SAFETY DATA SHEET

Cryomega®

1. Identification

Product Name: Cryomega®

2. Hazards Identification

Classification of the substance or mixture

Classification according to EC 1272/2008 (CLP, GHS): Press. Gas (Liquefied gas) – Contains gas under pressure; may explode if heated.
Ox. gases 1 – May cause or intensify fire; oxidizer

Classification according to EC 67/548 and EC 1999/45: Not included in Annex VI.
O; R8

Usage: For various industrial applications.
Perform risk assessment prior to use.

Label elements

Labelling regulation EC 1272/2008 (CLP):

- **Hazard pictograms**

- **Signal word:** Danger
- **Hazard statements:** H280: Contains gas under pressure; may explode if heated.
  H270: May cause or intensify fire; oxidizer.
- **Precautionary statements:** P102: Keep out of reach of children.
  P220: Keep away from combustible materials.
  P244: Keep valves and fittings free from oil and grease.
  P370+P376: In case of fire: Stop leak if safe to do so.
  P403: Store in a well-ventilated place.
  P410: Protect from direct sunlight.
- **Other hazards**

Other hazards: May cause asphyxiation in concentrations.

3. Composition/Information on Ingredients

Substance/Preparation: **Substance**

Substance name	CAS no.	EC no.	Index no.	Registration no.	Classification
Nitrous Oxide	10024-97-2	233-032-0	----	See NOTE	O; R8 Ox. Gas 1 (H270) Liq. Gas (H280)

Does not contain any other components or impurities which could affect the classification of this products.
Note: Listed in Appendix IV/V REACH, exempt from registration.
For full text of R-sets, see Section 16.

4. First-aid Measures

Inhalation: High concentration can cause asphyxiation. Symptoms can include loss of mobility/consciousness. Victim may not be aware of asphyxiation. In low concentrations can cause narcotic effects. Symptoms can include dizziness, headache, nausea and coordination problems. Immediately remove victim to uncontaminated area. The victim should be made to wear respiratory equipment. Keep victim warm and rested. Call a doctor. Attempt artificial respiration if the victim stops breathing.

Contact with skin/eye: Immediately flush eyes thoroughly with water for at least 15 minutes. Spray any cold burns immediately with water for at least 15 minutes. Cover with a sterile dressing. Consult a doctor.

Ingestion: Ingestion is not seen as a possible method of exposure.

5. Fire Fighting Measures

Special risks: Supports combustion. Non-flammable.
Exposure to fire may cause cylinder to burst/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.

Extinguishing media

Suitable extinguishing agent: All known extinguishants can be used.

Specific methods: Move away from cylinder and cool with water from a safe position.

Special protective equipment for fire fighters: Use self-contained breathing apparatus and chemically protective clothing.

6. Accidental Release Measures

Personnel-related precautions: Ensure adequate ventilation.
Eliminate ignition sources.

Environmental precautions: Attempt to stop gas release.
Prevent from entering sewer systems, basements, work pits or any other areas where accumulation could be hazardous.

Clean up methods: Ventilate area.

7. Handling and Storage

Handling: Only use equipment suitable for this product and its pressure and temperature specified. If in doubt, consult iSi Components GmbH. Keep away from ignition sources (including electrostatic discharge). Never use direct flame or electrical heating devices to raise the pressure of a cylinder.
Never attempt to refill an empty cylinder.
Emerging gas will cause the cylinder to freeze.
Do not touch a discharging or recently discharged cylinder with bare hands.
Never attempt to transfer gases from one cylinder to another.
Do not use cylinder as roller or support, or for any other purpose than to contain the gas as supplied.
Do not subject cylinder to mechanical shocks which may cause damage to their integrity.

Storage: Keep out of reach of children.
Store cylinder in a well-ventilated place at less than 50°C.
Store cylinder in a location free from risk of fire and away from sources of heat and ignition.
Periodically check cylinder for general conditions and leakage.
Do not store cylinder in conditions likely to encourage corrosion.

8. Exposure Controls/Personal Protection

Personal protection: Do not smoke while handling product.
Ensure adequate ventilation.
Protect eyes, face and skin from liquid splashes.
Wearing of protective gloves is recommended.

Occupational exposure limits: Nitrous oxide: TLV©-TWA [ppm]: 50

9. Physical and Chemical Characteristics

Physical state of 20°C:	Gaseous.
Colour:	Colourless.
Odour:	Sweetish.
Molecular weight:	44
Melting point [°C]:	-90.81
Boiling point [°C]:	-88.5
Critical temperature [°C]:	36.4
Vapour pressure at 20°C:	50.8 bar
Relative density, gas (air=1):	1.5
Relative density, liquid (water=1):	1.2
Solubility in water [mg/l]:	2.2
Flash point [vol.% in air]:	Oxidizer.
Ignition temperature [°C]:	Not applicable.
Other information:	Gas/vapour heavier than air. May accumulate in confined spaces, particularly at or below ground level.

10. Stability and Reactivity

Hazardous decomposition products: Thermal decomposition yields toxic products which can be corrosive in the presence of moisture. In the presence of catalysts (e.g. halogen compounds, mercury, nickel, platinum) the rate of decomposition increases and decomposition can occure at even lower temperatures.

Incompatible materials: Can violently react with combustible materials.
Can violently react with reducing agents.
Violently oxidizes organic materials.

Conditions to be avoided: At temperatures above 575°C and at atmospheric pressure, nitrous oxide decomposes into nitrogen and oxygen. Heat.
Under pressure nitrous oxide can also decompose into nitrogen and oxygen at temperatures above 300°C. Heat.

Chemical stability: The decomposition of nitrous oxide is exothermic and irreversible, leading to considerable rise in pressure.

11. Toxicological Information

Toxicological information: There are no toxic effects known from this product.

12. Ecological Information

Global warming potential [CO_2 = 1]: 298

13. Disposal Considerations

General: Release into the atmosphere in a well-ventilated place.
Avoid releasing large quantities into the atmosphere.
Do not discharge into any place where its accumulation could be dangerous.
Consult your supplier if you require advice.

Disposal methods: Dispose of emptied cylinders only.
Cylinders are made of recyclable steel and hence a valuable resource.
Emptied cylinders should therefore always be recycled.
Adhere to local waste regulations when disposing of emptied cylinders.
Never dispose of cylinders in an uncontrolled manner (e.g. dumping at sea).

14. Transport Information

Land transport: In accordance with the requirements set out in the current issue of the ADR

Sea transport: In accordance with the requirements set out in the current issue of the IMO-IMDG code.

Air transport: In accordance with the requirements set out in the current issue of the IATA, Dangerous Goods Regulations.

15. Regulatory Information

Safety, health and environmental regulations/legislation specific for the substance or the mixture: All national/local regulations apply.

Seveso regulations 96/82/EC: Listed.

16. Other Information

Revision number: 5

Can cause asphyxiation in high concentrations.
Keep cylinder in a well-ventilated place.
Do not inhale the gas.
Contact with liquid may cause cold burns/frost bite.
The hazard of asphyxiation is often overlooked and must be stressed during operator training.

List of full text of R-sets, see Section 3: Contact with combustible material may cause fire.

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