SAFETY DATA SHEETS

This SDS packet was issued with item:

075033378

The safety data sheets (SDS) in this packet apply to the individual products listed below. Please refer to invoice for specific item number(s).

075033337 075033501

The safety data sheets (SDS) in this packet apply to one or more components included in the items listed below. Items listed below may require one or more SDS. Please refer to invoice for specific item number(s).

075032602 075033345 075033352 075033360 075033386 075033394 075033519 075033527 075033535 075033543 075033550 075033568 079396238 079396241 079396244 079396247 079396250 079396253 079396263 079396266 079396269 079396272 079396275 079396278 273011066

Material Safety Data Sheet

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: 3M™ ESPE™ RELYX™ VENEER TRY-IN PASTE
MANUFACTURER: 3M
DIVISION: 3M ESPE Dental Products

ADDRESS: 3M Center
St. Paul, MN 55144-1000

EMERGENCY PHONE: 1-800-364-3577 or (651) 737-6501 (24 hours)

Issue Date: 06/03/09
Supercedes Date: 01/20/09

Document Group: 16-1922-0

Product Use:

Intended Use:	Dental Product
Limitations on Use:	For use only by dental professionals
Specific Use:	Dental veneer try-in paste

SECTION 2: INGREDIENTS

Ingredient	C.A.S. No.	% by Wt
POLYETHYLENE GLYCOL	25322-68-3	80 - 95
CERAMIC POWDER	66402-68-4	5 - 15
TITANIUM DIOXIDE	13463-67-7	< 2

SECTION 3: HAZARDS IDENTIFICATION

3.1 EMERGENCY OVERVIEW

Specific Physical Form: Paste
Odor, Color, Grade: Characteristic odor, various shades
General Physical Form: Solid
Immediate health, physical, and environmental hazards: No immediate health, physical or environmental hazards are anticipated. See Section 3.2 for other hazards that can be associated with the ingredients in this product in a non-emergency situation. This document has been prepared in accordance with the U.S. OSHA Hazard Communication Standard, which requires the inclusion of all known hazards of the product or ingredients regardless of the potential risk. The risks of the hazards communicated in this

document may vary depending on the potential for exposure.

3.2 POTENTIAL HEALTH EFFECTS

Eye Contact:
Mild Eye Irritation: Signs/symptoms may include redness, pain, and tearing.

Skin Contact:
Mild Skin Irritation: Signs/symptoms may include localized redness, swelling, and itching.

Inhalation:
This product may have a characteristic odor; however, no adverse health effects are anticipated.

Ingestion:
Gastrointestinal Irritation: Signs/symptoms may include abdominal pain, stomach upset, nausea, vomiting and diarrhea.

SECTION 4: FIRST AID MEASURES

4.1 FIRST AID PROCEDURES

The following first aid recommendations are based on an assumption that appropriate personal and industrial hygiene practices are followed.

Eye Contact: Flush eyes with large amounts of water. If signs/symptoms persist, get medical attention.

Skin Contact: Wash affected area with soap and water. If signs/symptoms develop, get medical attention.

Inhalation: No need for first aid is anticipated.

If Swallowed: Do not induce vomiting unless instructed to do so by medical personnel. Give victim two glasses of water. Never give anything by mouth to an unconscious person. Get medical attention.

SECTION 5: FIRE FIGHTING MEASURES

5.1 FLAMMABLE PROPERTIES

Autoignition temperature	*No Data Available*
Flash Point	*Not Applicable*
Flammable Limits - LEL	*Not Applicable*
Flammable Limits - UEL	*Not Applicable*

5.2 EXTINGUISHING MEDIA
Ordinary combustible material. Use fire extinguishers with class A extinguishing agents (e.g., water, foam).

5.3 PROTECTION OF FIRE FIGHTERS

Special Fire Fighting Procedures: Wear full protective equipment (Bunker Gear) and a self-contained breathing apparatus (SCBA).

Unusual Fire and Explosion Hazards: No unusual fire or explosion hazards are anticipated.

Note: See STABILITY AND REACTIVITY (SECTION 10) for hazardous combustion and thermal decomposition information.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Accidental Release Measures: Observe precautions from other sections. Call 3M- HELPS line (1-800-364-3577) for more information on handling and managing the spill. Evacuate unprotected and untrained personnel from hazard area. The spill should be cleaned up by qualified personnel. Ventilate the area with fresh air. Collect as much of the spilled material as possible. Clean up residue with detergent and water. Collect the resulting residue containing solution. Place in a closed container approved for transportation by appropriate authorities. Dispose of collected material as soon as possible.

