

Section 1: Identification of the Substance/Mixture and of the Company/Undertaking

Product Identifier:

Identification as on the label/Trade name: Krypton, Enriched Krypton.

Molecular weight: 83.80

Chemical formula: Kr

Synonyms: None.

Details of the supplier of the Safety Data Sheet:

Neonest AB
Storgatan 70C, Solna
SE-17152
Sweden

Contact details:

+46-76-219-9731

24-hour Emergency Contact:

Swedish Poisons Centre
Phone: 112 - Ask for Poisons Information, 112 – begär Giftinformation.

Other International Contacts:

CHEMTREC 24-hour: +1-703-741-5500 (US + Worldwide)
NHS: 111 (UK)
Charite: +49 30 450 531 000 (Netherlands)
INTCF: +34 917689800 (Spain)
CapTv: +33 1 40 05 48 48 (France)

Section 2: Hazards Identification

Classification of the substances or mixture:

The mixture is classified according to: Regulation EC 1272/2008 [EU-GHS/CLP]

Hazard classes/Hazard categories:

Pressurized Gas

Hazard statement:

H280

Label elements:

Hazard pictograms:



Signal Words: Warning.

Hazard Statements:

H280 Contains gas under pressure; may explode if heated.

Precautionary Statements: None.

Other hazards: None known.

Section 3: Composition/Information on Ingredients

Substance/Mixture: Substance.

Ingredients:

Substance name (IUPAC/EC)	CAS-No.	Molecular weight	Concentration % by weight	Classification
	EC-No.			EC1272/2008
Krypton	7439-90-9	83.80	>99%	Press. Gas (Comp.) H280
	231-098-5			

For explanation of abbreviations see Section 16.

Section 4: First-Aid Measures

Description of first aid measures:

In case of inhalation: Conscious persons should be assisted to an uncontaminated area and inhale fresh air. Quick removal from the contaminated area is most important. Unconscious persons should be moved to an uncontaminated area, given assisted respiration and supplemental oxygen. Further treatment should be symptomatic and supportive.

In case of skin contact: If frostbite or freezing occurs, flush immediately with plenty of lukewarm water (105-115 °F; 41-46 °C). Do not use hot water. If warm water is not available, gently wrap affected parts in blankets. Get immediate medical attention.

In case of eye contact: Flush eyes with plenty of water.

In case of ingestion: If a large amount is swallowed, get medical attention.

Most important symptoms and effects, both acute and delayed:

Inhalation: Effects of exposure to high concentrations so as to displace the oxygen in the air necessary for life are headache, dizziness, laboured breathing and eventual unconsciousness.

Eyes: Short-Term Exposure: Frostbite. Long-Term Exposure: No information is available.

Skin contact: Short-Term Exposure: Frostbite. Long-Term Exposure: No information is available.

Ingestion: No significant adverse effects.

Indication of any immediate medical attention and special treatment needed: Treat symptomatically. Show this safety data sheet to a physician or emergency room.

Section 5: Fire-Fighting Measures

Extinguisher media:

Suitable extinguisher media: Carbon dioxide, regular dry chemical. Large fires: Use regular foam or flood with fine water spray.

Unsuitable extinguishing media: None known.

Special hazards arising from the mixture: None known.

Advice for fire-fighters: Move container from fire area if it can be done without risk. Cool containers with water spray until well after the fire is out. Stay away from the ends of tanks. Withdraw immediately in case of rising sound from

venting safety device or any discoloration of tanks due to fire. For tank, rail car or tank truck, evacuation radius: 800 meters (½ mile). Use extinguishing agents appropriate for surrounding fire. Cool containers with water spray until well after the fire is out. Apply water from a protected location or from a safe distance. Do not get water directly on material. Reduce vapours with water spray. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas. Consider downwind evacuation if material is leaking.

Further information: Standard procedure for chemical fires. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Section 6: Accidental Release Measures

Personal precautions, protective equipment and emergency procedures:

Personal precautions: Stop leak if possible without personal risk. Evacuate all personnel from affected area, isolate hazard area and deny entry. Stay upwind and keep out of low areas. Use appropriate protective equipment.

Environmental precautions: Prevent spreading of vapours through sewers, ventilation systems, and confined areas.

Methods for containment and cleaning up:

If leak is in container or container valve, contact your closest supplier location or call the emergency telephone number listed herein.

Reference to other sections:

Treat recovered material as described in the section "Disposal considerations".

Section 7: Handling and Storage

Precautions for safe handling:

Advice on safe handling: Use only in well-ventilated areas. Valve protection caps must remain in place unless cylinder is secured with valve outlet piped to use point. Do not drag, slide or roll cylinders. Use a suitable hand truck for cylinder movement. Use a pressure-reducing regulator when connecting cylinder to lower pressure piping or systems. Do not heat cylinder by any means to increase the discharge rate of product from cylinder. Use a check valve or trap in the discharge line to prevent hazardous backflow into the cylinder.

Hygiene measures: Do not eat, drink or smoke when using this product.

