MATERIAL SAFETY DATA SHEET (Directive 2001/58/EEC and DM (Exec. Ord.) 7/09/2002)	Date of issue : 08.01.2007

1. PRODUCT IDENTIFICATION AND COMPANY NAME

1.1. Product identification:

CGV210L 210 gr. , 380 ml.
CGV330L 330 gr. , 600 ml.
CGV220 220 gr. , 400 ml.
CGV425 425 gr. , 770 ml.

1.2. Product use: Combustible gas cartridge for soldering process and refilling of portable equipment for professional and non professional use

1.3. Company name:
REFILLGAS Srl
Via Leinì, 151
10036 - Settimo Torinese (TO) - Italy
Tel. +39.011.8005013 - Telefax +39.011.8977737
E-mail : info@refillgas.com - Web site : www.refillgas.com

1.4. Emergency contact:
REFILLGAS Srl
Tel. +39.011.8005013 - Telefax +39.011.8977737

2. COMPOSITION/INFORMATION ON INGREDIENTS

Odorized, combustible, liquid gas mixture, pressurized.
Does not contain 1,3-butadiene (<0.1%).

Hazardous components in product	%	CAS No.	CE No.	Symbols	R phrases
Liquefied petroleum gas (propane 30%,isobutane-nbutane 70%)	100	68476-85-7	270-704-2	F+	12

3. HAZARD IDENTIFICATION

3.1. Classification : the product is classified as HIGHLY FLAMMABLE (F+) with reference to the regulations provided for by the decree law 14/03/2003, n. 65 (Directive 1999/45/EEC).

3.2. Chemical & physical hazards : flammable gases represent a fire and explosive atmosphere hazard when mixed with air (Decree law 12/06/2003, n. 233). Risk of burst of container due to container deterioration (shock, corrosion) or strong heating (heat source, direct sunlight).

3.3. Health hazards : direct spray of liquid gas on skin and into eyes may cause freezing of skin areas and conjunctiva.
The release or presence of gas in confined spaces may cause asphyxia : keep oxygen concentration over 17% (standard value 20.9%).
In confined spaces, gas combustion may be incomplete resulting in the formation of carbon monoxide, (a toxic gas).
Inhalation of gas, as it is, can adversely affect the activity of the central nervous system resulting in possible drowsiness and dizziness. Effects of overexposure: possible heart sensitization (arrhytmia).

3.4. Environmental hazards : can result if the product is released to air. Gas is a volatile organic compound (VOC) and as such it is subject to photo-chemical reactions that generate hazardous pollutants (ozone, organic nitrates).

4. FIRST AID MEASURES

4.1. Inhalation : remove patient to fresh air, away from exposure. Seek immediate medical attention. If respiratory difficulty develops, take proper first aid actions.

4.2. Skin contact : if contact with the liquid product has occurred, wash affected skin area with water; do not use hot water. Do not rub.
Where injury of the skin tissue has occurred, medical attention should be obtained immediately.

4.3. Eye contact: if contact with the liquid product has occurred, flush eyes immediately with plenty of water taking the precaution to keep eyelid up; do not use hot water, do not rub.
If irritation develops or impaired vision or eye damage is observed, seek medical attention.

4.4. Ingestion : accidental ingestion of the product is unlikely. If this is the case, do not induce vomiting and obtain immediate medical attention.

IMPORTANT : Symptoms resulting from the absorption of hydrocarbon-base gas and vapours may appear after some time from exposure. It is therefore important that medical attention is sought immediately as soon as patient feels unwell. Show the product label or this product safety data sheet to the physician.

5. FIRE FIGHTING MEASURES

5.1. Precautionary measures : the product is flammable and if exposed to fire, gas containers may explode. Thoroughly assess fire hazard (Exec. Order DM 10/03/1998) then adopt proper fire fighting measures.

5.2. Appropriate fire extinguishing media : carbon dioxide, foam, chemical powder. Use atomized water to cool down containers exposed to fire and limit fire area.

5.4. Unsuitable fire extinguishing media : full-jet water.

5.5. Exposure hazards : if involved in fire, gas containers may explode causing the generation of irritant fumes and toxic gases (carbon monoxide) and projection of metal splints.

5.6. Personal protection equipment : in case of fire, use an approved breathing apparatus (type EN 137), protective gloves and protective clothing for emergency. Risk of projection of solid parts because of the explosion of material involved in fire.

