

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

Product Identifier:

Identification as on the label/Trade name: Carbon-13C dioxide, $^{13}\text{CO}_2$

Molecular weight: 45.00

Chemical formula: $^{13}\text{CO}_2$

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:

Compressed Gas

Hazard statement:

H280

Label elements:

Hazard pictograms:



Signal Words: Warning.

Hazard Statements:

H280 Contains gas under pressure; may explode if heated.

Precautionary Statements:

P410 + P403 Protect from sunlight. Store in a well-ventilated place.

Section 3: Composition/Information on Ingredients**Substance/Mixture:** Substance.**Ingredients:**

Substance name (IUPAC/EC)	CAS-No.	Concentration % by weight	Classification
	EC-No.		EC1272/2008
Carbon-13C dioxide	1111-72-4	>99.9%	Press. Gas (Comp.) H280
	204-696-9		

For explanation of abbreviations see Section 16.

Section 4: First-Aid Measures**Description of first aid measures:****General Advice:** Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.**Inhalation:** If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.**Skin Contact:** Wash off with soap and plenty of water. Consult a physician.**Eye Contact:** Flush eyes with water as a precaution.**Ingestion:** Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.**Most important symptoms and effects, both acute and delayed:**

None known.

Indication of any immediate medical attention and special treatment needed: None known.**Section 5: Fire-Fighting Measures****Extinguisher media:****Extinguishing Media:** Water spray, alcohol-resistant foam, dry chemical or carbon dioxide.**Special Hazards:** Carbon oxides.**Advice for Firefighters:** Wear Self-Contained Breathing Apparatus for firefighting if necessary.**Further Information:** Use water spray to cool unopened containers.**Section 6: Accidental Release Measures****Personal precautions, protective equipment and emergency procedures:**

Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas.

Environmental precautions: Do not let product enter drains.**Methods and materials for containment and cleaning up:**

Clean up promptly by sweeping or vacuum. For disposal see section 13.

Section 7: Handling and Storage

Precautions for safe handling:

Handling: Contains gas under pressure; may explode if heated.

Conditions for safe storage, including any incompatibilities:

Keep container lightly closed in a dry and well-ventilated place.

Section 8: Exposure Controls/Personal Protection

Control parameters:

Occupational exposure limits:

Component	CAS No.	Value	Control Parameters	Basis
Carbon-13C dioxide	1111-72-4	TWA	5000 ppm	USA. ACGIH Threshold Limit Values (TLV)
			30,000 ppm	USA, ACGIH Threshold Limit Values
	Remarks: Asphyxia	TWA	5,000 ppm	USA. NIOSH-Recommended Exposure Limits
			9,000 mg/m3	USA. NIOSH-Recommended Exposure Limits
	Remarks: Normal constituent of air (about 300 ppm)	ST	30,000 ppm	USA. NIOSH-Recommended Exposure Limits
			54,000 mg/m3	USA. NIOSH-Recommended Exposure Limits
	Remarks: Normal constituent of air (about 300 ppm)	TWA	5000 ppm	USA. Occupational Exposure Limits (OSHA) – Table Z-1 Limits for Air Contaminants
			9,000 mg/m3	USA. Occupational Exposure Limits (OSHA) – Table Z-1 Limits for Air Contaminants
	Remarks: The value in mg/m3 is approximate.	TWA	10,000 ppm	USA. OSHA – Table Z-1 Limits for Air Contaminants 1910.1000
			18,000 mg/m3	USA. OSHA – Table Z-1 Limits for Air Contaminants 1910.1000
Remarks: Exposures under 10,000 ppm to be cited as de minimus.	STEL	30,000 ppm	USA. OSHA – Table Z-1 Limits for Air Contaminants 1910.1000	
		54,000 mg/m3	USA. OSHA – Table Z-1 Limits for Air Contaminants 1910.1000	

Exposure controls:

Appropriate engineering controls: Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Individual protection measures, such as personal protective equipment:

Eye/Face: Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin: Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full Contact: Material: Fluorinated rubber. Minimum layer thickness: 0.7 mm. Breakthrough time: 480 min

Splash Contact: Material: Fluorinated rubber. Minimum layer thickness: 0.7 mm. Breakthrough time: 480 min

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection: Impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory Protection: Where risk assessment shows air-purifying respirators are appropriate, use a full-face respirator with multipurpose combination (US) or type AXBEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Section 9: Physical and Chemical Properties

Information on basic physical and chemical properties

Appearance (form): Gas.

Colour: Colourless.

Odour: No data available.

Odour threshold: No data available.

pH (concentration): No data available.

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

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

Flash point (°C): No data available.

Evaporation rate: No data available.

Flammability (solid, gas): Not applicable.

Ignition temperature (°C): No data available.

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

Vapour pressure (20 °C): 43,878.6 mmHg

Vapour density: 1.55

Relative density (25 °C): No data available

Water solubility (g/L) at 20 °C: No data available.

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 data available.

Stability: Stable under recommended storage conditions.

Possibility of Hazardous Reactions: No data available.

Conditions to avoid: No data available.

Incompatible materials: No data available.

Hazardous Decomposition Products / Other Decomposition Products: No data available.

Section 11: Toxicological Information

Information on toxicological effects:

Not classified based on available information.

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:

Not classified based on available information.

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: PBT/vPvB assessment not available, as chemical safety assessment not required/not conducted.

Other adverse effects: No data available.

Section 13: Disposal Considerations

Product: Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated Packaging: Dispose of as unused product.

Section 14: Transport Information

UN number: 1013

UN proper shipping name: CARBON DIOXIDE.

Transport hazard class: Class 2.2

Transport hazard label:



Marine pollutant: No.

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.

Additional Information:

SARA 302 Components: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards: Sudden Release of Pressure Hazard.

Massachusetts Right to Know Components: Carbon-13C dioxide/CAS No. 1111-72-4/Revision Date 1993-04-24

Pennsylvania Right to Know Components: Carbon-13C dioxide/CAS No. 1111-72-4/Revision Date 1993-04-24

New Jersey Right to Know Components: Carbon-13C dioxide/CAS No. 1111-72-4/Revision Date 1993-04-24

California Prop. 65 Components: This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

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.