Conditions for safe storage, including incompatibilities:

Requirements for storage areas and containers: Protect cylinders from physical damage. Store in cool, dry, well-ventilated area, away from heavily trafficked areas and emergency exits. Do not allow the temperature where cylinders are stored to exceed 125 °F (52 °C). Cylinders should be stored upright and firmly secured to prevent falling or being knocked over. Full and empty cylinders should be segregated. Use a "first in - first out" inventory system to prevent full cylinders from being stored for excessive periods of time.

Section 8: Exposure Controls/Personal Protection

Control parameters:

Occupational exposure limits: Contains no substances with occupational exposure limit values.

Exposure controls:

Appropriate engineering controls: Provide local exhaust ventilation system. Ensure compliance with applicable exposure limits.

Individual protection measures, such as personal protective equipment:**Eye/face protection:**

Gas: Eye protection not required, but recommended.

Liquid: Wear splash-resistant safety goggles. Contact lenses should not be worn. Provide an emergency eye-wash fountain and quick-drench shower in the immediate work area.

Hand protection: Wear insulated gloves.

Body protection:

Gas: Protective clothing is not required.

Liquid: Wear appropriate protective, cold-insulating clothing.

Respiratory protection: Under conditions of frequent use or heavy exposure, respiratory protection may be needed. Respiratory protection is ranked in order from minimum to maximum. Consider warning properties before use. Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode. Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode. For Unknown Concentrations or Immediately Dangerous to Life or Health - Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply. Any self-contained breathing apparatus with a full facepiece.

Section 9: Physical and Chemical Properties

Information on basic physical and chemical properties

Appearance (form): Gas.

Colour: Colourless.

Odour: Odourless.

Odour threshold: No data available.

Molecular Weight: 83.80

pH (concentration): No data available.

Melting point/range (°C): No data available.

Boiling point/range (°C): -153.3 °C

Freezing point (°C): -157.2 °C

Flash point (°C): No data available.

Evaporation rate: No data available.

Flammability (solid, gas): No data available.

Ignition temperature (°C): No data available.

Upper/lower flammability/explosive limits: No data available.

Vapour pressure (20 °C): No data available.

Vapour density: 2.92

Relative density (25 °C): No data available.

Water solubility (g/L) at 20 °C: Negligible.

n-Octanol/Water partition coefficient: No data available.

Auto-ignition temperature: No data available.

Decomposition temperature: No data available.

Viscosity, dynamic (mPa s): No data available.

Explosive properties: The substance or mixture is not classified as explosive.

Oxidising properties: The substance or mixture is not classified as oxidizing.

Section 10: Stability and Reactivity

Reactivity: No dangerous reaction known under conditions of normal use.

Chemical stability: Stable under normal conditions.

Possibility of hazardous reactions: No dangerous reaction known under conditions of normal use.

Conditions to avoid: Protect from physical damage and heat. Containers may rupture or explode if exposed to heat.

Incompatible materials: None known.

Hazardous decomposition products: None known.

Section 11: Toxicological Information

Information on toxicological effects:

Krypton is nontoxic, but the liberation of a large amount in a confined area could displace the amount of oxygen in air necessary to support life.

Classification according to GHS (1272/2008/EG, CLP)

Skin corrosion/irritation:

Not classified based on available information.

Serious eye damage/eye irritation:

Not classified based on available information.

Respiratory or skin sensitisation:

Not classified based on available information.

Germ cell mutagenicity:

Not classified based on available information.

Carcinogenicity:

IARC: Not listed as a carcinogen or potential carcinogen.

NTP: Not listed as a carcinogen or potential carcinogen.

OSHA: Not listed as a carcinogen or potential carcinogen.

Reproductive toxicity:

Not classified based on available information.

Specific target organ toxicity – single exposure (STOT):

Not classified based on available information.

Specific target organ toxicity (STOT) – repeated exposure:

Not classified based on available information.

Aspiration toxicity:

Not classified based on available information.

Section 12: Ecological Information

Toxicity: No data available.

Persistence and degradability: No data available.

Bioaccumulative potential: No data available.

Mobility in soil: No data available.

Results of PBT& vPvB assessment: Not relevant.

Other adverse effects: No data available.

Section 13: Disposal Considerations

Waste treatment methods: Do not attempt to dispose of waste or unused quantities. Return in the shipping container, properly labelled, with any valve outlet plugs or caps secured and valve protection cap in place, to your supplier. For emergency disposal assistance, contact your closest supplier location or call the emergency telephone number listed herein.

Section 14: Transport Information

DOT:

Proper Shipping Name: KRYPTON, COMPRESSED.

Hazard Class: 2.2

UN Number: 1056

Shipping Label: Non-flammable, non-poisonous gas.

Hazard Label:



IATA:

Proper Shipping Name: KRYPTON, COMPRESSED.

Hazard Class: 2.2

UN Number: 1056

Shipping Label: Non-flammable, non-poisonous gas.

Section 15: Regulatory Information

EU regulations:

Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I and II, as amended
Not listed.

Regulation (EC) No. 850/2004 on persistent organic pollutants, Annex I
Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 1 as amended
Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 2 as amended
Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 3 as amended
Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex V as amended
Not listed.

Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry
Not listed.

