



Safety Data Sheet

DONOPA

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878
Reference number: 377
Issue date: 06/03/2018
Revision date: 21/07/2025
Supersedes version of: 15/12/2023
Version: 9.0

Danger



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

1.1. Product identifier

Trade name : DONOPA
SDS no : 377
UFI : QD11-R0P6-R00D-1VA1

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

Relevant identified uses : Medical applications.
Industrial and professional use for chemical analysis, calibration, (routine) quality control, laboratory use, under controlled conditions.

Uses advised against : Consumer use.
Uses other than those listed above are not supported, contact your supplier for more information on other uses.

1.3. Details of the supplier of the safety data sheet

Company identification : Irish Oxygen Co Ltd
Waterfall Road
T12 PP40 Cork - Ireland
T 021-4541821 (Mon-Fri 08:30-17:30)
www.solgroup.com
sds@irishoxygen.com

E-Mail address (competent person) : msds@sol.it

1.4. Emergency telephone number

No additional information available

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

| | | |
|------------------|--|------|
| Physical hazards | Oxidising Gases, Category 1 | H270 |
| | Gases under pressure : Liquefied gas | H280 |
| Health hazards | Specific target organ toxicity – Single exposure, Category 3, Narcosis | H336 |

2.2. Label elements

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

Hazard pictograms (CLP)



Signal word (CLP)

: Danger



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| | |
|--------------------------------|--|
| Hazard statements (CLP) | : H270 - May cause or intensify fire; oxidiser. H280 - Contains gas under pressure; may explode if heated. H336 - May cause drowsiness or dizziness. |
| Precautionary statements (CLP) | |
| - Prevention | : P261 - Avoid breathing dust/fume/gas/mist/vapours/spray. P244 - Keep valves and fittings free from oil and grease. P220 - Keep away from clothing and other combustible materials. |
| - Response | : P370+P376 - In case of fire: Stop leak if safe to do so. |
| - Storage | : P405 - Store locked up. P403 - Store in a well-ventilated place. |

2.3. Other hazards

Contact with liquid may cause cold burns/frostbite.
Not classified as PBT or vPvB.
The substance/mixture has no endocrine disrupting properties.

SECTION 3: Composition/information on ingredients

3.1. Substances Not applicable

3.2. Mixtures

| Name | Product identifier | % | Classification according to Regulation (EC) No. 1272/2008 [CLP] |
|---------------|---|----|---|
| Nitrous oxide | CAS-No.: 10024-97-2 EC-No.: 233-032-0 EC Index-No.: --- REACH-no: 01-2119970538-25 | 50 | Ox. Gas 1, H270 Press. Gas (Liq.), H280 STOT SE 3, H336 |
| Oxygen | CAS-No.: 7782-44-7 EC-No.: 231-956-9 EC Index-No.: 008-001-00-8 REACH-no: *1 | 50 | Ox. Gas 1, H270 Press. Gas (Comp.), H280 |

Full text of H- and EUH-statements: 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.

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

SECTION 4: First aid measures

4.1. Description of first aid measures

| | |
|----------------|--|
| - Inhalation | : Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Perform cardiopulmonary resuscitation if breathing stopped. |
| - Skin contact | : In case of frostbite spray with water for at least 15 minutes. Apply a sterile dressing. Obtain medical assistance. |
| - Eye contact | : Immediately flush eyes thoroughly with water for at least 15 minutes. |
| - Ingestion | : Ingestion is not considered a potential route of exposure. |

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

In low concentrations may cause narcotic effects. Symptoms may include dizziness, headache, nausea and loss of co-ordination.
See section 11.

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

Obtain medical assistance.



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SECTION 5: Firefighting measures

5.1. Extinguishing media

- Suitable extinguishing media : Water spray or fog.
Product does not burn, use fire control measures appropriate for the surrounding fire.
- 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 : If involved in a fire the following toxic and/or corrosive fumes may be produced by thermal decomposition: Nitric oxide/nitrogen dioxide.

