

GAS MIXTURE: OXYGEN (50% O₂) + NITROGEN PROTOXYDE (50% N₂O)

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

1.1. Product identifier

Trade name GAS MIXTURE: OXYGEN (50% O₂) + NITROGEN PROTOXYDE (50% N₂O)

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

Relevant uses identified Industrial and professional. Carry out a risk analysis before use
Test or calibration gas
Contact the supplier for more information on use

Uses advised against Consumer use

1.3. Information regarding the supplier of the safety data sheet

Company identification SARL RAYANOX
ZA Bethioua Wilaya of Oran, Algeria
Tel: 041-79-35-22
Fax: 041-79-32-23
Contact@rayanox.co
sarlrayanox@gmail.com

1.4. Emergency call number

Emergency call number Tel: +21365550342

SECTION 2: Hazard Identification

2.1. Classification of the substance or mixture

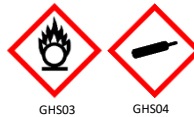
Classification according to Regulation (EC) No. 1272/2008 [CLP]

Physical hazards Oxidizing gases, Category 1 H270
Gas under pressure: Compressed gas H280

2.2. Label elements

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

Hazard pictograms (CLP)



Signal word (CLP)

: Hazard

Hazard statements (CLP)

: H270 - May cause or aggravate a fire; oxidant
: H280 - Contains gas under pressure; may explode if heated.

Precautionary statements (CLP)

- Prevention P220 - Keep away from combustible materials.
P244 - No oil or grease on taps and fittings.
- Intervention P370+P376 - In the event of fire: close the leak if it can be done without danger.
- Storage : P403 - Store in a well-ventilated area.

2.3. Other dangers

: None).

SECTION 3: Composition/information on ingredients

3.1. Substances: Not applicable

3.2. Mixtures

NAME	Product identifier	%	Impurity				Classification according to Regulation (EC) No. 1272/2008 [CLP]
Oxygen	(CAS No.) 7782-44-7 (EC No.) 231-956-9	50% O ₂	H ₂ O	NO	CO	CO ₂	Ox. Gas 1, H270 Press. Gas (Comp.), H280
Nitrous oxide	CAS No. 10024-97-2 (EC No.) 233-032-0	50% N ₂ O	≤ 67ppm	≤ 2ppm	≤ 5ppm	≤ 300ppm	Ox. Gas 1, H270 Press. Gas (Comp.), H280

Does not contain other components or impurities which could modify the classification of the product.

SECTION 4: First aid

4.1. Description of first aid

- Inhalation Move the victim to an uncontaminated area, wearing a self-contained breathing apparatus (SCBA). Keep the victim warm and at rest. Call a doctor.
- Perform artificial respiration if the victim is no longer breathing.
- Skin contact If liquid splashes: rinse with water for at least 15 minutes.
- Eye contact Immediately flush eyes with plenty of water for at least 15 minutes.
- Ingestion Ingestion is not considered a possible mode 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: Fire-fighting measures

5.1. Extinguishing media

- Suitable extinguishing agents Water spray or cloud
- Unsuitable extinguishing agents Do not use a jet of water to extinguish.

5.2. Special hazards arising from the substance or mixture

Specific risks

: Maintains combustion
Exposure to fire may cause containers to rupture and explode
Nitric oxide/nitrogen dioxide.

Hazardous combustion products

5.3. Advice for firefighters

Specific methods

Use extinguishing media suitable for the surrounding fire. Exposure to fire and heat may cause gas containers to rupture. Cool exposed containers with water spray from a protected location. Do not allow watering water used in emergency cases to flow into the gutters. If possible, stop the gas flow.
Use water spray or cloud to reduce the fumes to the ground if possible
Move containers from fire area if it can be done without risk.

Special protective equipment for firefighters

Protective clothing and self-contained breathing equipment for firefighters
Standard EN 137 - Autonomous open circuit compressed air device with full face mask
Standard EN 469: protective clothing for firefighters. Standard EN 659: Protective gloves
For firefighters

SECTION 6: Measures to be taken in the event of accidental release

6.1. Personal precautions, protective equipment and emergency procedures

Act according to the local emergency plan.
Try to stop the leak.
Evacuate the area.
Check the concentration of the released product.
Eliminate sources of ignition.
Ensure proper air ventilation
Prevent the product from entering sewers, basements, pits, or any other where its accumulation could be dangerous.
Stay upwind of the wind

6.2. Precautions for environmental protection

None).