IMPORTANT : Never extinguish a fire if you are not sure to be able to immediately stop gas escape, meaning that you are not sure that gas leaking out will not catch fire again : it is far better to have a sudden gas leak with ignition than a gas cloud moving toward an ignition source.
Call for intervention of fire department if you are not sure to be able to extinguish fire promptly with the extinguishing media you have handy.

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions: check for risks of explosions (presence of ignition sources, damaged containers), remove ignition sources and assure proper ventilation of work place. Wear protective clothing and protective individual equipment to avoid risk of inhalation and skin and eye contact. Strictly adhere to the emergency procedure. Refer to point 8.
Warn people in the vicinity, in a special way those located leeward, of the gas leak and of the risk of fire and explosion. Always bear in mind that gas is heavier than air and tends to deposit at ground level.
In the event of serious accident (law decree 17/08/1999, n. 334) inform local authorities immediately and behave according to the planned emergency plan.

6.2. Environmental precautions : bound the spill by a suitable medium; prevent liquid and solid residual materials from entering drains and open waters. Refer to points 12 and 13.
Use only safety electrical equipment which has been certified for the use (CE marking).

6.3. Reclamation methods : clean up area and soak up residual materials using, if need be, appropriate absorbent materials (sand, sepiolite, cement, saw dust). Place residual materials into suitable containers to be disposed of in accordance with local and national regulations. Refer to point 12 and 13.

7. HANDLING AND STORAGE

7.1. Handling : containers are to be handled and opened with care. Use anti-spark tools. Equipment and electrical installations must be made according to safety rules.
Assure adequate ventilation of work premises or, in any case, of the place where the product is being used.
Smoking in this area is to be prohibited.
Do not spray gas on a naked flame or any incandescent material.
Protect gas bottles from direct sunlight and keep away from any heat sources.
Regularly check for gas leaks (use water and soap) and keep away from ignition sources (flames, sparks, ionizing radiations, micro-waves, static electricity.
Avoid the contact of compressed and liquefied gas (sprays) with the skin and eyes.
Do not breath gas nor gases resulting from combustion. Refer to point 8.
Carefully read and understand the technical instructions for a safe use of the product. Refer to point 16.

7.2. Storage : store gas bottles in original, well sealed containers, at dry and cool premises and at a temperature lower than 50°C.
Avoid any risk of physical damage to container (corrosion, mechanical action).
Store combustible gas containers in well ventilated premises, separate from premises where oxidizing or burning products are stored (oxygen, nitrous oxide).

7.3. Special applications : before using the product for a purpose different to the intended one, consult the applicable law and technical regulations.

8. PERSONAL PROTECTION. EXPOSURE CONTROL

8.1. Exposure limit values (ACGIH-TWA, 2005) : avoid exposure to ambient concentrations higher than:

- 1000 ppm (v/v), for aliphatic hydrocarbons C1-C4 (propane, butane, isobutane);
- 25 ppm (v/v), for carbon monoxide (CAS No. 630-08-0).

IMPORTANT : DO NOT eat, drink, smoke while using the product.

8.2.1. Exposure control for professional use of the product : assess risks according to what provided for by the law decree 19/09/1994, n. 626, as amended by the law decree 02/02/2002, n. 25. These regulations provide for the following protection equipment with special instructions supplied by the manufacturer of the protective equipment:

Respiratory organs : in the event of insufficient ventilation, wear a complete mask with filter against organic vapours (type EN 140) or, even better, wear a breathing apparatus (type EN 137).
Hands : wear thermoinsulating gloves (type EN 374). Glove surface cooling up to - 50°C.
Eyes : goggles (type EN 166), face shield.
Skin : work clothing.

8.2.2. Environmental exposure control : Operate only in a work area equipped with exhaust ventilation systems and appropriate fire extinguishing means (fire extinguishers).
Refer to regulations in force concerning atmospheric pollution (DPR 24/05/88, n. 203), ground pollution (Ex. Ord. DM 25/10/1999, n. 471) and water pollution (law decree 11/05/1999, n. 152), as amended by the law decree 03/04/2006, n. 152.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1	**Physical state:**	Pressurized liquid, gas at 15.6 °C and 1 bar.
9.2	**Odour:**	Characteristic of odorized combustible gases, not disturbing
9.3	**Colour:**	Colourless.