5.3. Advice for firefighters

- 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.
Move containers away from the fire area if this can be done without risk.
- Special protective equipment for fire fighters : Wear gas tight chemically protective clothing in combination with self contained breathing apparatus.
Standard EN 943-2: Protective clothing against liquid and gaseous chemicals, aerosols and solid particles. Gas-tight chemical protective suits for emergency teams.
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

- For non-emergency personnel : Act in accordance with local emergency plan.
Try to stop release.
Evacuate area.
Eliminate ignition sources.
Ensure adequate air ventilation.
Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.
Stay upwind.
See section 8 of the SDS for more information on personal protective equipment.
- For emergency responders : Monitor concentration of released product.
Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.
See section 5.3 of the SDS for more information.

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.



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SECTION 7: Handling and storage

7.1. Precautions for safe handling

Safe use of the product

: The product 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.
Keep equipment free from oil and grease. For more guidance, refer to the EIGA Doc. 33 - Cleaning of Equipment for Oxygen Service downloadable at <http://www.eiga.eu>.
Use no oil or grease.
Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt.
Use only oxygen approved lubricants and oxygen approved sealings.
Avoid suck back of water, acid and alkalis.
Do not breathe gas.

Safe handling of the gas receptacle

Avoid release of product into work area.
: Refer to supplier's container handling instructions.
Do not allow backfeed into the container.
Protect containers 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, when provided, 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 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 content of the container.
Suck back of water into the container must be prevented.
Open valve slowly to avoid pressure shock.

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, when provided, 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.
Segregate from flammable gases and other flammable materials in store.
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.



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SECTION 8: Exposure controls/personal protection

8.1. Control parameters

| Nitrous oxide (10024-97-2) | |
|--|---------------------------------------|
| Ireland - Occupational Exposure Limits | |
| Local name | Nitrous oxide |
| OEL TWA | 90 mg/m ³ |
| | 50 ppm |
| Regulatory reference | Chemical Agents Code of Practice 2021 |

| Nitrous oxide (10024-97-2) | |
|--|-----------------------|
| DNEL: Derived no effect level (Workers) | |
| Long-term - systemic effects, inhalation | 183 mg/m ³ |

PNEC (Predicted No-Effect Concentration) : None established.

8.2. Exposure controls

8.2.1. Appropriate engineering controls

Provide adequate general and local exhaust ventilation.
Product to be handled in a closed system.
Systems under pressure should be regularly checked for leakages.
Ensure exposure is below occupational exposure limits (where available).
Gas detectors should be used when oxidising gases may be released.
Consider the use of a 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 goggles when transfilling or breaking transfer connections.
Standard EN 166 - Personal eye-protection - specifications.
 - Skin protection : Wear working gloves when handling gas containers.
Standard EN 388 - Protective gloves against mechanical risks, performance level 1 or higher. Recommended types include wrist gloves from leather or synthetic material with equivalent performance, fabric gloves, fabric gloves with leather palms.
Wear cold insulating gloves when transfilling or breaking transfer connections.
Standard EN 511 - Cold insulating gloves, performance level 1 or higher. Recommended types include insulated gauntlets or gloves specifically selected to prevent liquid penetration and ingress of cryogenic liquids and to provide mechanical resistance.
- Other : Wear safety shoes while handling containers.
Standard EN ISO 20345 - Personal protective equipment - Safety footwear.
 - Respiratory protection : Standard EN 137 - Self-contained open-circuit compressed air breathing apparatus with full face mask.
Consult respiratory device supplier's product information for the selection of the appropriate device.
When indicated by a risk assessment, Respiratory Protective Equipment must be used. The selection of the Respiratory Protective Device (RPD) must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected RPD.
Keep self contained breathing apparatus readily available for emergency use.
Self contained breathing apparatus is recommended, where unknown exposure may be expected, e.g. during maintenance activities on installation systems.



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• Thermal hazards : None in addition to the above sections.

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 : Colourless.

Odour : Odourless.

Odour threshold is subjective and inadequate to warn of overexposure.

Melting point / Freezing point : Not applicable for gases and gas mixtures.

Boiling point : Not applicable for gas mixtures.

It is technically not possible to determine the boiling point or range of this mixture.

Component with lowest boiling point: Oxygen -183 °C

Flammability : Non flammable.

Lower explosion limit : Not available

Upper explosion limit : Not available

Flash point : Not applicable for gases and gas mixtures.

Auto-ignition temperature : Non flammable.

Decomposition temperature : Not applicable.

pH : Not applicable for gases and gas mixtures.

Viscosity, kinematic : Not applicable for gases and gas mixtures.

