



# TAKORADI GAS LTD

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## NC+ Metal Cutting Gas

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

**Product name:** Metal Cutting Gas  
**Trade name:** NC+  
**Product type:** Liquefied Hydrocarbon gas.  
**Recommended uses:** NC+ is used for metal cutting, heating, thermit welding and other metal fabrication purposes.  
**Restriction on use:** Abuse involving repeated and prolonged exposures to high concentrations of vapour ('sniffing') may cause death by either asphyxiation or cardiac arrest. Abuse involving direct ingestion of the liquefied gas may cause death by freezing the larynx and causing the lungs to fill with fluid - an effect similar to drowning  
**Supplier: Address:** Takoradi Gas Ltd  
EI56, Terrace Avenue, Brempong Yaw Road, Takaradi, Ghana  
**Contact numbers**  
**Telephone:** +233 0244 330 594  
**EMAIL**  
*tgl@tglgh.com*

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### 2. HAZARDS IDENTIFICATION

**GHS Classification:** Flammable Gas, Category 1  
Gases under pressure  
Carcinogenicity, Category 1B  
Germ cell mutagenity, Category 1B

**GHS Label Elements Symbol:**



**Signal words:** Danger  
**Hazard Statement:** PHYSICAL HAZARD  
H220: Extremely flammable gas  
H280: Contains gas under pressure; may explode if heated  
HEALTH HAZARD  
H350: May cause cancer  
H340: May cause genetic defects.  
ENVIRONMENTAL HAZARD  
Not classified as an environmental hazard under GHS criteria.

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**Prevention** P102 : Keep out of reach of children  
P210: Keep away from heat/sparks/open flames/hot surface. – No smoking  
P243: Take precautionary measures against static discharge.

**Response** P377 : Leaking gas fire : Do not extinguish unless leak can be stopped safely.  
P381: Eliminate all ignition source if safe to do so.

**Storage** P410 + P403 : Protect from sunlight. Store in a well-ventilated place.

**Other hazards which do not result in classification** Vapors are heavier than air. Vapors may travel across the ground and reach remote ignition sources causing flashback fire danger. High concentration of gas will displace available oxygen from the air; unconsciousness and death may occur suddenly from lack of oxygen.

### 3. COMPOSITION / INFORMATION ON INGREDIENTS

**Synonyms:**

**Preparation description:** Complex mixture of hydrocarbons consisting predominantly of propane C3 and butane C4 plus low amount of other hydrocarbons in the C1-C7 range. Low concentrations of sulphur, hydrogen sulphide and mercaptans may be present. It may also contain one or more of the following additives: odorants (usually ethyl mercaptan), anti-icing agents. 1,3-butadiene, classified as a Category 2 carcinogen, may be present at a concentration of less than 0.5 % (m/m). Additive injected to the mixture with less than 0.2% of total content.

**Dangerous components/constituents:**

Component name	CAS number	Content range	Hazard Identification	R phrases
Petroleum gases, liquefied	68476-49-3	> 99 %(m/m)	F+	R12
Petroleum distillates	8052-413	< 0.2%(m/m)	F	R10, R36, R38

**Other information:** Contains the following substances for which exposure limits apply: liquefied petroleum gas, butane, 1,3-butadiene, hydrogen sulphide, ethyl mercaptan and petroleum distillate.

