

## FRESH GAS (30% Carbon Dioxide in Oxygen)

SDS 00204



O : Oxidizing



2.2 : Non-flammable, non-toxic gases



5.1

**SECTION 1. Identification of the substance/mixture and of the company/undertaking****1.1. Product identifier**

Trade name : FRESH GAS (= < 30% CO<sub>2</sub> in Oxygen)  
SDS Nr : SDS 00204

**1.2. Relevant identified uses of the substance or mixture and uses advised against**

Relevant identified uses : Industrial and professional. Perform risk assessment prior to use.  
Test gas/Calibration gas. Laboratory use. Contact supplier for more information on uses.

**1.3. Details of the supplier of the safety data sheet**

Company identification : Energas Ltd.  
Westmorland Street, Hull HU2 0HX,  
United Kingdom

E-Mail address (competent person) : mark.nugent@energas.co.uk

**1.4. Emergency telephone number**

Emergency telephone number : 01482 329333

**SECTION 2. Hazards identification****2.1. Classification of the substance or mixture**

Classification EC 67/548 or EC 1999/45

: O; R8

**2.2. Label elements**

Labelling EC 67/548 or EC 1999/45

• Symbol(s)



• R Phrase(s)

: O : Oxidizing  
: R8 : Contact with combustible material may cause fire.

• S Phrase(s)

: S17 : Keep away from combustible material.

**2.3. Other hazards**

: None.

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### SECTION 3. Composition/information on ingredients

#### 3.1. Substance / 3.2. Mixture

##### Mixture.

Substance name	Contents	CAS No EC No Index No Registration no	Classification(DSD)	Classification(CLP)
Carbon dioxide	: 30 %	124-38-9 204-696-9 ----- * 1	Not classified (DSD)	Press. Gas Liquefied (H280)
Oxygen	: 70 %	7782-44-7 231-956-9 008-001-00-8 * 1	O; R8	Ox. Gas 1 (H270) Press. Gas Compressed (H280)

Contains no other components or impurities which will influence the classification of the product.

\* 1: Listed in Annex IV / V REACH, exempted from registration.

\* 2: Registration deadline not expired.

\* 3: Registration not required: Substance manufactured or imported < 1t/y.

Full text of R-phrases see section 16. Full text of H-statements see section 16.

### SECTION 4. First aid measures

#### 4.1. Description of first aid measures

- Inhalation : Adverse effects not expected from this product.
- Skin contact : Adverse effects not expected from this product.
- Eye contact : Adverse effects not expected from this product.
- Ingestion : Ingestion is not considered a potential route of exposure.

#### 4.2. Most important symptoms and effects, both acute and delayed

: Refer to section 11.

#### 4.3. Indication of any immediate medical attention and special treatment needed

: None.

### SECTION 5. Firefighting measures

#### 5.1. Extinguishing media

- Suitable extinguishing media : Water spray or fog.
- Unsuitable extinguishing media : Do not use water jet to extinguish.

#### 5.2. Special hazards arising from the substance or mixture

- Specific hazards : Supports combustion.  
Exposure to fire may cause containers to rupture/explode.
- Hazardous combustion products : None that are more toxic than the product itself.

#### 5.3. Advice for fire-fighters

- Specific methods : If possible, stop flow of product.  
Use fire control measures appropriate for the surrounding fire. Exposure to fire and heat radiation may cause gas receptacles to rupture. Cool endangered receptacles with water spray jet from a protected position. Prevent water used in emergency cases from entering sewers and drainage systems.  
Use water spray or fog to knock down fire fumes if possible.



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### SECTION 5. Firefighting measures (continued)

**Special protective equipment for fire fighters** : Standard protective clothing and equipment (Self Contained Breathing Apparatus) for fire fighters.  
Standard EN 469 - Protective clothing for firefighters. Standard - EN 659: Protective gloves for firefighters.  
Standard EN 137 - Self-contained open-circuit compressed air breathing apparatus with full face mask.