Water solubility [20°C] : Mixture is partially soluble in water

Partition coefficient n-octanol/water (Log Kow) : Not available

Vapour pressure [20°C] : Not known.

Component with lowest volatility: Nitrous oxide 50.8 bar(a)

Component with highest volatility: Not applicable - component is a compressed gas

Vapour pressure [50°C] : Not available

Density and/or relative density : Not applicable.

Relative vapour density (air=1) : Heavier than air.

Particle characteristics : Not applicable for gases and gas mixtures.

9.2. Other information

9.2.1. Information with regard to physical hazard classes

Explosion limits : Non flammable.

Oxidising properties : Oxidiser.

9.2.2. Other safety characteristics

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

Data for mixtures are not available.

This mixture contains components with the following reactivity : Violently oxidises organic material.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

May react violently with combustible materials.

May react violently with reducing agents.

Violently oxidises organic material.



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10.4. Conditions to avoid

Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
Avoid moisture in installation systems.

10.5. Incompatible materials

Reducing agents.
Grease.
Oil.
May react violently with combustible materials.
May react violently with reducing agents.
Keep equipment free from oil and grease. For more guidance, refer to the EIGA Doc. 33 -
Cleaning of Equipment for Oxygen Service downloadable at <http://www.eiga.eu>.
For additional information on compatibility refer to ISO 11114.

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 hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity : Classification criteria are not met.

Nitrous oxide (10024-97-2)

| | |
|-----------------------------|---------------|
| LC50 Inhalation - Rat [ppm] | 500000 ppm/4h |
|-----------------------------|---------------|

| | |
|---------------------------------------|--|
| 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 | : May cause drowsiness or dizziness. |
| STOT-repeated exposure | : No known effects from this product. |
| Aspiration hazard | : Not applicable for gases and gas mixtures. |

11.2. Information on other hazards

Other information : The substance/mixture has no endocrine disrupting properties.

SECTION 12: Ecological information

12.1. Toxicity

| | |
|---------------------------------|--|
| Assessment | : No ecological damage caused by this product. |
| 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

Assessment : No data available.

12.3. Bioaccumulative potential

Assessment : No data available.



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12.4. Mobility in soil

Assessment : Because of its high volatility, the product is unlikely to cause ground or water pollution.
Partition into soil is unlikely.

12.5. Results of PBT and vPvB assessment

Assessment : Not classified as PBT or vPvB.

12.6. Endocrine disrupting properties

Assessment : The substance/mixture has no endocrine disrupting properties.

12.7. Other adverse effects

Other adverse effects : No known effects from this product.
Effect on the ozone layer : No effect on the ozone layer.
Effect on global warming : Contains greenhouse gas(es).

SECTION 13: Disposal considerations

13.1. Waste treatment methods

List of hazardous waste codes (from Commission Decision 2000/532/EC as amended) : Contact supplier if guidance is required.
May be vented to atmosphere in a well ventilated place.
Do not discharge into any place where its accumulation could be dangerous.
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.
Return unused product in original container to supplier.
16 05 04 *: Gases in pressure containers (including halons) containing hazardous substances.

13.2. Additional information

External treatment and disposal of waste should comply with applicable local and/or national regulations.

SECTION 14: Transport information

14.1. UN number or ID number

In accordance with ADR / RID / IMDG / IATA / ADN
UN-No. : 3157

14.2. UN proper shipping name

Transport by road/rail/inland waterways (ADR/RID/ADN) : LIQUEFIED GAS, OXIDIZING, N.O.S. (Oxygen, Nitrous oxide)
Transport by air (ICAO-TI / IATA-DGR) : Liquefied gas, oxidizing, n.o.s. (Oxygen, Nitrous oxide)
Transport by sea (IMDG) : LIQUEFIED GAS, OXIDIZING, N.O.S. (Oxygen, Nitrous oxide)

14.3. Transport hazard class(es)

Labelling



2.2 : Non-flammable, non-toxic gases.
5.1 : Oxidizing substances.