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## 4. FIRST AID MEASURES

- Symptoms and effects:** Liquid may cause skin and eye burns. Prolonged exposure to vapour concentrations above the recommended occupational exposure standard may cause headache, dizziness, weakness, nausea, confusion, blurred vision, asphyxiation, cardiac irregularities, unconsciousness and even death.
- Protection of first aiders:** Take appropriate steps to avoid fire, explosion and inhalation hazards.
- First Aid - Inhalation:** Remove the affected person to fresh air. Keep warm and at rest. If the casualty is stupor, some physical restraint may be necessary to prevent injury. If breathing but unconscious, place in the recovery position. If breathing has stopped, apply artificial respiration. If heartbeats absent, give external cardiac compression. Monitor breathing and pulse. **OBTAIN MEDICAL ATTENTION IMMEDIATELY.**
- First Aid - Skin:** Drench affected parts with water to normalize temperature. Remove contaminated clothing, rings, watches, etc., if possible, but do not attempt to do so if they are adhering to the skin. Do not attempt to reheat the affected parts rapidly - reheat slowly. Cover with a sterile dressing. Do not apply ointments or powders. Note that contaminated clothing may be a fire hazard. Contaminated clothing should be soaked with water before being removed. It must be laundered before reuse. **OBTAIN MEDICAL ATTENTION IMMEDIATELY.**
- First Aid - Eye:** **DO NOT DELAY.** Flush eye with copious quantities of water to normalize temperature. Cover eye with a sterile dressing. **OBTAIN MEDICAL ATTENTION IMMEDIATELY.**
- First Aid - Ingestion:** In the unlikely event of ingestion, obtain medical attention immediately.
- Advice to physicians:** Treat symptomatically.

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## 5. FIRE FIGHTING MEASURES

- Specific hazards:** Hazardous combustion products may include: carbon monoxide, oxides of nitrogen, oxides of sulphur, unburnt hydrocarbons. The vapour is heavier than air, spreads along the ground and distant ignition is possible. Sustained fire attack on vessels may result in a Boiling Liquid Expanding Vapour Explosion (BLEVE).
- Extinguishing media:** Shut off supply. If not possible and there is no risk to surroundings, let the fire burn itself out. Large fires should only be fought by properly trained fire fighters. Dry powder, carbon dioxide may be used for small fires. Water fog should be used to assist the approach to the source of the fire.
- Unsuitable extinguishing media:** Do not use direct water jets on the burning product as they could cause steam explosion and spread the fire. Use of halon extinguishers should be avoided for environmental reasons.
- Other information:** Keep adjacent containers cool by spraying with water. All storage areas should be provided with adequate fire fighting facilities. Large storage should be equipped with purpose designed water sprays.

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## 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions:** Vapour can travel along the ground for considerable distances. Remove all possible sources of ignition in the surrounding area and evacuate all personnel. Shut off leaks, if possible without personal risk. Do not enter confined spaces. Ventilate contaminated area thoroughly. Do not breathe: vapour. Avoid contact with: skin, eyes and clothing. Take off immediately all contaminated clothing - but do not attempt to do so if clothing is adhering to the skin. Contaminated clothing may be a fire hazard and therefore should be soaked with water before being removed.

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<b>Personal protection:</b>	Wear: mono goggles, chrome leather, neoprene or nitrile rubber gloves, safety shoes or boots.
<b>Environmental precautions:</b>	Use appropriate containment to avoid environmental contamination.
<b>Precaution method and material for containment and cleaning up :</b>	Allow to evaporate. Attempt to disperse the gas or to direct its flow to a safe location by using water fog .
<b>Additional advice:</b>	Test atmosphere for vapours to ensure safe working conditions before personnel are allowed into the area. Local authorities should be advised if significant spillages cannot be contained. Observe all relevant local regulations.

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### 7. HANDLING AND STORAGE

<b>Precaution for safe handling:</b>	This product is intended for use in closed systems only. Do not use in confined areas. When handling, do not eat, drink or smoke. Do not breathe vapour. Sources of ignition must be used sensibly where liquefied petroleum gases are being used in properly designed equipment. Take precautionary measures against static discharges. Use cylinders in the upright position only unless specially designed for use in other orientations.
<b>Condition for safe storage:</b>	Store only in purpose-designed, appropriately labelled cylinders. Cylinder shall be stored in upright position. Store outdoors or in adequately ventilated storerooms. Locate cylinders away from heat and other sources of ignition. Do not store in the vicinity of cylinders containing compressed oxygen or other strong oxidisers. All storage areas should be provided with adequate fire fighting facilities. Keep out of reach of children.
<b>Specific uses:</b>	Fuel for oxygen-fuel metal cutting
<b>Recommended materials:</b>	For containers, use mild steel. For seals and gaskets, use compressed asbestos fibre or other materials specifically approved for use with this product. Spirally wound metal gaskets are also suitable.
<b>Unsuitable materials:</b>	With respect to metals, aluminium should not be used if there is a risk of caustic contamination of the product. Certain forms of cast iron are unsuitable. With respect to non-metallic materials, natural rubbers must not be used. Nitrile rubbers and certain plastics may also be unsuitable, depending on the material specification and intended use. Materials to be avoided are ABS, polymethyl methacrylate(PMMA), polyethylene(PE/HDPE), polypropylene(PP), PVC, Natural rubber(NR), Nitrile(NBR), ethylene propylene rubber(EDPM), Butyl(IIR), Hypalon(CSM), polystyrene, polyvinyl chloride(PVC), polyisobutylene.
<b>Other information:</b>	Ensure that all local regulations regarding handling and storage facilities are followed. Where large quantities of liquefied petroleum gas are stored, emergency and disaster plans must be developed in conjunction with local authorities.