9.4	**pH at 20°C :**	Not applicable.
9.5	**Boiling point:**	- 0.5 °C.
9.6	**Freezing point:**	Below 0°C.
9.7	**Flash point:**	- 74 °C.
9.8	**Autoflammability:**	405 °C.
9.9	**Explosion limits:**	Mixtures of flammable gas / air may explode if gas concentration lies between the lower range (LIE) and higher range (LSE) of explosion limits : butane : LIE = 1.8% and LSE = 8.4% isobutane : LIE = 1.8% and LSE = 9.8% propane : LIE = 2.2% e LSE = 10%.
9.10	**Burning properties :**	None
9.11	**Vapour pressure :**	NA.
9.12	**Relative density :**	0.584 kg/m^3 for the liquid state.
9.13	**Solubility :**	
	Solubility in water :	Insoluble.
	Solubility in fat :	Poorly soluble.
9.14	**Partition coefficient (n-octanol/water) :**	Log Kow in the range from 2.36 and 3,0 (assessed depending on components)
9.15	**Viscosity :**	Not applicable.
9.16	**Gas density :**	Higher than air. Gas has a tendency to deposit at ground level.
9.17	**Evaporation rate :**	Liquid evaporates quickly in the atmosphere causing sudden cooling of surfaces with which it comes in contact.

10. STABILITY AND REACTIVITY

10.1. Hazardous conditions : strong heating of containers; quick depressurization of containers. No problems if the product is properly stored and properly used. Refer to points 7 and 16.

10.2. Materials to avoid : strong oxidizing agents (hypochlorites, nitrates, perchlorates, permanganates, bichromates).

10.3. Hazardous reactions : the product exhibits a violent reaction with burning products (peroxides, chlorine dioxide, nitrogen dioxide).

10.4. Hazardous decomposition products : toxic gases (carbon monoxide) and highly flammable gases (hydrogen, ethylene), irritant carbonaceous fumes

11. TOXICOLOGICAL INFORMATION

No experimental data available on the compound.
In consideration of substances contained in the product and making reference to the conventional method stated for by the law decree 14/03/2003, n. 65 (Directive 1999/45/EEC), the product should be characterized as follows :

11.1. Routes of exposure : inhalation, contact with the skin and eyes. Accidental ingestion of the product is unlikely.

11.2. Ingestion : the product in its liquid state causes the immediate freezing of the part with which it comes in contact and may seriously affect the mucous membranes and tissue of mouth, oesophagus and stomach. In the event of ingestion, carry injured person to First Aid immediately.
The gaseous product practically has no harmful effect.

11.3. Inhalation : inhalation of mists containing the product may cause irritation to mucous membranes and apnea.
Gas absorption causes narcosis (depression of central nervous system) and may cause dizziness or suffocation without any forewarning symptoms. Exposure to higher levels (1% - 10% in air) may result in pulmonary and heart involvement (arrhythmia, heart attack).

Gas concentration that is immediately hazardous for health (IDLH) is 2100 ppm for propane. It is recommended that you avoid exposure to gas mixing at concentrations higher than the recommended limit value of 1000 ppm. Refer to point 8.

11.4. : Eye and skin contact : exposure to gaseous product is not so hazardous as exposure to the liquid product because, in the latter case, there is a risk of possible freezing and consequent injury to skin and eye tissue.

11.4. Other data : as regards chronic toxicity, no carcinogenic and mutagen effects have been found, neither for reproduction (teratogenesis, embryotoxicity) nor for the possibility of respiratory and skin sensitization.
No drawbacks are reported to have occurred after proper use of the product. Refer to the specific technical instruction.

12. ECOLOGICAL INFORMATION

No experimental data available on the compound.
On the basis of substances contained, and making reference to the conventional method provided for by the law decree 14/03/2003, n. 65 (Directive 1999/45/EEC), the product should be characterized as follows:

12.1. Ecotoxicity : the product does not contain any substance classified as hazardous for the environment; it is however good practice to use it according to good operational codes and avoiding product dispersion in the environment.
Typical product data:

Soil : the product will be absorbed in the upper soil layers and biodegraded; however, because of the product gaseous state at ambient temperature and pressure, product volatilization to air is expected to be the dominant process.

Water : the product can be biodegraded; however, bioconcentration factors (Log BCF in the range from 1.56 to 1.78 calculated for propane) suggest that bioconcentration is not the most important factor; hence, due to the poor solubility of gas in water, in this case too, releasing to air is expected to be the dominant process.