### SECTION 6. Accidental release measures

#### 6.1. Personal precautions, protective equipment and emergency procedures

: Evacuate area.  
Try to stop release.  
Ensure adequate air ventilation.  
Eliminate ignition sources.  
Monitor concentration of released product.  
Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.

#### 6.2. Environmental precautions

: Try to stop release.

#### 6.3. Methods and material for containment and cleaning up

: Ventilate area.

#### 6.4. Reference to other sections

: See also sections 8 and 13.

### SECTION 7. Handling and storage

#### 7.1. Precautions for safe handling

##### **Safe use of the product**

: Use no oil or grease.  
Keep equipment free from oil and grease.  
Do not smoke while handling product.  
Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt.  
Only experienced and properly instructed persons should handle gases under pressure.  
The substance must be handled in accordance with good industrial hygiene and safety procedures.  
Ensure the complete gas system was (or is regularly) checked for leaks before use.  
Consider pressure relief device(s) in gas installations.

##### **Safe handling of the gas receptacle**

: Open valve slowly to avoid pressure shock.  
Refer to supplier's container handling instructions.  
Do not allow backfeed into the container.  
Protect cylinders from physical damage; do not drag, roll, slide or drop.  
When moving cylinders, even for short distances, use a cart (trolley, hand truck, etc.) designed to transport cylinders.  
Leave valve protection caps in place until the container has been secured against either a wall or bench or placed in a container stand and is ready for use.  
If user experiences any difficulty operating cylinder valve discontinue use and contact supplier.  
Never attempt to repair or modify container valves or safety relief devices.  
Damaged valves should be reported immediately to the supplier.  
Keep container valve outlets clean and free from contaminants particularly oil and water.  
Replace valve outlet caps or plugs and container caps where supplied as soon as container is disconnected from equipment.  
Close container valve after each use and when empty, even if still connected to equipment.  
Never attempt to transfer gases from one cylinder/container to another.  
Never use direct flame or electrical heating devices to raise the pressure of a container.



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## SECTION 7. Handling and storage (continued)

Do not remove or deface labels provided by the supplier for the identification of the cylinder contents.  
Containers should be stored in the vertical position and properly secured to prevent toppling.

### 7.2. Conditions for safe storage, including any incompatibilities

: Segregate from flammable gases and other flammable materials in store.  
Keep container below 50°C in a well ventilated place.  
Observe all regulations and local requirements regarding storage of containers.  
Containers should not be stored in conditions likely to encourage corrosion.  
Containers should be stored in the vertical position and properly secured to prevent toppling.  
Stored containers should be periodically checked for general condition and leakage.  
Container valve guards or caps should be in place.  
Store containers in location free from fire risk and away from sources of heat and ignition.  
Keep away from combustible materials.

### 7.3. Specific end use(s)

: None.

## SECTION 8. Exposure controls/personal protection

### 8.1. Control parameters

**DNEL: Derived no effect level (Workers)**

: No data available.

**DMEL: Derived minimum effect level (Workers)**

: No data available.

**PNEC: Predicted no effect concentration**

: No data available.

### 8.2. Exposure controls

**8.2.1. Appropriate engineering controls**

: Ensure exposure is below occupational exposure limits (where available).  
Systems under pressure should be regularly checked for leakages.  
Gas detectors should be used when oxidising gases may be released.  
Provide adequate general and local exhaust ventilation.  
Consider work permit system e.g. for maintenance activities.

**8.2.2. Individual protection measures, e.g. personal protective equipment**

: A risk assessment should be conducted and documented in each work area to assess the risks related to the use of the product and to select the PPE that matches the relevant risk.  
The following recommendations should be considered:  
PPE compliant to the recommended EN/ISO standards should be selected.

• **Eye/face protection**

: Wear safety glasses with side shields.  
Standard EN 166 - Personal eye-protection.

• **Skin protection**

- **Hand protection**

: Wear working gloves when handling gas containers.  
Standard EN 388 - Protective gloves against mechanical risk.

