

Helium 3 Isotop**782****SECTION 1. Identification of the substance/mixture and of the company/undertaking****1.1. Product identifier**

Trade name : Helium 3 Isotop
SDS Nr : 782
Chemical description : (3He)helium
CAS No :14762-55-1
EC No :238-822-9
Index No :---
Registration-No. : Listed in Annex IV / V REACH, exempted from registration.
Chemical formula : He

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. Purging. Laboratory use.
Contact supplier for more uses information.
Shield gas for welding processes.
Use for manufacture of electronic/photovoltaic components.
Laser gas.
Uses advised against : Do not inhale product on purpose.

1.3. Details of the supplier of the safety data sheet

Company identification : AIR LIQUIDE Deutschland GmbH
Hans-Günther-Sohl-Straße 5
D-40235 Düsseldorf GERMANY
Telefon: +49 (0)211 6699-0 - Fax: +49 (0)211 6699-222
E-Mail address (competent person) : Info.SDB@AirLiquide.de

1.4. Emergency telephone number

Emergency telephone number : +49 (0)2151 398668
- Availability : (24 / 7)

SECTION 2. Hazards identification**2.1. Classification of the substance or mixture****Hazard Class and Category Code(s), Regulation (EC) No 1272/2008 (CLP)**

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

Classification EC 67/548 or EC 1999/45

Classification : Not included in Annex VI.
No EC labelling required.
Not classified as dangerous substance/mixture.

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

• Hazard pictograms



• Hazard pictograms code : GHS04
• Signal words : Warning
• Hazard statements : H280 - Contains gas under pressure; may explode if heated.



SAFETY DATA SHEET in accordance with REACH regulation 1907/2006/EC

Page : 2 / 8

Revised edition no : 1 - 01

Date : 5 / 2 / 2013

Supersedes : 11 / 11 / 2011

Helium 3 Isotop**782**

SECTION 2. Hazards identification (continued)

• Precautionary statements

- Storage : P403 - Store in a well-ventilated place.

2.3. Other hazards

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(DSD)	Classification(CLP)
(3He)helium	: 100 %	14762-55-1 238-822-9 ----- ----	Not classified (DSD/DPD)	Not defined (GHS)

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 chapter 16. Full text of H-statements see chapter 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.



SAFETY DATA SHEET in accordance with REACH regulation 1907/2006/EC

Page : 3 / 8

Revised edition no : 1 - 01

Date : 5 / 2 / 2013

Supersedes : 11 / 11 / 2011

Helium 3 Isotop

782

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 firefighters

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

- Special protective equipment for fire fighters : 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.
EN 469: Protective clothing for firefighters. EN 659: Protective gloves for firefighters.

SECTION 6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

- : Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.
Ensure adequate air ventilation.
Evacuate area.
Try to stop release.

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

- 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 : 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.
Only experienced and properly instructed persons should handle gases under pressure.
Ensure the complete gas system was (or is regularly) checked for leaks before use.
The product must be handled in accordance with good industrial hygiene and safety procedures.
Consider pressure relief device(s) in gas installations.
- Safe handling of the gas receptacle : Suck back of water into the container must be prevented.
Refer to supplier's container handling instructions.
Do not allow backfeed into the container.
Replace valve outlet caps or plugs and container caps where supplied as soon as container is



SAFETY DATA SHEET in accordance with REACH regulation 1907/2006/EC

Page : 4 / 8

Revised edition no : 1 - 01

Date : 5 / 2 / 2013

Supersedes : 11 / 11 / 2011

Helium 3 Isotop

782

SECTION 7. Handling and storage (continued)

disconnected from equipment.
Protect cylinders from physical damage; do not drag, roll, slide or drop.
Do not remove or deface labels provided by the supplier for the identification of the cylinder contents.
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.
Close container valve after each use and when empty, even if still connected to equipment.
Never attempt to repair or modify container valves or safety relief devices.
Keep container valve outlets clean and free from contaminants particularly oil and water.
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.
Damaged valves should be reported immediately to the supplier.

7.2. Conditions for safe storage, including any incompatibilities

Storage : 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. Stored containers should be periodically checked for general condition and leakage.
Observe all regulations and local requirements regarding storage of containers.
Containers should not be stored in conditions likely to encourage corrosion. Containers should be stored in the vertical position and properly secured to prevent toppling. Container valve guards or caps should be in place. Keep away from combustible materials.