Air : because of the gaseous state of the product under normal weather conditions and because of the chemical inertia of its components, the most important degradation process capable of generating hazardous substances for health (ozone and organic nitrates) seems to be the photochemical reaction with oxygen and nitric oxide.

12.2. Mobility : the product spreads in the soil layers, water and air.

12.3. Persistence and degradability : the product does not seem to adversely affect the activated sludge of biologic depuration plants. The organic substances contained in the product are biodegradable.

12.4. Bioaccumulation potential : none expected, in consideration of the low values of bioaccumulation potential (Log BCF).

12.5. Other adverse effects : Releasing to air of hydrocarbons and organic solvents contributes to the photochemical creation of ozone, a harmful gas for atmosphere.

13. DISPOSAL CONSIDERATIONS

13.1. Classification : contribution of this product to waste which contains the product is very significant and dangerous because of product flammability and possibility of explosive atmosphere formation.

13.2. Product disposal : the product and contaminated packaging should be handed over to qualified and authorized waste contractors for disposal as hazardous waste.
Do not compact product to be disposed of nor damage product containers.
For product to be disposed of, observe same safety regulations as for new product and in a special way, be careful not to pierce nor burn containers.

14. TRANSPORT INFORMATION

Conveyance by road and railways - ADR / RID:

Class ADR / RID : 2
Classification code : 5F
UN Number : 2037
Hazard label : 2.1
Packing : -
Description of goods : not reusable cartridge containing pressurized gas.

Conveyance by sea - IMDG :

Class IMDG : 2.1
UN Number : 2037
Label : 2.1
Packing : -
EMS Number : -
Sea pollutant : No
Description of goods : Not reusable cartridge containing pressurized gas.

Conveyance by air - ICAO / IATA :

Class ICAO / IATA : 2.1
UN Number : 2037
Label : 2.1
Packing : -
Description of goods : Not reusable cartridge containing pressurized gas.

15. REGULATORY INFORMATION

15.1. Labelling :

Hazard symbols :	F+ (highly flammable)
R phrases :	Highly flammable.
S phrases :	Keep out of reach of children.
	Store in a well ventilated place.
(Decree 28/02/2006 and DPR 21/07/1982, n. 741	Keep container away from any ignition source – No smoking.
	Do not spray on a naked flame or any incandescent material.
	Do not inhale gas.
	Avoid electrostatic discharges build-up.
	Use only in well ventilated areas.
	Pressurized container. Protect from sunlight and do not expose to temperatures exceeding 50°C.
	Do not pierce or burn even after use.

15.2. Limitations to trade and use : none according to the Directive 76/769/EEC. In the event of use different to that intended, check the existence of additional behavioural rules.

16. OTHER INFORMATION

16.1. Indications on training : staff charged with handling and use of the product must be adequately trained and informed on the specific risks and safety measures associated with the use of the product.

16.2. Written references : refer to the specific technical instructions shown on the product.

16.3. Technical Assistance Centres : Tel. +39.011.8005013

16.4. Key to R phrases mentioned at point 2 :
R12 : Highly flammable.

16.4. Main sources of data used to draw up this MSDS :
- Material safety data sheets for raw materials.
- National Institute for Occupational Safety and Health (NIOSH, USA) : Registry of Toxic Effects of Chemical Substances, 2006.
- American Conference of Governmental Industrial Hygienists (ACGIH), 2005.
- The National Library of Medicine (USA) : Hazardous Substances Data Bank (HSDB), ed. 2006.
- Environmental Protection Agency (USA) : Integrated Risk Information System (IRIS), ed. 2006.
- Department of Transportation (USA) : Chemical Hazard Response Information System (CHRIS), ed. 2006.
- CRC Press (USA) : Handbook of Chemistry and Physics, 77^ ed., 1997.
- Institut National de Recherche et de Sécurité (INRS - F) : Les Mélanges Explosifs, ed. 1994.

NOTE : Information contained herein is based on our current knowledge regarding health, safety and environment issues; this information is intended to help professional users of the product locate preventive and protective behavioural actions in order to operate safely.
Before using the product for a purpose different to that intended, the user of the product must check whether other, additional information is needed and must always observe law rules and good operating practice.
We assume no liability for any damage or injury of any kind which may arise out of any improper use of the product.
Characteristics mentioned herein are not to be considered as a guarantee of specific properties of the product.
The product label or product MSDS is to be always shown when seeking medical attention.