- **Other**

: Consider the use of flame resistant safety clothing.  
Standard EN ISO 14116 - Limited flame spread materials.  
Wear safety shoes while handling containers.  
Standard EN ISO 20345 - Personal protective equipment - Safety footwear.

• **Respiratory protection**

: Self contained breathing apparatus (SCBA) or positive pressure airline with mask are to be used in oxygen-deficient atmospheres.  
Standard EN 137 - Self-contained open-circuit compressed air breathing apparatus with full face mask.

• **Thermal hazards**

: None necessary.

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### SECTION 8. Exposure controls/personal protection (continued)

**8.2.3. Environmental exposure controls** : Refer to local regulations for restriction of emissions to the atmosphere. See section 13 for specific methods for waste gas treatment.

### SECTION 9. Physical and chemical properties

#### 9.1. Information on basic physical and chemical properties

**Appearance**

**Physical state at 20°C / 101.3kPa** : Gas.

**Colour** : Mixture contains one or more component(s) which have the following colour(s):  
Colourless.

**Odour** : There may be no odour warning properties, odour is subjective and inadequate to warn of overexposure.  
Mixture contains one or more component(s) which have the following odour(s):  
Odourless.

**Odour threshold** : Odour threshold is subjective and inadequate to warn for overexposure.

**pH value** : Not applicable for gas-mixtures.

**Molar mass [g/mol]** : Not applicable for gas-mixtures.

**Melting point [°C]** : Not applicable for gas-mixtures.

**Boiling point [°C]** : Not applicable for gas-mixtures.

**Flash point [°C]** : Not applicable for gas-mixtures.

**Evaporation rate (ether=1)** : Not applicable for gas-mixtures.

**Flammability range [vol% in air]** : Not applicable for gas-mixtures.

**Vapour pressure [20°C]** : Not applicable.

**Relative density, gas (air=1)** : Heavier than air.

**Solubility in water [mg/l]** : Solubility in water of component(s) of the mixture :  
• Oxygen : 39 • Carbon dioxide : 2000

**Partition coefficient n-octanol/water [log K<sub>ow</sub>]** : Not applicable for gas-mixtures.

**Viscosity at 20°C [mPa.s]** : Not applicable.

**Explosive Properties** : Not applicable.

**Oxidising Properties** : Oxidiser.

#### 9.2. Other information

**Other data** : Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.

### SECTION 10. Stability and reactivity

#### 10.1. Reactivity

: No reactivity hazard other than the effects described in sub-sections below.

#### 10.2. Chemical stability

: Stable under normal conditions.

#### 10.3. Possibility of hazardous reactions

: Violently oxidises organic material.

#### 10.4. Conditions to avoid

: None.

#### 10.5. Incompatible materials

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### SECTION 10. Stability and reactivity (continued)

: May react violently with combustible materials.  
May react violently with reducing agents.

#### 10.6. Hazardous decomposition products

: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

### SECTION 11. Toxicological information

#### 11.1. Information on toxicological effects

Acute toxicity	: No known toxicological effects from this product.
Rat inhalation LC50 [ppm/4h]	: No data available.
Skin corrosion/irritation	: No known effects from this product.
Serious eye damage/irritation	: No known effects from this product.
Respiratory or skin sensitisation	: No known effects from this product.
Carcinogenicity	: No known effects from this product.
Germ cell mutagenicity	: No known effects from this product.
STOT-single exposure	: No known effects from this product.
STOT-repeated exposure	: No known effects from this product.
Aspiration hazard	: Not applicable for gases and gas-mixtures.

### SECTION 12. Ecological information

#### 12.1. Toxicity

	: Classification criteria are not met.
EC50 48h - Daphnia magna [mg/l]	: No data available.
EC50 72h Algae [mg/l]	: No data available.
LC50-96 h - fish [mg/l]	: No data available.

#### 12.2. Persistence and degradability

: No data available.

