold burns immediately place affected area in warm water (41ºC) and keep immersed and until circulation returns. Get immediate medical advice.

Eye contact: Immediately flush eyes with plenty of cool water for at least 15 minutes. Hold eyelids apart while flushing to rinse entire surface of eye and lids with water.

Get immediate medical advice.

Inhalation: If exposure causes drowsiness, headache, blurred vision or irritation, remove to fresh air. Keep warm and rest and seek medical attention. If unconscious, place in recovery position and immediately obtain medical assistance. While awaiting assistance, monitor pulse and breathing and administer mouth to mouth resuscitation if necessary. Severe inhalation over exposure to LPG may sensitize the heart to catecholamine-induced arrhythmic. Do not administer catecholamine to overexposed individuals. Contact the Poison Information Service and /or seek further medical advice

Ingestion: N/A

Advice to Doctor: Severe inhalation, overexposure to this material may sensitize the heart to catecholamine-induced arrhythmias. Do not administer catecholamine to overexposed individuals. Contact a Poison Control Center for further treatment information.

5. FIRE FIGHTING MEASURES:

Ignition Temperature : -60°C

Flammable Limits (% by volume) : 1.8% (lower) - 9.5% (upper).

Flash Point °F : 759 °F (404 °C)

Fire Extinguishing Agents : Do not extinguish flame because of possibility of explosive reignition. Shut off source of fuel if possible, and allow fire to burn out. Use water fog to cool fire exposed surfaces. Extinguish small residual fires with dry chemical or carbon dioxide.

Explosion Hazards: Explosive air-vapor mixtures may form. Vapors may travel, be ignited at remote location and flash back. Containers may explode in fire. Full body flame resistant clothing and/or turn-out gear recommended for persons attempting leak or spill control and for fire fighting.

6. ACCIDENTAL RELEASE MEASURES:

In case of spill: Shut off flow of gas if possible. Eliminate all sources of ignition, including internal combustion engines. De-energize electrical equipment and systems. Isolate area and keep people away. Stay upwind and warn of possible downwind explosion hazard. Use supplied-air respirator and protective clothing as discussed with this MSDS. Water spray may be effective in dispersing vapors.

7. HANDLING AND STORAGE:

Handling: Follow instructions indicated in the container. Use only in a well ventilated area. DO NOT SMOKE. Use only with appliances recommended on the container label. Always use with containers in an upright position. In workshops, ground equipment to

prevent the buildup of electrostatic charges. Never look for a leak with a naked flame. Only soapy water should be used. Do not puncture or incinerate container.

Storage: Store in a well ventilated area, well away from all sources of heat and ignition. Do not expose container to temperatures over 110° F. Do not store below floor level, such as basement or cellar, for example. Store away from low-level places where gas can accumulate. Do not store in a vehicle, such as a car trunk or trailer. Heat from the sun can cause the temperature to rise to unsafe levels. Keep out of reach of children.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION:

Eyes : Avoid eye contact. The wearing of chemical safety goggles or face shield is recommended.

Skin : Protective clothing should be worn. Petroleum resistant gloves and boots recommended. Insulated gloves required if contact with liquid-cooled product or equipment is expected.

Inhalation : Use approved supplied air respiratory protection for cleaning large spills or upon entry into tanks , vessels or other confined spaces. Wear approved respiratory protection such as air-supplied respirator unless ventilation is adequate.

Ventilation : Simple asphyxiants have poor warning properties and can displace air causing oxygen deficiency. Oxygen levels should be at least 19.5% in confined spaces or other work areas. Use explosion proof equipment to maintain adequate ventilation , prevent accumulation of explosive air-gas mixture , and avoid significant oxygen displacement.

Exposure Limits: ACGIH TLV for LPG is 100 ppm for a daily 8 hour exposure.

