



SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Trade name :

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.

Uses advised against :

1.3. Details of the supplier of the safety data sheet

Company identification : Scientific and Technical Gases Ltd
Units 1 + 2 Speedwell Road Parkhouse Industrial Estate
ST5 7RG Newcastle Under Lyme UNITED KINGDOM
+44 (0) 1782 566 897

E-Mail address (competent person) : info@stgas.eu (Not 24 Hours)

1.4. Emergency telephone number

Emergency number : Tel 24hr: +44 (0) 870 190 6777

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Gases under pressure : Compressed gas H280

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]

O; R8

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :



GHS04

Signal word (CLP) : Warning

Hazard statements (CLP) : H280 - Contains gas under pressure; may explode if heated

Precautionary statements (CLP) : P403 - Store in a well-ventilated place

2.3. Other hazards

: None.



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SECTION 3: Composition/information on ingredients

3.1. Substance : Not applicable

3.2. Mixture

Name	Product identifier	%	Classification according to Directive 67/548/EEC	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Nitrogen	(CAS No) 7727-37-9 (EC no) 231-783-9 (REACH-no) *1	75.25	Not classified	Compressed gas, H280
Oxygen	(CAS No) 7782-44-7 (EC no) 231-956-9 (EC index no) 008-001-00-8 (REACH-no) *1	20.75	O; R8	Ox. Gas 1, H270 Compressed gas, H280
Carbon dioxide	(CAS No) 124-38-9 (EC no) 204-696-9 (REACH-no) *1	4	Not classified	Liquefied gas, H280

Full text of R- and H-phrases: see section 16

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.

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

- : No effect on living tissue.
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.

5.3. Advice for fire-fighters

- Specific methods** : 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.
If possible, stop flow of product.
Use water spray or fog to knock down fire fumes if possible.
- 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

- : Try to stop release.

6.2. Environmental precautions

- : None.

6.3. Methods and material for containment and cleaning up

- : None.

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** : The substance must be handled in accordance with good industrial hygiene and safety procedures.
Only experienced and properly instructed persons should handle gases under pressure.
Consider pressure relief device(s) in gas installations.
Ensure the complete gas system was (or is regularly) checked for leaks before use.
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.
- Safe handling of the gas receptacle** : 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.
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 them from falling over.

7.2. Conditions for safe storage, including any incompatibilities

- : Observe all regulations and local requirements regarding storage of containers.
- Containers should not be stored in conditions likely to encourage corrosion.
- Container valve guards or caps should be in place.
- Containers should be stored in the vertical position and properly secured to prevent them from falling over.
- Stored containers should be periodically checked for general condition and leakage.
- Keep container below 50°C in a well ventilated 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

Carbon dioxide (124-38-9)		
Austria	MAK (mg/m ³)	9000 mg/m ³
Austria	MAK (ppm)	5000 ppm
Austria	MAK Short time value (mg/m ³)	18000 mg/m ³
Austria	MAK Short time value (ppm)	10000 ppm
Belgium	Limit value (mg/m ³)	9131 mg/m ³
Belgium	Limit value (ppm)	5000 ppm
Belgium	Short time value (mg/m ³)	54784 mg/m ³
Belgium	Short time value (ppm)	30000 ppm
Bulgaria	OEL TWA (mg/m ³)	9000 mg/m ³
Cyprus	OEL TWA (mg/m ³)	9000 mg/m ³
Cyprus	OEL TWA (ppm)	5000 ppm
France	VME (mg/m ³)	9000 mg/m ³
France	VME (ppm)	5000 ppm
Greece	OEL TWA (mg/m ³)	9000 mg/m ³
Greece	OEL TWA (ppm)	5000 ppm
Greece	OEL STEL (mg/m ³)	54000 mg/m ³
Latvia	OEL TWA (mg/m ³)	9000 mg/m ³
Latvia	OEL TWA (ppm)	5000 ppm
Spain	VLA-ED (mg/m ³)	9150 mg/m ³
Spain	VLA-ED (ppm)	5000 ppm
Switzerland	VME (mg/m ³)	9000 mg/m ³
Switzerland	VME (ppm)	5000 ppm
Netherlands	Grenswaarde TGG 8H (mg/m ³)	9000 mg/m ³
United Kingdom	WEL TWA (mg/m ³)	9150 mg/m ³
United Kingdom	WEL TWA (ppm)	5000 ppm
United Kingdom	WEL STEL (mg/m ³)	27400 mg/m ³
United Kingdom	WEL STEL (ppm)	15000 ppm
Czech Republic	Expoziční limity (PEL) (mg/m ³)	9000 mg/m ³
Czech Republic	Expoziční limity (PEL) (ppm)	5000 ppm
Czech Republic	Expoziční limity (NPK-P) (mg/m ³)	45000 mg/m ³
Czech Republic	Expoziční limity (NPK-P) (ppm)	25020 ppm
Denmark	Grænseværdie (langvarig) (mg/m ³)	9000 mg/m ³
Denmark	Grænseværdie (langvarig) (ppm)	5000 ppm
Finland	HTP-arvo (8h) (mg/m ³)	9100 mg/m ³
Finland	HTP-arvo (8h) (ppm)	5000 ppm
Hungary	AK-érték	9000 mg/m ³
Ireland	OEL (8 hours ref) (mg/m ³)	9000 mg/m ³
Ireland	OEL (8 hours ref) (ppm)	5000 ppm
Ireland	OEL (15 min ref) (mg/m ³)	27000 mg/m ³
Ireland	OEL (15 min ref) (ppm)	15000 ppm

