

Krypton**KRYPTON_077A-SE**

2.2 : Non-flammable, non-toxic gases

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

Trade name : Krypton , Krypton N20, Krypton N48
SDS Nr : KRYPTON_077A-SE replaces KRYPTON 077A-SE 25 / 7 / 2014
Chemical description : Krypton
CAS No :7439-90-9
EC No :231-098-5
Index No :---
Registration-No. : Listed in Annex IV / V REACH, exempted from registration.
Chemical formula : Kr

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. Purging.
Laser gas.
Contact supplier for more information on uses.

1.3. Details of the supplier of the safety data sheet

Company identification : AIR LIQUIDE GAS AB
Lundavägen 151
212 24 Malmö SWEDEN
Tfn. 040 - 38 10 00, efter kontorstid 0220- 396 00
E-Mail address (competent person) : Info.sweden@airliquide.com

1.4. Emergency telephone number

Emergency telephone number : 112

SECTION 2. Hazards identification**2.1. Classification of the substance or mixture****Hazard Class and Category Code Regulation EC 1272/2008 (CLP)**

• Physical hazards : Gases under pressure - Compressed gas - Warning - (CLP : Press. Gas) - H280

2.2. Label elements**Labelling Regulation EC 1272/2008 (CLP)**

• Hazard pictograms

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Krypton**KRYPTON_077A-SE****SECTION 2. Hazards identification (continued)**

- Hazard pictograms code : GHS04
- Signal word : Warning
- Hazard statements : H280 - Contains gas under pressure; may explode if heated.
- Precautionary statements
 - Storage : P403 - Store in a well-ventilated place.

2.3. Other hazards

: Asphyxiant in high concentrations.

SECTION 3. Composition/information on ingredients**3.1. Substance / 3.2. Mixture**

Substance.

| Substance name | Content [Vol-%] | CAS No | EC No | Index No | Registration No. | Classification |
|----------------|-----------------|-----------|-----------|----------|------------------|---------------------------|
| Krypton | : 100 % | 7439-90-9 | 231-098-5 | ---- | * 1 | Press. Gas (Comp.) (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 : Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped.
- 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

: In high concentrations may cause asphyxiation. Symptoms may include loss of mobility/ consciousness. Victim may not be aware of asphyxiation.

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

: None.

SECTION 5. Fire-fighting 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 : 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.

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Krypton**KRYPTON_077A-SE****SECTION 5. Fire-fighting measures)continued)****Special protective equipment for fire fighters**

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.

: Use self-contained breathing apparatus.
Standard EN 137 - Self-contained open-circuit compressed air breathing apparatus with full face mask.
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.

SECTION 6. Accidental release measures**6.1. Personal precautions, protective equipment and emergency procedures**

: Try to stop release.
Evacuate area.
Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.
Ensure adequate air ventilation.
Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.
Stay upwind.
Act in accordance with local emergency plan.

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**

: Consider pressure relief device(s) in gas installations.
Only experienced and properly instructed persons should handle gases under pressure.
The product must be handled in accordance with good industrial hygiene and safety procedures.
Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt.
Do not smoke while handling product.
Ensure the complete gas system was (or is regularly) checked for leaks before use.
Do not breathe gas.
Avoid release of product into atmosphere.

Safe handling of the gas receptacle

: Refer to supplier's container handling instructions.
Suck back of water into the container must be prevented.
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.

Krypton**KRYPTON_077A-SE****SECTION 7. Handling and storage)continued)**

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.

7.2. Conditions for safe storage, including any incompatibilities

: Keep container below 50°C in a well ventilated place.
Observe all regulations and local requirements regarding storage of containers. 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. 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.
Containers should not be stored in conditions likely to encourage corrosion.

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.

PNEC: Predicted no effect concentration : No data available.

8.2. Exposure controls

8.2.1. Appropriate engineering controls : Systems under pressure should be regularly checked for leakages.
Oxygen detectors should be used when asphyxiating 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** : 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.