Transport by road/rail/inland waterways (ADR/RID/ADN)

Class : 2
Classification code : 2O
Hazard identification number : 25



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| | |
|---|---|
| Tunnel Restriction | : C/E - Tank carriage: Passage forbidden through tunnels of category C, D and E. Other carriage: Passage forbidden through tunnels of category E |
| Transport by air (ICAO-TI / IATA-DGR) | |
| Class / Div. (Sub. risk(s)) | : 2.2 (5.1) |
| Transport by sea (IMDG) | |
| Class / Div. (Sub. risk(s)) | : 2.2 (5.1) |
| Emergency Schedule (EmS) - Fire | : F-C |
| Emergency Schedule (EmS) - Spillage | : S-W |
| <u>14.4. Packing group</u> | |
| Transport by road/rail/inland waterways (ADR/RID/ADN) | : Not applicable. |
| Transport by air (ICAO-TI / IATA-DGR) | : Not applicable. |
| Transport by sea (IMDG) | : Not applicable. |
| <u>14.5. Environmental hazards</u> | |
| Transport by road/rail/inland waterways (ADR/RID/ADN) | : None. |
| Transport by air (ICAO-TI / IATA-DGR) | : None. |
| Transport by sea (IMDG) | : None. |
| <u>14.6. Special precautions for user</u> | |
| Packing Instruction(s) | |
| Transport by road/rail/inland waterways (ADR/RID/ADN) | : P200. |
| Transport by air (ICAO-TI / IATA-DGR) | |
| Passenger and Cargo Aircraft | : 200. |
| Cargo Aircraft only | : 200. |
| Transport by sea (IMDG) | : P200. |
| 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 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. |
| <u>14.7. Maritime transport in bulk according to IMO instruments</u> | |
| | Not applicable. |

SECTION 15: Regulatory information

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

EU-Regulations

| | |
|--|--|
| Restrictions on use | : Contains no substance(s) listed on the REACH Candidate List. |
| Other information, restriction and prohibition regulations | : Ensure all national/local regulations are observed. Contains no substance(s) listed on the PIC list (Regulation EU 649/2012 concerning the export and import of hazardous chemicals). |
| Seveso Directive : 2012/18/EU (Seveso III) | : Covered. |

National regulations

| | |
|----------------------|---|
| Regulatory reference | : Ensure all national/local regulations are observed. |
|----------------------|---|

15.2. Chemical safety assessment

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



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SECTION 16: Other information

| | |
|----------------------------|---|
| Indication of changes | : Safety data sheet in accordance with commission regulation (EU) No 2020/878. |
| Abbreviations and acronyms | : ATE - Acute Toxicity Estimate. CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008. REACH - Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006. EINECS - European Inventory of Existing Commercial Chemical Substances. CAS# - Chemical Abstract Service number. PPE - Personal Protection Equipment. LC50 - Lethal Concentration to 50 % of a test population. RMM - Risk Management Measures. PBT - Persistent, Bioaccumulative and Toxic. vPvB - Very Persistent and Very Bioaccumulative. STOT- SE : Specific Target Organ Toxicity - Single Exposure. CSA - Chemical Safety Assessment. EN - European Standard. UN - United Nations. ADR - Agreement concerning the International Carriage of Dangerous Goods by Road. IATA - International Air Transport Association. IMDG code - International Maritime Dangerous Goods. RID - Regulations concerning the International Carriage of Dangerous Goods by Rail. WGK - Water Hazard Class. STOT - RE : Specific Target Organ Toxicity - Repeated Exposure. UFI : Unique Formula Identifier. |
| Training advice | : Ensure operators understand the hazard of oxygen enrichment. |
| Further information | : Classification using data from databases maintained by the European Industrial Gases Association (EIGA). Data is maintained in EIGA doc 169 : 'Classification and Labelling Guide', downloadable at : http://www.eiga.eu . Classification in accordance with the procedures and calculation methods of Regulation (EC) 1272/2008 (CLP). |

| Full text of H- and EUH-statements | |
|------------------------------------|--|
| Ox. Gas 1 | Oxidising Gases, Category 1 |
| Press. Gas (Comp.) | Gases under pressure : Compressed gas |
| Press. Gas (Liq.) | Gases under pressure : Liquefied gas |
| STOT SE 3 | Specific target organ toxicity – Single exposure, Category 3, Narcosis |
| H270 | May cause or intensify fire; oxidiser. |
| H280 | Contains gas under pressure; may explode if heated. |
| H336 | May cause drowsiness or dizziness. |

| | |
|-------------------------|---|
| 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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