In the event of a release of this material, the user should determine if the release qualifies as reportable according to local, state, and federal regulations.

SECTION 7: HANDLING AND STORAGE

7.1 HANDLING
Avoid eye contact. Avoid prolonged or repeated skin contact. Wash hands after handling and before eating.

7.2 STORAGE
Store in a cool place.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 ENGINEERING CONTROLS
Not applicable.

8.2 PERSONAL PROTECTIVE EQUIPMENT (PPE)

8.2.1 Eye/Face Protection
Avoid eye contact.
The following eye protection(s) are recommended: Safety Glasses with side shields.

8.2.2 Skin Protection
Avoid prolonged or repeated skin contact. Gloves not normally required.

8.2.3 Respiratory Protection
Under normal use conditions, airborne exposures are not expected to be significant enough to require respiratory protection.

8.2.4 Prevention of Swallowing
Do not ingest. Wash hands after handling and before eating.

8.3 EXPOSURE GUIDELINES

Ingredient	Authority	Type	Limit	Additional Information
POLYETHYLENE GLYCOLS	AIHA	TWA, as aerosol	10 mg/m3	
TITANIUM DIOXIDE	ACGIH	TWA	10 mg/m3	Table A4
TITANIUM DIOXIDE	CMRG	TWA, as respirable dust	5 mg/m3	
TITANIUM DIOXIDE	OSHA	TWA, Vacated, as dust	10 mg/m3	
TITANIUM DIOXIDE	OSHA	TWA, as total dust	15 mg/m3	Table Z-1

VAC Vacated PEL:Vacated Permissible Exposure Limits [PEL] are enforced as the OSHA PEL in some states. Check with your local regulatory agency.

SOURCE OF EXPOSURE LIMIT DATA:
ACGIH: American Conference of Governmental Industrial Hygienists
CMRG: Chemical Manufacturer Recommended Guideline
OSHA: Occupational Safety and Health Administration
AIHA: American Industrial Hygiene Association Workplace Environmental Exposure Level (WEEL)

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Specific Physical Form:	Paste
Odor, Color, Grade:	Characteristic odor, various shades
General Physical Form:	Solid
Autoignition temperature	*No Data Available*
Flash Point	*Not Applicable*
Flammable Limits - LEL	*Not Applicable*
Flammable Limits - UEL	*Not Applicable*
Boiling point	*Not Applicable*
Density	1.3 g/cm3
Vapor Density	*Not Applicable*
Vapor Pressure	*Not Applicable*
Specific Gravity	1.3 [*Ref Std:* WATER=1]
pH	*Not Applicable*
Melting point	*No Data Available*
Solubility in Water	Appreciable

SECTION 10: STABILITY AND REACTIVITY

Stability: Stable.

Materials and Conditions to Avoid: None known

Hazardous Polymerization: Hazardous polymerization will not occur.

Hazardous Decomposition or By-Products

Substance	Condition
Carbon monoxide	During Combustion
Carbon dioxide	During Combustion

SECTION 11: TOXICOLOGICAL INFORMATION

Please contact the address listed on the first page of the MSDS for Toxicological Information on this material and/or its components.

SECTION 12: ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION

Not determined.

CHEMICAL FATE INFORMATION

Not determined.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal Method: Reclaim if feasible. For quantities <100 lbs. (50kg): dispose of waste product in a sanitary landfill. For larger quantities: incinerate in an industrial or commercial facility in the presence of a combustible material. As a disposal alternative, dispose of waste product in a facility permitted to accept chemical waste.

EPA Hazardous Waste Number (RCRA): Not regulated

Since regulations vary, consult applicable regulations or authorities before disposal.

SECTION 14:TRANSPORT INFORMATION

ID Number(s):
LE-F100-0702-1, 70-2010-3189-8, 70-2010-3190-6, 70-2010-3191-4, 70-2010-3192-2, 70-2010-3193-0, 70-2010-3194-8

Please contact the emergency numbers listed on the first page of the MSDS for Transportation Information for this material.

SECTION 15: REGULATORY INFORMATION

US FEDERAL REGULATIONS

Contact 3M for more information.