Lithuania	IPRV (mg/m ³)	9000 mg/m ³
Lithuania	IPRV (ppm)	5000 ppm
Malta	OEL TWA (mg/m ³)	9000 mg/m ³
Malta	OEL TWA (ppm)	5000 ppm
Norway	Gjennomsnittsverdier (AN) (mg/m ³)	9000 mg/m ³
Norway	Gjennomsnittsverdier (AN) (ppm)	5000 ppm
Poland	NDS (mg/m ³)	9000 mg/m ³
Poland	NDSCh (mg/m ³)	27000 mg/m ³
Romania	OEL TWA (mg/m ³)	9000 mg/m ³
Romania	OEL TWA (ppm)	5000 ppm
Slovakia	NPHV (priemerná) (mg/m ³)	9000 mg/m ³
Slovakia	NPHV (priemerná) (ppm)	5000 ppm
Sweden	nivågränsvärde (NVG) (mg/m ³)	9000 mg/m ³
Sweden	nivågränsvärde (NVG) (ppm)	5000 ppm
Sweden	kortidsvärde (KTV) (mg/m ³)	18000 mg/m ³
Sweden	kortidsvärde (KTV) (ppm)	10000 ppm

8.2. Exposure controls

8.2.1. Appropriate engineering controls

- : Provide adequate general and local exhaust ventilation. Systems under pressure should be regularly checked for leakages. 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

- : 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.

8.2.3. Environmental exposure controls

- : None necessary.

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	: Odourless.
Odour threshold	: Odour threshold is subjective and inadequate to warn of overexposure.
pH value	: Not applicable for gas-mixtures.
Molar mass	: Not applicable for gas-mixtures.
Melting point	: Not applicable for gas-mixtures.
Boiling point	: Not applicable for gas-mixtures.
Critical temperature [°C]	:
Flash point	: Not applicable for gas-mixtures.
Evaporation rate (ether=1)	: Not applicable for gas-mixtures.
Flammability range	: Not applicable for gas-mixtures.
Vapour pressure [20°C]	: Not applicable.
Vapour pressure [50°C]	:
Relative density, gas (air=1)	: Lighter or similar to air.
Relative density, liquid (water=1)	:
Solubility in water	: Solubility in water of component(s) of the mixture : • Carbon dioxide: 2000 mg/l Completely soluble. • Oxygen: 39 mg/l • Nitrogen: 20 mg/l
Partition coefficient n-octanol/water [log Kow]	: Not applicable for gas-mixtures.
Auto-ignition temperature	:
Viscosity [20°C]	: Not applicable.
Explosive Properties	: Not applicable.
Oxidising Properties	: None.
- Coefficient of oxygen equivalency (Ci)	:
9.2. Other information	
Other data	: None.

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

: None.

10.4. Conditions to avoid

: None.

10.5. Incompatible materials

: None.

10.6. Hazardous decomposition products

: None.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : No toxicological effects from this product.

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.
Germ cell mutagenicity	: No known effects from this product.
Carcinogenicity	: No known effects from this product.
Toxic for reproduction : Fertility	: No known effects from this product.
Toxic for reproduction : unborn child	: 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

Assessment : No ecological damage caused by this product.