#### 12.3. Bioaccumulative potential

: No data available.

#### 12.4. Mobility in soil

: No data available.

#### 12.5. Results of PBT and vPvB assessment

: No data available.

#### 12.6. Other adverse effects

Effect on ozone layer	: None.
Effect on the global warming	: Contains greenhouse gas(es) not covered by 842/2006/EC.

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### SECTION 13. Disposal considerations

#### 13.1. Waste treatment methods

: Ensure that the emission levels from local regulations or operating permits are not exceeded.

Refer to the EIGA code of practice Doc.30 "Disposal of Gases", downloadable at <http://www.eiga.org> for more guidance on suitable disposal methods.

Do not discharge into any place where its accumulation could be dangerous.  
Contact supplier if guidance is required.

List of hazardous wastes

: 16 05 04: Gases in pressure containers (including halons) containing dangerous substances.

#### 13.2. Additional information

: None.

### SECTION 14. Transport information

UN number : 3156

Labelling ADR, IMDG, IATA



: 2.2 : Non-flammable, non-toxic gases

5.1 : Oxidizing substances

#### Land transport (ADR/RID)

H.I. nr : 25

UN proper shipping name : COMPRESSED GAS, OXIDIZING, N.O.S. (Oxygen, Carbon dioxide)

Transport hazard class(es) : 2

Classification code : 1 O

Packing Instruction(s) : P200

Tunnel Restriction : E : Passage forbidden through tunnels of category E.

Environmental hazards : None.

#### Sea transport (IMDG)

Proper shipping name : COMPRESSED GAS, OXIDIZING, N.O.S. (Oxygen, Carbon dioxide)

Class : 2.2

Emergency Schedule (EmS) - Fire : F-C

Emergency Schedule (EmS) - Spillage : S-W

Packing instruction : P200

IMDG-Marine pollutant : No

#### Air transport (ICAO-TI / IATA-DGR)

Proper shipping name (IATA) : COMPRESSED GAS, OXIDIZING, N.O.S. (Oxygen, Carbon dioxide)

Class : 2.2

Passenger and Cargo Aircraft : Allowed.

Packing instruction - Passenger and Cargo Aircraft : 200

Cargo Aircraft only : Allowed.

Packing instruction - Cargo Aircraft only : 200

#### Special precautions for user

: Avoid transport on vehicles where the load space is not separated from the driver's compartment.

Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency.



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## SECTION 14. Transport information (continued)

Before transporting product containers:

- Ensure there is adequate ventilation.
- Ensure that containers are firmly secured.
- Ensure cylinder valve is closed and not leaking.
- Ensure valve outlet cap nut or plug (where provided) is correctly fitted.
- Ensure valve protection device (where provided) is correctly fitted.

## SECTION 15. Regulatory information

### 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

#### EU legislation

Seveso directive 96/82/EC : Covered.

#### National legislation

National legislation : Ensure all national/local regulations are observed.

### 15.2. Chemical safety assessment

: A CSA does not need to be carried out for this product.

## SECTION 16. Other information

- Indication of changes** : Revised safety data sheet in accordance with commission regulation (EU) No 453/2010.
- Training advice** : Receptacle under pressure.
- List of full text of R-phrases in section 3.** : R8 : Contact with combustible material may cause fire.
- List of full text of H-statements in section 3.** : H270 - May cause or intensify fire; oxidiser.  
H280 - Contains gas under pressure; may explode if heated.
- Further information** : Classification in accordance with calculation methods of regulation (EC) 1272/2008 CLP / (EC) 1999/45 DPD.  
This Safety Data Sheet has been established in accordance with the applicable European Union legislation.
- DISCLAIMER OF LIABILITY** : Before using this product in any new process or experiment, a thorough material compatibility and safety study should be carried out.  
Details given in this document are believed to be correct at the time of going to press. Whilst proper care has been taken in the preparation of this document, no liability for injury or damage resulting from its use can be accepted.

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