6.3. Methods and material for containment and cleaning up

Ventilate the area.

6.4. Reference to other SECTIONS

See also sections 8 and 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Safety when using the product

The product must be handled in accordance with good industrial hygiene and safety procedures. Only persons with appropriate experience and training should handle gases under pressure. Consider adding pressure safety valve(s) to the installation.
You ensure that the entire gas installation has been (or is regularly) checked for the absence of leaks, before use
Do not smoke while handling the product.
Protect eyes, face and skin from liquid splashes.
Keep equipment free of oil and grease.

Safety when handling the gas container

Do not use oil or grease.

Use only specified equipment appropriate for this product and its operating pressure and temperature. Contact your gas supplier if in doubt.

Do not breathe the gas.

Avoid letting the product into the air.

Open the tap slowly to avoid a sudden build-up of pressure (water hammer)

Prohibit products from rising into the container

Refer to the supplier's instructions for handling the container.

Protect cylinders from physical damage, do not pull, roll, slide, drop

To move the bottles even a short distance, use a cart (bottle rolls, etc.), designed for transporting bottles

Leave the tap protection cap in place until the container is again secured either by a wall or support or placed in a container or placed in position for use.

If the user encounters any difficulty opening or closing the cylinder valve, the user should discontinue use and contact the supplier

Never attempt to repair or modify a container valve or its pressure relief devices.

Damaged faucets should be reported immediately to the supplier

Keep tap outlets from containers clean and not contaminated, particularly with oil or water.

If the container has been equipped with one, as soon as it has been disconnected from the installation, replace the cap or the tap outlet cap.

Close the container tap after each use and when empty, even if it is still connected to the equipment.

Never attempt to transfer gases from a bottle/container into another container.

Never use a direct flame or electric heater to increase the pressure in the container.

Do not remove or damage the labels put by the supplier to identify the contents of the bottle.

Prevent water from being drawn into the container.

7.2. Conditions for safe storage, including any incompatibilities

Follow all local regulations and requirements for container storage.

Containers should not be stored in conditions likely to aggravate corrosion.

Container valve covers or caps must be in place.

Containers must be stored in an upright position and secured to prevent falling.

Containers in stock should be periodically checked for general condition and absence of leaks.

Store the container in a well-ventilated area, at a temperature below 50°C

Store containers in areas not exposed to the risk of fire 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 Settings

Nitrous oxide (10024-97-2)

OEL (Occupational Exposure Limits)

OEL TWA : 180 mg/m³

OEL TWA [ppm] : 100 ppm

Reference : ILO and WHO 2018 ICSC: 0067 (June 2015)

Nitrous oxide (10024-97-2)

DNEL (Derived No Effect Dose)

Long term - systemic effects, inhalation : 183mg/m³

PNEC (Predicted No Effect Concentration(s)) : Not available.

8.2. Exposure controls

8.2.1. Appropriate technical controls

Maintain appropriate exhaust ventilation locally and overall.

Pressure equipment should be checked regularly for leaks

Ensure that exposure limits are not exceeded.

Gas detectors should be used where oxidizing gases are likely to be released.

Think about work permits, e.g. for maintenance.

8.2.2. Personal protective equipment

- Eye/face protection

A risk analysis of the use of the product must be conducted and documented in all workplaces affected by the use of the product in order to choose personal safety equipment regarding the identified risks. The following recommendations should be considered

Wear safety glasses equipped with side shields.
Standard EN 166 - Individual eye protection - Specifications.
Wear tight safety glasses and a face shield when carrying out operations.
transfer or disconnection of transfer lines
- Skin protection
 - Hand protection

Wear protective gloves when handling gas cylinders.
Standard EN 388-Protective gloves against mechanical risks.
Consider the use of fire-resistant safety clothing.
Standard EN ISO 14116 - Materials with limited flame expansion
Wear safety shoes when handling cylinders.
Standard EN ISO 20345: Personal Protective Equipment - safety shoes.
 - Miscellaneous

Self-contained breathing apparatus (SCBA) or mask with positive pressure air supply should be used in under-oxygenated atmospheres.
Standard EN 137 - Autonomous open circuit compressed air device with full face mask
Wear cold-insulating gloves during transfer or disconnection of transfer lines.
Standard EN 511 - Insulating gloves against the cold.
- Respiratory protection
- Thermal risks

8.2.3. Ambient exposure controls

Refer to local regulations for atmospheric emission restrictions. See it section 13 for specific methods for treating gas waste.