311/312 Hazard Categories:
Fire Hazard - No Pressure Hazard - No Reactivity Hazard - No Immediate Hazard - Yes Delayed Hazard - No

STATE REGULATIONS
Contact 3M for more information.

CHEMICAL INVENTORIES
This material contains one or more substances not listed on the TSCA Inventory. Commercial use of this material is regulated by the FDA.

Contact 3M for more information.

INTERNATIONAL REGULATIONS
Contact 3M for more information.

This MSDS has been prepared to meet the U.S. OSHA Hazard Communication Standard, 29 CFR 1910.1200.

SECTION 16: OTHER INFORMATION

NFPA Hazard Classification
Health: 1 **Flammability:** 1 **Reactivity:** 0 **Special Hazards:** None

National Fire Protection Association (NFPA) hazard ratings are designed for use by emergency response personnel to address the hazards that are presented by short-term, acute exposure to a material under conditions of fire, spill, or similar emergencies. Hazard ratings are primarily based on the inherent physical and toxic properties of the material but also include the toxic properties of combustion or decomposition products that are known to be generated in significant quantities.

Reason for Reissue: The MSDS has been revised because 3M has adopted the 16-section ANSI/ISO format. The potential hazards of the product have not changed. We encourage you to reread the MSDS and review the information.

Revision Changes:
Section 1: Product name was modified.
Page Heading: Product name was modified.
Section 14: ID Number(s) Template 1 was modified.

DISCLAIMER: The information in this Material Safety Data Sheet (MSDS) is believed to be correct as of the date issued. 3M MAKES NO WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR COURSE OF PERFORMANCE OR USAGE OF TRADE. User is responsible for determining whether the 3M product is fit for a particular purpose and suitable for user's method of use or application. Given the variety of factors that can affect the use and application of a 3M product, some of which are uniquely within the user's knowledge and control, it is essential that the user evaluate the 3M product to determine whether it is fit for a particular purpose and suitable for user's method of use or application.

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3M MSDSs are available at www.3M.com

Carbon monoxide

Safety Data Sheet P-4576

This SDS conforms to U.S. Code of Federal Regulations 29 CFR 1910.1200, Hazard Communication.

Issue date: 01/01/1979 Revision date: 01/07/2022 Supersedes: 01/29/2021 Version: 2.1

SECTION: 1. Product and company identification

1.1. Product identifier

Product form	:	Substance
Trade name	:	Carbon Monoxide
Chemical name	:	Carbon monoxide
CAS-No.	:	630-08-0
Formula	:	CO

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture	:	Industrial use; Use as directed.

1.3. Details of the supplier of the safety data sheet

Linde Inc.
10 Riverview Drive
Danbury, CT 06810-6268, USA
www.lindeus.com

Linde Inc. 1-844-44LINDE (1-844-445-4633)

1.4. Emergency telephone number

Emergency number : Onsite Emergency: 1-800-645-4633

CHEMTREC, 24 hr/day 7 days/week
— Within USA: 1-800-424-9300, Outside USA: 001-703-527-3887
(collect calls accepted, Contract 17729)

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture

GHS-US classification

Flam. Gas 1	H220
Press. Gas (Comp.)	H280
Acute Tox. 3 (Inhalation:gas)	H331
Repr. 1A	H360
STOT RE 1	H372

2.2. Label elements

GHS US labelling

Hazard pictograms (GHS US) :

GHS02 GHS04 GHS06 GHS08

Signal word (GHS US) : Danger

Hazard statements (GHS US) :
H220 - EXTREMELY FLAMMABLE GAS
H280 - CONTAINS GAS UNDER PRESSURE; MAY EXPLODE IF HEATED
H331 - TOXIC IF INHALED
H360 - MAY DAMAGE FERTILITY OR THE UNBORN CHILD
H372 - CAUSES DAMAGE TO ORGANS (CENTRAL NERVOUS SYSTEM) THROUGH PROLONGED OR REPEATED EXPOSURE
CGA-HG04 - MAY FORM EXPLOSIVE MIXTURES WITH AIR
CGA-HG10 - ASPHYXIATING EVEN WITH ADEQUATE OXYGEN.