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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Occupational exposure controls:** ACGIH threshold limit values are given below. Lower exposure limits may apply locally.

Component name	Limit type	Value	Unit	Other information
Propane	TWA	2500	ppm	
Butane	TWA	800	ppm	
1,3-butadiene	TWA	2	ppm	
Hydrogen sulphide	TWA	10	ppm	
Hydrogen sulphide	STEL	15	ppm	
Ethyl mercaptan	TWA	0.5	ppm	
Petroleum Distillate	TWA	100	ppm	

Note: ACGIH - 'Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices', American Conference of Governmental Hygienists, Cincinnati, Ohio, 2002 edition.

**Appropriate engineering control:** The level of protection and type of controls necessary will vary depending upon potential exposure conditions. Select controls based on risk assessment of local circumstances. Use only in well ventilated areas. Ventilators used shall be explosion proof. Provide adequate ventilation in storage areas. Good personal hygiene measures shall be practiced where in any contact during handling. Wash hands after handling and before eating, drinking and/or smoking. Routinely wash work clothing, personal protective equipment and footwear to remove contaminants.

**Personal Protective Equipment:** Personal Protective Equipment(PPE) should meet recommended national standard  
**Respiratory protection:** Not normally required. Inhalation of LPG vapours should be minimised. If there is a risk of exposure to high vapour concentrations, respiratory protection / breathing apparatus should be worn

**Hand protection:** Wear neoprene or nitrile rubber gloves or chrome leather. Gloves must maintain flexibility down to the atmospheric boiling point of this product. It may be necessary to increase frequency of changing gloves if immersion or prolonged contact is likely.

**Eye protection:** If splashes are likely to occur, wear goggles or full-face visors

**Body protection:** Protective footwear (chemical resistant) should be worn when handling cylinders. If splashes are likely to occur, wear long-sleeved overalls made of cotton (100%) or other natural fibres

**Environmental Exposure controls:** No specific measures. Because of its high volatility, LPG is unlikely to cause ground or water pollution

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Physical state:</b>	Liquefied gas
<b>Appearance:</b>	Colourless, liquid under pressure.
<b>Odour:</b>	Distinctive and unpleasant if stench, odourless if unstenched
<b>Odour threshold:</b>	Data not available
<b>pH:</b>	Not applicable
<b>Freezing Point:</b>	Typical -187.6°C to -138.3 °C
<b>Initial Boiling point and boiling range:</b>	Typical -40.0°C to -2.0 °C
<b>Flash point:</b>	circa -104°C to -60 °C
<b>Flammability</b>	Extremely flammable
<b>Upper/Lower flammability limit:</b>	1.55-9.6% (V)
<b>Auto-ignition temperature:</b>	> 410°C
<b>Vapour pressure:</b>	circa 380-840 kPa at 37.8°C
<b>Liquid Density:</b>	Varies from 0.6 – 0.8 kg/m <sup>3</sup> depending on the additive used
<b>Vapour density (air=1):</b>	varies from 1.52 – 1.56 kg/m <sup>3</sup>
<b>Relative density</b>	0.54
<b>Solubility in water:</b>	0.01
<b>n-octanol/water partition coefficient:</b>	log Pow = 2.8 (estimated value)
<b>Evaporation rate:</b>	Data not available
<b>Decomposition temperature</b>	Data not available
<b>Viscosity</b>	Data not available