9. PHYSICAL AND CHEMICAL PROPERTIES:

Item	Measurement environment	Propane	Iso-butane	n-butane	Unit
Molar Mass	N/A	0.044097	0.058124	0.058124	Kg
Specific Volume	@21.1 , 161.325 kPa	530.6	405.8	399.5	Dm3/kg
Absolute Density	Gas@ 101.325 kPa@ 20°C	1.868	2.487	2.544	Kg/m3
Relative Density	Gas@ 101.325 kPa @20°C	1.55	2.064	2.11	Kg/l
Density	Liquid @Saturated pressure@ 20°C	0.5005	0.551	0.5788	Kg/l
Vapor Pressure	@ 21.1 °C , 101.325 kPa	853	310	213.7	kPa
Boiling Point	@ 101.325 kPa	-42.1	-11.7	-0.5	°C
Freezing Point	@ 101.325 kPa	N/A	-159.6	-138.4	°C

Flammable Limits in Air	N/A	2.2-9.5	1.8-8.4	1.8-8.4	%(by volume)
Vapor Pressure of Portable Butane Gas Cartridge	Mixture Gas (less than 13.2 bar at 50)	6.5			Bar

10. STABILITY AND REACTIVITY:

Reactivity : In use: Stable in normal conditions. Explodes or catches fire when exposed to heat or a source of ignition.

Conditions to Avoid: Heat. Strong oxidizers

Hazardous Reactions /Decomposition Products: Combustion may produce COx, NOx ,SOx , reactive hydrocarbons and irritating vapors.

11. TOXICOLOGICAL INFORMATION:

Acute toxicity: No information on product.

Chronic Toxicity: No information available.

12. ECOLOGICAL INFORMATION :

Environmental Effects: No specific toxicology data on this product is available.

13. DISPOSAL INFORMATION :

Waste Disposal: It is the responsibility of the user of products to determine, at the time of disposal , whether the product meets criteria for hazardous waste. Product uses transformations, mixture and processes, may render the resulting material hazardous.

Remarks: Do not allow to enter drains or sewers . Can cause explosion.

14. TRANSPORT INFORMATION:

Proper Shipping Name : Lp Gas cartridges,(MIXTURE Butane / Propane)

Identification Number : UN2037

Hazard Class: DOT-2P

Label: Flammable Gas

15. REGULATORY INFORMATION:

Respirator Information : In the absence of local approval authorities / standards, follow US NIOSH/MSHA , UK BSI regulations. Respirators must meet either the above or local standard for approved respirators.

Regulatory information: The following laws and regulations and standards have stipulated correspondingly the aspects of the safe use, storage, transportation, handling, classification and marking of chemicals:

"Dangerous Goods Rules"

"Model Regulations for the Transport of Dangerous Goods"

"International Maritime Dangerous Goods Transport Regulations"

"Dangerous Goods Aviation Safety Delivery Technology Guide"

"Dangerous Goods Classification and Name Number"

16. OTHER INFORMATION:

The information contained herein is believed to be accurate but is not warranted to be, whether originating with the company or not. Recipients are advised to confirm in advance that the information is current, applicable and suitable to their circumstances and requirements.

DANGER: EXTREMELY FLAMMABLE. DO NOT USE NEAR FIRE OR FLAME. PROTECT FROM DIRECT SUNLIGHT

WARNING:

- Keep out of children.
- Do not puncture or incinerate container.
- Do not throw into fire even when container is empty.
- Do not expose to heat or store at temperature above 110°F
- Container is not refillable.
- Manufactured for use only in portable butane gas stove or the products specially made for use of this fuel container only. Not recommended for any other appliances.
- Do not place a hotplate or pan over butane fuel compartment cover of portable gas stoves.
- Do not remove fuel container while stove is in operation.
- Use in well ventilated area.
- Keep contents at temperature above 32°F.

REMARK:

- Do not puncture/ pierce or incinerate, even after use.
- Not recommended for other appliances.
- Overheating may cause release of contents from top rim of the can.
- Manufactured for use in portable butane gas cooker.
- An odorant has been added to help detect any possible leakage.

- Do not place a hot plate or pan over cartridge compartment cover of portable gas cooker.
- Follow the instructions for use supplied with the appliances.
- Detach container when not in use.
- Always close burner valve before removing cylinder.

This information is based on and arises from our own knowledge regarding development and research.

Date and place of creation of MSDS: Barcelona, November 2022

Next revision: Barcelona, November 2023 or when changes in current legislation warrant revision.