12.2. Persistence and degradability

G2-DUAL-5-34	
Assessment	No data available.
Carbon dioxide (124-38-9)	
Assessment	No ecological damage caused by this product.
Oxygen (7782-44-7)	
Assessment	No ecological damage caused by this product.
Nitrogen (7727-37-9)	
Assessment	No ecological damage caused by this product.

12.3. Bioaccumulative potential

G2-DUAL-5-34	
Log Kow	Not applicable for gas-mixtures.
Assessment	No data available.
Carbon dioxide (124-38-9)	
Assessment	No ecological damage caused by this product.
Oxygen (7782-44-7)	
Assessment	No ecological damage caused by this product.
Nitrogen (7727-37-9)	
Assessment	No ecological damage caused by this product.

12.4. Mobility in soil

G2-DUAL-5-34	
Mobility in soil	No data available.
Carbon dioxide (124-38-9)	
Assessment	No ecological damage caused by this product.
Oxygen (7782-44-7)	
Assessment	No ecological damage caused by this product.
Nitrogen (7727-37-9)	
Assessment	No ecological damage caused by this product.

12.5. Results of PBT and vPvB assessment

Assessment : Not classified as PBT or vPvB.

12.6. Other adverse effects

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

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Contact supplier if guidance is required.
 May be vented to atmosphere.
 Do not discharge into any place where its accumulation could be dangerous.
 Pour plus de recommandation sur les méthodes d'élimination des gaz, se référer au code de bonnes pratiques de l'EIGA Doc 30 " Disposal of gases", téléchargeable sur <http://www.eiga.org>.

List of hazardous waste codes (from Commission Decision 2001/118/EC) : 16 05 05: Gases in pressure containers other than those mentioned in 16 05 04.

13.2. Additional information

: None.

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

14.1. UN number

UN-No. : 1956
 Labelling :



2.2 : Non-flammable, non-toxic gases

14.2. UN proper shipping name

Transport by road/rail (ADR/RID) : COMPRESSED GAS, N.O.S.

Transport by air (ICAO-TI / IATA-DGR) : Compressed gas, n.o.s.

Transport by sea (IMDG) : COMPRESSED GAS, N.O.S.

Proper Shipping Name (ADR) : COMPRESSED GAS, N.O.S.

Transport document description (ADR) : UN 1956 COMPRESSED GAS, N.O.S. (Carbon dioxide(124-38-9) ; Nitrogen(7727-37-9) MIXTURE), 2.2, (E)

14.3. Transport hazard class(es)

Transport by road/rail (ADR/RID)

Class / Div. (Sub. risk(s)) : 2.2
 Classification code : 1A
 Hazard identification number : 20
 Tunnel Restriction : E - Passage forbidden through tunnels of category E

Transport by air (ICAO-TI / IATA-DGR)

Class / Div. (Sub. risk(s)) : 2.2

Transport by sea (IMDG)

Class / Div. (Sub. risk(s)) : 2.2
 Emergency Schedule (EmS) - Fire : F-C
 Emergency Schedule (EmS) - Spillage : S-V

14.4. Packing group



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Transport by road/rail (ADR/RID) :
Transport by air (ICAO-TI / IATA-DGR) :
Transport by sea (IMDG) :

14.5. Environmental hazards

:
:
:

14.6. Special precautions for user

Special transport precautions : 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.
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.

Packing Instruction(s)

Transport by road/rail (ADR/RID) :
Transport by air (ICAO-TI / IATA-DGR) :
 Passenger and Cargo Aircraft : 200
 Cargo Aircraft only : 200
Transport by sea (IMDG) : P200

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Transport by sea (IMDG) : Not applicable

SECTION 15: Regulatory information

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

EU-Regulations

Seveso directive 96/82/EC : Not covered.

National regulations

National legislation : Ensure all national/local regulations are observed.
Water hazard class (WGK) : nwg - Non-hazardous to water

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.
Other information : This Safety Data Sheet has been established in accordance with the applicable European Union legislation. Classification in accordance with calculation methods of regulation (EC) 1272/2008 CLP / (EC) 1999/45 DPD.



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SDS Ref.:

Full text of R-, H- and EUH-phrases

Compressed gas	Gases under pressure : Compressed gas
Liquefied gas	Gases under pressure : Liquefied gas
Ox. Gas 1	Oxidising Gases, Category 1
H270	May cause or intensify fire; oxidizer
H280	Contains gas under pressure; may explode if heated
R8	Contact with combustible material may cause fire
O	Oxidising

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.