Regulation (EC) No. 1907/2006, REACH Article 59(10) Candidate List as currently published by ECHA
Not listed.

Authorisations:

Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorization, as amended
Not listed.

Restrictions on use:

Regulation (EC) No. 1907/2006 Annex XVII Substances subject to restriction on marketing and use
Not regulated.

Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended
Not listed.

Directive 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens and mutagens at work
Not regulated.

Directive 92/85/EEC: on the safety and health of pregnant workers and workers who have recently given birth or are breastfeeding.
Not regulated.

Other EU regulations:

Directive 2012/18/EU on major accident hazards involving dangerous substances
Not listed.

Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work.
Always applicable.

Directive 94/33/EC on the protection of young people at work
Not listed.

Other regulations: The product is classified and labelled in accordance with EC directives or respective national laws. This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006, as amended.

U.S. Federal Regulations:

TSCA: Krypton (CAS No. 7439-90-9) is listed.

SARA 311/312: Sudden release of pressure hazard; immediate (acute) health hazard.

International Regulations:

Canada: Krypton (CAS No. 7439-90-9) is listed on the Canadian DSL WHMIS Classification: Class A – Compressed Gas.

EU Regulations:

EC No. 1272/2008 [CLP]: Compressed Gas H280.

Directive 67/548/EEC {DSD} Or 1999/45/EC [DPD]: Not classified.

National regulations: Listed on AICS, IECSC, Korean ECL, PICCS.

US State Regulations: Not listed in California Proposition 65's carcinogens list, developmental toxicity list, reproductive toxicity (female) list or reproductive toxicity (male) list.

Chemical safety assessment: No Chemical Safety Assessment has been carried out.

Section 16: Other Information

List of abbreviations:

ACGIH American Conference of Governmental Industrial Hygienists

ADR European Agreement Concerning the International Carriage of Dangerous Goods by Road

ALARA As Low As Is Reasonably Achievable

AMU Atomic Mass Unit

ANSI American National Standards Institute

BLS Basic Life Support

CAM Continuous Air Monitor

CAS Chemical Abstracts Service (division of the American Chemical Society)

CEN European Committee for Standardization

CERCLA Comprehensive Environmental Response Compensation and Liability Act

CLP Classification, Labelling and Packaging (European Union)

CPR Controlled Products Regulations (Canada)

CWA Clean Water Act (USA)

DAC Derived Air Concentration (USA)

DOE United States Department of Energy (USA)

DOT United States Department of Transportation (USA)

DSL Domestic Substances List (Canada)

EC50 Half Maximal Effective Concentration

EINECS European Inventory of Existing Commercial Chemical Substances

EHS Environmentally Hazardous Substance

ELINCS European List of Notified Chemical Substances

EMS Emergency Response Procedures for Ships Carrying Dangerous Goods

EPA Environmental Protection Agency (USA)

EPCRA Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986

GHS Globally Harmonized System

HMIS Hazardous Materials Identification System (USA)

IARC International Agency for Research on Cancer

IATA International Air Transport Association

IBC Intermediate Bulk Containers

ICAO International Civil Aviation Organization

IDLH Immediately Dangerous to Life or Health

IMDG International Maritime Code for Dangerous Goods

LC50 Lethal concentration, 50 percent

LD50 Lethal dose, 50 percent

LDLO Lethal Dose Low

LOEC Lowest-Observed-Effective Concentration

MARPOL International Convention for the Prevention of Pollution from Ships

MSHA Mine Safety and Health Administration (USA)

NCRP National Council on Radiation Protection & Measurements (USA)

NDSL Non-Domestic Substances List (Canada)

NFPA National Fire Protection Association (USA)

NIOSH National Institute for Occupational Safety and Health (USA)

NOEC No Observed Effect Concentration

N.O.S. Not Otherwise Specified

NRC Nuclear Regulatory Commission (USA)

NTP National Toxicology Program (USA)

OSHA Occupational Safety and Health Administration (USA)

PBT Persistent Bioaccumulative and Toxic Chemical

PEL Permissible Exposure Limit

PIH Poisonous by Inhalation Hazard
RCRA Resource Conservation and Recovery Act (USA)
RCT Radiation Control Technician
REACH Registration, Evaluation, Authorisation and Restriction of Chemicals (Europe)
RID Regulations Concerning the International Transport of Dangerous Goods by Rail
RTECS Registry of Toxic Effects of Chemical Substances
SARA Superfund Amendments and Reauthorization Act (USA)
TDG Transportation of Dangerous Goods (Canada)
TIH Toxic by Inhalation Hazard
TLV Threshold Limit Value
TPQ Threshold Planning Quantity
TSCA Toxic Substances Control Act
TWA Time Weighted Average
UN United Nations (Number)
VOC Volatile Organic Compound
vPvB Very Persistent Very Bioaccumulative Chemical
WGK Wassergefährdungsklassen (Germany: Water Hazard Classes)
WHMIS Workplace Hazardous Materials Information System

References:

Not available.

Full text of any H-statements not written out in full under Sections 2 to 15:

H280 Contains gas under pressure; may explode if heated.

Revision information:

None.

Training information:

Follow training instructions when handling this material.

Further Information:

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.