## 10. STABILITY/REACTIVITY

<b>Chemical stability:</b>	Stable.
<b>Possibility of hazardous reaction</b>	No hazardous reaction is expected when handled and stored according provision.
<b>Conditions to avoid:</b>	Heat, open flames, flammable atmosphere and sparks.
<b>Incompatible materials:</b>	Strong oxidizing agents.
<b>Hazardous decomposition products:</b>	The substances arising from the thermal decomposition of these products will largely depend upon the conditions bringing about decomposition. The following substances may be expected from normal combustion: carbon dioxide, carbon monoxide, polycyclic aromatic hydrocarbons, unburnt hydrocarbons, unidentified organic and inorganic compounds, particulate matter, nitrogen oxides.
<b>Sensitivity to static discharge:</b>	Yes, in certain circumstances product can ignite due to static electricity

## 11. TOXICOLOGICAL INFORMATION

<b>Basis for assessment:</b>	Toxicological data have not been determined specifically for this product. Information given is based on data on the components and the toxicology of similar products.
<b>Likely route of exposure:</b>	Inhalation is the primary route of exposure although exposure may occur through skin or eye contact.
<b>Acute toxicity - oral:</b>	Not applicable
<b>Acute toxicity - dermal:</b>	Not applicable

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<b>Acute toxicity - inhalation:</b>	LC <sub>50</sub> >5 mg/l (Gas).
<b>Eye irritation:</b>	Not irritating. Liquid causes cold burns.
<b>Skin irritation:</b>	Not irritating. Liquid causes cold burns.
<b>Respiratory irritation:</b>	Not irritating (Gas).
<b>Skin sensitization:</b>	Not expected to be a skin sensitizer.
<b>Aspiration hazard:</b>	Not considered as aspiration hazard.
<b>Carcinogenicity:</b>	This product has not been evaluated in long-term chronic exposure tests. Contains 1, 3-butadiene, classified as a Category 2 carcinogen, at a concentration of less than 0.5% (m/m). Other components are not known to be associated with carcinogenic effects.
<b>Reproductive and developmental toxicity specific target organ toxicity-single exposure:</b>	High concentration may cause central nervous system depression resulting in headaches, dizziness and nausea: continued inhalation may result in unconsciousness and/or death.
<b>Reproductive and developmental toxicity specific target organ toxicity-single exposure:</b>	Low systemic toxicity on repeated exposure.
<b>Mutagenicity:</b>	Not considered to be a mutagenic hazard (gas).
<b>Human effects:</b>	See Section 4 for information regarding acute effects to humans.

## 12. ECOLOGICAL INFORMATION

<b>Basis for assessment:</b>	Ecotoxicological data have not been determined specifically for this product. Information given is based on data on the components and the toxicology of similar products.
<b>Ecotoxicity:</b>	Low acute toxicity to mammals.
<b>Acute toxicity</b>	Physical properties indicate that petroleum gases will rapidly volatilise from the aquatic environment and that acute and chronic effects would not be observed in practice. Practically non toxic: LL/EL/IL50>100mg/l LL/EL50 expressed as the nominal amount of product required to prepare aqueous test extract. Fish : Practically non toxic LL/EL/IL50>100mg/l Aquatic crustacea: Practically non toxic LL/EL/IL50>100mg/l Algae/aquatic plants: Practically non toxic LL/EL/IL50>100mg/l Microorganism: Expected to be practically non toxic LL/EL/IL50>100mg/l
<b>Chronic toxicity</b>	Fish : Data not available Aquatic crustacean: Data not available
<b>Mobility</b>	Evaporates extremely rapidly from water or soil surfaces. Disperses rapidly in air.
<b>Persistence/degradability:</b>	Oxidizes rapidly by photochemical reactions in air.
<b>Bioaccumulative potential:</b>	Does not bioaccumulate.
<b>Sewage treatment:</b>	Not applicable.
<b>Other information:</b>	In view of the high rate of loss from solution, the product is unlikely to pose a significant hazard to aquatic life.

