

MATERIAL SAFETY DATA SHEET

Consult the Standard for specific requirements. Note: Blank spaces are not permitted. If any item is not applicable, or no information is available, the space must be marked to indicate that.

Quick Name Identifier/Common Name:

Butane Gas Cartridge

SECTION 1 – CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Manufactured For:

OJC CO., LTD.

Emergency Telephone Number:

TEL : 82-31-495-1481, ext) 6 , Q.M Dept.

ADDRESS :

1052-4, SINGIL-DONG, DANWON-GU,
ANSAN-SI, GYEONGGI-DO, KOREA

Date Prepared:

JANUARY/02/2016

General or Generic Name: Liquefied Petroleum Gas (LPG) (Mixture of propane, iso-butane and n-butane,)

SECTION 2 – COMPOSITION / INFORMATION ON INGREDIENTS

Trade Name	CAS #	Concentration (mol %)	Exposure Limits/ Health Hazards
Propane	74-98-6	0-5	1000ppm 8-hour TWA (OSHA) Simple Asphyxiant (ACGIH)
Iso-Butane	75-28-5	30-80	800ppm 8-hour TWA (OSHA) 800ppm 8-hour TWA (ACGIH)
n-Butane	106-97-8	25-60	800ppm 8-hour TWA (ACGIH)

SECTION 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 250: 1). 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 short 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.

SECTION 4 – FIRST AID MEASURES

Eye	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.
Skin	In case of cold burns, immediately place affected area in warm water (41 °C) and keep immersed until circulation returns. Get immediate medical advice.
Inhalation	If exposure causes drowsiness, headache, blurred vision or irritation, remove to fresh air. Keep warm and at 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 arrhythmics. Do not administer catecholamine to overexposed individuals. Contact the Poisons 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.

SECTION 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 locations 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.

SECTION 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 in this MSDS. Water spray may be effective in dispersing vapors.

SECTION 7 – HANDLING AND STORAGE	
Handling	Follow instructions indicated on 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 containers to temperatures over 110 °F(43.3°C) . Do not store below floor level, such as a 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.

SECTION 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

SECTION 9 – PHYSICAL DATA 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	dm ³ /kg
Absolute Density	Gas@ 101.325 kPa @ 20°C	1.868	2.487	2.544	kg/ m ³

Relative Density	Gas @ 101.325 kPa @ 20°C	1.55	2.064	2.11	-
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 13.2bar at 50)	6.5			Bar

SECTION 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.

SECTION 11 – TOXICOLOGICAL INFORMATION

Acute Toxicity	No information on product
Chronic Toxicity	No information available

SECTION 12 – ECOLOGICAL INFORMATION – NA

Environmental Effects	No specific toxicology data on this product is available.
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SECTION 13 – DISPOSAL INFORMATION

Waste Disposal	It is the responsibility of the use 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
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SECTION 14 – TRANSPORTATION

Hazardous Material Description	UN number (2037) Dangerous goods class (2) Hazchem code (2WE) Emergency guide (EPG 2A2)
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SECTION 15 – INFORMATION OF IMPORTER

Contact in ()	Grodenberg Garten- und Freizeittechnik GmbH Am Ufer 2, 01612 Nünchritz, www.grodenberg.de
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SECTION 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(43.3°C).
- 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(0°C).

REMARK :

- Do not puncture/pierce or incinerate, even after use.
- Not recommended for any other appliances.
- Overheating may cause release of contents form 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.