Krypton**KRYPTON_077A-SE****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 | : No odour warning properties. |
| Odour threshold | : Odour threshold is subjective and inadequate to warn for overexposure. |
| pH value | : Not applicable for gases and gas-mixtures. |
| Molar mass [g/mol] | : 84 |
| Melting point [°C] | : -157.2 |
| Boiling point [°C] | : -153 |
| Critical temperature [°C] | : -63.8 |
| Flash point [°C] | : Not applicable for gases and gas-mixtures. |
| Evaporation rate (ether=1) | : Not applicable for gases and gas-mixtures. |
| Flammability range [vol% in air] | : Non flammable. |
| Vapour pressure [20°C] | : Not applicable. |
| Relative density, gas %air=1% | : 2.9 |
| Relative density, liquid %water=1% | : 2.4 |
| Solubility in water [mg/l] | : 221 |
| Partition coefficient n-octanol/water [log Kow] | : Not applicable for inorganic gases. |
| Auto-ignition temperature [°C] | : Not applicable. |
| Viscosity at 20°C [mPa.s] | : Not applicable. |
| Explosive Properties | : Not applicable. |
| Oxidising Properties | : None. |

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

: None.

10.4. Conditions to avoid

: None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials: None.
For additional information on compatibility refer to ISO 11114.**10.6. Hazardous decomposition products**

: None.

Krypton**KRYPTON_077A-SE****SECTION 11. Toxicological information****11.1. Information on toxicological effects**

| | |
|-----------------------------------|---|
| Acute toxicity | : No known 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. |
| Carcinogenicity | : No known effects from this product. |
| Germ cell mutagenicity | : No known effects from this product. |
| Reproductive toxicity | : 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**

: No ecological damage caused by this product.

12.2. Persistence and degradability

: No ecological damage caused by this product.

12.3. Bioaccumulative potential

: No ecological damage caused by this product.

12.4. Mobility in soil

: No ecological damage caused by this product.

12.5. Results of PBT and vPvB 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**

: Do not discharge into any place where its accumulation could be dangerous.
May be vented to atmosphere in a well ventilated place.
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.
Consult supplier for specific recommendations.

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.

Krypton

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SECTION 14. Transport information

UN number : 1056

Labelling ADR, IMDG, IATA



: 2.2 : Non-flammable, non-toxic gases

Transport by road/rail)ADR/RID)

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

Transport by sea)IMDG)

Classification code : 1 A

H.I. nr : 20

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

Emergency Schedule)EmS) - Fire : F-C

Emergency Schedule)EmS) - Spillage : S-V

14.6 Special precautions for user

Packing Instruction(s) : P200

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. Before transporting product containers:

- 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.
- Ensure there is adequate ventilation.

Other transport information : Krypton gained from the air, although slightly radioactive, is exempted from the requirements of Class7 ADR/RID, because of the small quantities involved.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not applicable.

UN proper shipping name : KRYPTON, COMPRESSED

Transport hazard class(es) : 2

Environmental hazards : None.

Proper shipping name : KRYPTON, COMPRESSED

Class : 2.2

Packing instruction : P200

IMDG-Marine pollutant : -

Proper shipping name)IATA) : KRYPTON, COMPRESSED

Class : 2.2

Krypton**KRYPTON_077A-SE****SECTION 15. Regulatory information****15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**EU legislation

Restrictions on use : None.

Seveso directive 2012/18/EC : Not 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 2015/830.

Training advice : The hazard of asphyxiation is often overlooked and must be stressed during operator training.

List of full text of H-statements in section 3. : H280 - Contains gas under pressure; may explode if heated.

Further information : This Safety Data Sheet has been established in accordance with the applicable European Union legislation.

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Details given in this document are believed to be correct at the time of going to press. Before using this product in any new process or experiment, a thorough material compatibility and safety study should be carried out.**End of document**