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## 13. DISPOSAL CONSIDERATIONS

**Precautions:** See Section 8.  
**Product disposal:** Given the nature and uses of this product, the need for disposal seldom arises. If necessary, dispose by controlled combustion in purpose-designed equipment. If this is not possible, contact the supplier.  
**Container disposal:** Return part-used or empty cylinders to the supplier.  
**Local legislation:** Environmental Quality Act 1974

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## 14. TRANSPORT INFORMATION

**UN Number:** 1075  
**UN Class/Packing Group:** 2.1, Packing Group not applicable  
**UN Proper Shipping Name:** Hydrocarbon Gas Mixture, Liquefied, n.o.s. (Propane / Butane Mixture)  
**UN Number (sea transport, IMO):** 1075  
**IMO Class/Packing Group:** 2.1, Packing Group not applicable  
**IMO Symbol:** Flammable Gas  
**IMO Marine Pollutant:** No  
**IMO Proper Shipping Name:** Hydrocarbon Gas Mixture, Liquefied, n.o.s. (Propane / Butane Mixture)  
**ADR/RID Class/Item:** 2F  
**ADR/RID Symbol:** Flammable Gas  
Shunt With Care (RID only)  
**ADR/RID Kemler Number:** 23-1965  
**ADR/RID Proper Shipping Name:** Hydrocarbon Gas Mixture, Liquefied, n.o.s.  
Mixture AO1, Mixture AO2 and Mixture AO (Trade name: Propane / Butane)  
**ADNR Class/Item:**  
**UN Number (air transport, ICAO):** 1075  
**IATA/ICAO Class/Packing Group:** 2.1, Packing Group not applicable  
**IATA/ICAO Symbol:** Flammable Gas  
**IATA/ICAO Proper Shipping Name:** Hydrocarbon Gas Mixtures, Liquefied, n.o.s. (Propane / Butane Mixture)

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### 15. REGULATORY INFORMATION

<b>Label name:</b>	Contains petroleum gas
<b>Classification:</b>	Extremely Flammable.
<b>Symbols:</b>	F+
<b>Risk Phrases:</b>	R12 Extremely flammable.
<b>Safety Phrases:</b>	S2 Keep out of the reach of children. S9 Keep container in a well-ventilated place. S16 Keep away from sources of ignition – No Smoking.
<b>National legislation:</b>	Omani Standard Occupational Safety and Health (Classification, Packaging and Labelling of Hazardous Chemicals) Regulation 1997 Industry Code of Practice on Chemical Classification and Hazard Communication 2014.
<b>Other information:</b>	Mobile gas cylinders containing butane, propane or liquid petroleum gases are currently exempt from the health labelling provisions of European Commission Directive 67/548/EEC.

### 16. OTHER INFORMATION

<b>Recommended restrictions on use:</b>	
<b>SDS history:</b>	First issued: April 29, 2020
<b>Revisions highlighted:</b>	
<b>SDS distribution:</b>	This document contains important information to ensure the safe storage, handling and use of this product. The information in this document should be brought to the attention of the person who is a professional user of this product.
<b>Other information:</b>	<i>The meaning of the Risk phrases quoted in Section 2 of this safety data sheet that relate to the classification of 1,3-butadiene and ethyl mercaptan but that do not apply to the classification of this product are:</i> <i>R20 Harmful by inhalation</i> <i>R45 May cause cancer</i> <i>R50 Very toxic to aquatic organisms</i> <i>R53 May cause long-term adverse effects in the aquatic environment</i>
<b>References:</b>	Useful references include the following: The Institute of Petroleum, London, 'Model Code of Safe Practice', Part 9, current edition. The UK LP Gas Association Codes of Practice. CONCAWE, Brussels, 'Liquefied petroleum gas'. Product Dossier No 92/102, 1992. <i>Environmental Quality Act 1974</i> <i>Motor Vehicles (Construction and Use) (Vehicles Carrying Petroleum Products) Rules, 1965</i> <i>Road Transport Act 1982</i> <i>Occupational Safety and Health (Classification, Packaging and Labelling of Hazardous Chemicals) Regulation 1997</i>

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not be construed as guaranteeing any specific property of the product.

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