7.3. Specific end use(s)

: None.

SECTION 8. Exposure controls/personal protection

8.1. Control parameters

DNEL: Derived no effect level (Workers) : None available.
PNEC: Predicted no effect concentration : None available.

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.
Oxygen detectors should be used when asphyxiating gases may be released.
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.
- **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 atmosphere.
Standard EN 137 - self-contained open-circuit compressed air breathing apparatus with full face mask.

Helium 3 Isotop**782****SECTION 8. Exposure controls/personal protection (continued)**

- 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 : Colourless.
- Odour : No odour warning properties.
- Odour threshold : Odour threshold is subjective and inadequate to warn for overexposure.
- Molar mass [g/mol] : 3.016
- Melting point [°C] : Not applicable for gas-mixtures.
- Boiling point [°C] : -269.96
- Critical temperature [°C] : -269.82
- 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) : 0.104
- Relative density, liquid (water=1) : Not applicable.
- Solubility in water [mg/l] : 1.5
- Partition coefficient n-octanol/water [log Pow] : Not applicable for inorganic gases.
- Auto-ignition temperature [°C] : Not applicable.

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 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



SAFETY DATA SHEET in accordance with REACH regulation 1907/2006/EC

Page : 6 / 8

Revised edition no : 1 - 01

Date : 5 / 2 / 2013

Supersedes : 11 / 11 / 2011

Helium 3 Isotop

782

SECTION 10. Stability and reactivity (continued)

: None.

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 ozone layer	: None.
Effect on the global warming	: None.

SECTION 13. Disposal considerations

13.1. Waste treatment methods

: May be vented to atmosphere in a well ventilated place.
Do not discharge into any place where its accumulation could be dangerous.
List of hazardous waste : 16 05 05: Gases in pressure containers other than those mentioned in 16 05 04.

13.2. Additional information

: None.

Helium 3 Isotop**782****SECTION 14. Transport information**

UN number : 1046
Labelling ADR, IMDG, IATA



: 2.2 : Non flammable, non toxic gas.

Land transport (ADR/RID)

H.I. nr : 20
UN proper shipping name : HELIUM, COMPRESSED
Transport hazard class(es) : 2
Classification code : 1 A
Packing Instruction(s) : P200
Tunnel Restriction : E : Passage forbidden through tunnels of category E.
Environmental hazards : None.

for pressure-can

• UN No. : 2037
• H.I. nr : -
• UN proper shipping name : RECEPTACLES, SMALL, CONTAINING GAS (GAS CATRIDGES)
• Class : 2
• Classification code : 5 A
• Packing Instruction(s) : P003

Sea transport (IMDG)

Proper shipping name : HELIUM, COMPRESSED
Class : 2.2
Emergency Schedule (EmS) - Fire : F-C
Emergency Schedule (EmS) - Spillage : S-V
Packing instruction : P200
IMDG-Marine pollutant : No
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not applicable.

Air transport (ICAO-TI / IATA-DGR)

Proper shipping name (IATA) : HELIUM, COMPRESSED
Class : 2.2
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

: - Ensure there is adequate ventilation.
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.



SAFETY DATA SHEET in accordance with REACH regulation 1907/2006/EC

Page : 8 / 8

Revised edition no : 1 - 01

Date : 5 / 2 / 2013

Supersedes : 11 / 11 / 2011

Helium 3 Isotop

782

SECTION 14. Transport information (continued)

- Ensure valve protection device (where provided) is correctly fitted.
Avoid transport on vehicles where the load space is not separated from the driver's compartment.

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 96/82/EC : Not covered.

National legislation

: Ensure all national/local regulations are observed.
- 4. BImSchV
- Water hazard class WGK (Germany) : NWG - nicht wassergefährdend
- Other regulations and technical rules : [German regulations]
(not complete) GefahrstoffV, BetriebssicherheitsV, BGR Regel 500 Teil 2.33: Umgang mit Gasen, Technische Regel Gase TRG 280, Technische Regeln Gefährliche Stoffe TRGS 400, 500, 510, 900.

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 : The hazard of asphyxiation is often overlooked and must be stressed during operator training.
Note : This Safety Data Sheet has been established in accordance with the applicable European Union legislation.
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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