SECTION 9: Physical and chemical properties

9.1. Information on essential physical and chemical properties

Appearance

- Physical state at 20°C / 101.3kPa
- Color

: Gas
: Mixture containing one or more components having the following colors:
Colorless.

Smell

: There may be no warning properties of an odor, the notion of odor is subjective and inadequate to warn of overexposure.
: Mixture containing one or more components having the following odors:
Sweetish

Olfactory threshold

: Detection of thresholds by smell is subjective and inappropriate for warning in the event of overexposure

pH

: Not applicable.

Melting point / Freezing point

: -Not applicable to gases and gas mixtures

Boiling point

: -Not applicable to gases and gas mixtures

Flash point

: Not applicable to gases and gas mixtures.

Evaporation rate

: Not applicable to gases and gas mixtures.

Flammability (solid, gas)

: Non-flammable.

Vapor pressure [20°C]

: Not applicable.

Vapor pressure [50°C]

: Not applicable.

Vapor density

: Not applicable.

Relative density, gas (air=1)

: Heavier than air.

Water solubility

: Solubility in water of the component(s) of the mixture:

- Oxygen: 39 mg/l • Nitrous oxide: 1500 mg/l

Partition coefficient n-octanol/water (Log Kow)

: Not applicable to gas mixtures.

Auto-ignition temperature

: Non-flammable.

Viscosity

: Not applicable.

Explosive properties

: Not applicable.

Oxidizing properties

: Oxidizing.

9.2. Other information

Other data

Gas or vapor heavier than air. May accumulate in confined areas, particularly in low areas and basements.

SECTION 10: Stability and reactivity

10.1. Reactivity

No reactivity hazard other than the effects described in the sections below

10.2. Chemical stability

Stable under normal conditions.

12.3. Possibility of hazardous reactions

Violently oxidizes organic matter.

12.4. Conditions to avoid

None under recommended conditions of use and storage (see section 7).

12.5. Incompatible materials

May react violently with combustible materials.
 May react violently with reducing agents.
 Keep equipment free of oil and grease.
 Take into account, in the event that there is inflammation, the potential risk of toxicity due to the presence of chlorinated or fluorinated polymers in high pressure oxygen pipes (>30 bar).
 Consult supplier for specific recommendations

12.6. Hazardous decomposition products

: No dangerous decomposition products under normal conditions of use and storage.

SECTION 11: Toxicological information

13.1. Information on toxicological effects

acute toxicity

: The classification criteria are not met.
 No toxicological effects expected with this product if the exposure limit values are not exceeded.

Nitrous oxide (10024-97-2)

LC50 inhalation rat (ppm)

: > 30000 ppm/4h

Skin corrosion/irritation

: No known effects with this product.

Serious eye damage/eye irritation

: No known effects with this product.

Respiratory or skin sensitization

: No known effects with this product.

Cell mutagenicity

: No known effects with this product.

Carcinogenicity

: No known effects with this product.

Toxic for reproduction: fertility

: No known effects with this product.

Toxic for reproduction: fetus

: No known effects with this product.

Specific target organ toxicity – single exposure

: No known effects with this product.

Specific target organ toxicity – repeated exposure

: No known effects with this product.

Inhalation hazard

: Not applicable to gases and gas mixtures

SECTION 12: Ecological information

12.1. Toxicity

Assessment

This product is ecologically safe.

EC50 48h - Daphnia magna [mg/l]

No data available.

EC50 72h - Algae [mg/l]

No data available.

LC50 96 Hours - fish [mg/l]

No data available.

12.2. Persistence and degradability

Assessment

This product is ecologically safe.

12.3. Bioaccumulation potential

Assessment

This product is ecologically safe.

12.4. Mobility in the ground

Assessment

Due to its high volatility, pollution of soil or water by this product is unlikely.
 Penetration into the ground not likely.

12.5. Results of PBT and VPVB assessments

Assessment

Not classified as PBT or vPvB.

12.6. Other adverse effects

Effect on the ozone layer

: None).

Effect on global warming

: None).

SECTION 13: Disposal Considerations

13.1. Waste treatment methods

Contact the supplier if instructions are needed.
 Do not discharge into any location where its accumulation could be hazardous.
 Verify that emission levels imposed by local regulations or permits to exploit are not outdated.
 16 05 04: Gases in pressure vessels (including halons) containing substances Dangerous.

List of hazardous waste

13.2. Further information

None).

SECTION 14: Transport information

14.1. UN number

UN number

: 3157

14.2. UN proper shipping name

Transport by road/rail (ADR/RID)

Air transport (ICAO-TI / IATA-DGR)

Transport by sea (IMDG)

OXIDIZING LIQUEFIED GAS, NOS (Oxygen, Nitrous Oxide)

Liquefied gas, oxidizing, nos (Oxygen, Nitrous oxide)

LIQUEFIED GAS, OXIDIZING, NOS (Oxygen, Nitrous oxide)

14.3. Transport hazard class(es)

Labeling



2.2: Non-flammable, non-toxic gases.

5.1: Oxidizing materials.

Transport by road/rail (ADR/RID)

Class : 2
 Classification code : 10
 Danger no. : 25
 Restriction of passage in tunnels : C/E - Prohibition on crossing tunnels of categories C, D and E for transport in tanks. Prohibition on crossing category E tunnels.

Transport by sea (IMDG)

Class or division / Subsidiary risk(s) : 2.2 (5.1)

14.4. Packing group

Transport by road/rail (ADR/RID) : Not applicable

Air transport (ICAO-TI / IATA-DGR) : Not applicable

Transport by sea (IMDG) : Not applicable

14.5. Environmental hazards

Transport by road/rail (ADR/RID) : None).

Air transport (ICAO-TI / IATA-DGR) : None).

Transport by sea (IMDG) : None).

14.6. Special precautions to be taken by the user

Packaging instruction(s)

Transport by road/rail (ADR/RID) : P200

Air transport (ICAO-TI / IATA-DGR)

Passenger and cargo aircraft : 200

Cargo plane only : 200

Transport by sea (IMDG) : P200

Precautionary measures for transport
 Avoid transport in vehicles where the load compartment is not separated from the driver's cab.
 Ensure that the vehicle driver is aware of the potential hazards of the load and the steps to take in the event of an accident or other emergency situation.
 Before transporting containers:
 - Ensure there is adequate ventilation.
 - Make sure containers are firmly secured
 - Make sure the cylinder valve is closed and not leaking
 - Make sure that the faucet outlet protection cap (if it exists) is correctly in place.
 - Ensure that the tap protection device (if it exists) is correctly put in place

14.7. Transport in bulk in accordance with Annex II of the Marpol Convention and the IBC Code

: Not applicable.

SECTION 15: Regulatory information

Safety, health and environmental regulations/legislation specific to the substance or mixture

EU regulations

Seveso Directive 2012/18/EU (Seveso III) : Included.

National guidelines

National regulations: : Ensure that all national or local regulations are followed.

Chemical Safety Assessment

: A Chemical Risk Assessment (CSA) does not need to be carried out for this product.

SECTION 16: Other information

Indications of change : None).

Abbreviations and acronyms

ETA-Estimate of Acute Toxicity

CLP- Classification Labeling Packaging - Regulation (EC) No 1272/2008 relating to classification, labeling and packaging.

REACH - Registration, Evaluation, Authorization and Restriction of Chemicals – Regulation (EC) No 1907/2006 concerning the registration, evaluation and authorization of chemical substances, as well as the restrictions applicable to these substances.

EINECS - European Inventory of Existing Commercial Chemical Substances - Inventory European marketed chemical substances

CAS number - numerical identifier assigned by the Chemical Abstract Service (USA)

PPE - Personal protective equipment

LC50 - Lethal Concentration - Lethal concentration for 50% of the population tested

RMM-Risk Management Measures

PBT - Persistent, Bioaccumulative and Toxic.

vPvB - very (very) Persistent and very (very) Bioaccumulative.

STOT - SE: Specific Target Organ Toxicity - Single Exposure; Specific target organ toxicity - Single exposure.

CSA - Chemical Safety Assessment

EN - European Norm - European Standard

UN - United Nations - United Nations

ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road

IATA - International Air Transport Association - International Air Transport Association

IMDG Code - International Maritime Dangerous Goods Code - Code for maritime transport

Before using this product for a new application or for testing, a thorough material compatibility study and risk analysis should be performed.

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