Precautionary statements (GHS US) :
P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Heat, Open flames, Sparks, Hot surfaces
P260 - Do not breathe gas

P264 - Wash exposed skin thoroughly after handling
P270 - Do not eat, drink or smoke when using this product.
P271+P403 - Use and store only outdoors or in a well-ventilated place.
P280 - Wear protective clothing, protective gloves, eye protection, face protection.
P377 - LEAKING GAS FIRE: Do not extinguish, unless leak can be stopped safely.
P381 - Eliminate all ignition sources if safe to do so.
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P311 - Call a poison center or doctor.
P308+P313 - If exposed or concerned: Get medical advice/attention.
P405 - Store locked up.
P501 - Dispose of contents/container in accordance with container Supplier/owner instructions
CGA-PG05 - Use a back flow preventive device in the piping.
CGA-PG10 - Use only with equipment rated for cylinder pressure.
CGA-PG12 - Do not open valve until connected to equipment prepared for use.
CGA-PG06 - Close valve after each use and when empty.
CGA-PG02 - Protect from sunlight when ambient temperature exceeds 52°C (125°F).

2.3. Other hazards

Other hazards which do not result in classification : Chemical asphyxiant. Exposure to low concentrations for extended periods may result in dizziness or unconsciousness, and may lead to death.

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/information on ingredients

3.1. Substances

Name	Product identifier	%
Carbon monoxide (Main constituent)	(CAS-No.) 630-08-0	100

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures after inhalation : Remove to fresh air and keep at rest in a position comfortable for breathing. If not breathing, give artificial respiration. If breathing is difficult, trained personnel should give oxygen. Call a physician.

First-aid measures after skin contact : Wash with plenty of soap and water. IF SKIN IRRITATION OCCURS: Get medical advice/attention.

First-aid measures after eye contact : Immediately flush eyes thoroughly with water for at least 15 minutes. Hold the eyelids open and away from the eyeballs to ensure that all surfaces are flushed thoroughly. Contact an ophthalmologist immediately. If eye irritation persists: Get immediate medical attention.

First-aid measures after ingestion : Not expected to be a primary route of exposure.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects : Effects are due to lack of oxygen. Moderate concentrations may cause headache, drowsiness, dizziness, excitation, excess salivation, vomiting, and unconsciousness. Prolonged exposure to low concentrations of carbon monoxide can kill.

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

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Carbon dioxide, Dry chemical, Water spray or fog.

5.2. Special hazards arising from the substance or mixture

Fire hazard	:	EXTREMELY FLAMMABLE GAS. Carbon monoxide cannot be detected by odor. May form explosive mixtures with air. Toxic, flammable gas may spread. Before entering area, especially a confined area, check atmosphere with an appropriate gas-specific device. Reduce gas with fog or fine water spray. Shut off source of gas flow if safe to do so. Ventilate area or move container to a well-ventilated area.
Explosion hazard	:	EXTREMELY FLAMMABLE GAS. Forms explosive mixtures with air and oxidizing agents.
Reactivity	:	No reactivity hazard other than the effects described in sub-sections below.

5.3. Advice for firefighters

Firefighting instructions	:	Evacuate all personnel from the danger area. Use self-contained breathing apparatus (SCBA) and protective clothing. Immediately cool containers with water from maximum distance. Stop flow of gas if safe to do so, while continuing cooling water spray. Remove ignition sources if safe to do so. Remove containers from area of fire if safe to do so. On-site fire brigades must comply with OSHA 29 CFR 1910.156 and applicable standards under 29 CFR 1910 Subpart L—Fire Protection.
Protection during firefighting	:	Compressed gas: asphyxiant. Suffocation hazard by lack of oxygen.
Special protective equipment for fire fighters	:	Standard protective clothing and equipment (Self Contained Breathing Apparatus) for fire fighters.
Specific methods	:	If venting or leaking gas catches fire, do not extinguish flames. Flammable vapors may spread from leak, creating an explosive reignition hazard. Vapors can be ignited by pilot lights, other flames, smoking, sparks, heaters, electrical equipment, static discharge, or other ignition sources at locations distant from product handling point. Explosive atmospheres may linger. Before entering an area, especially a confined area, check the atmosphere with an appropriate device.
Other information	:	Containers are equipped with a pressure relief device. (Exceptions may exist where authorized by TC.).

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Cannot be detected by odor. **Danger: Flammable, liquefied gas.** FORMS EXPLOSIVE MIXTURES WITH AIR. Immediately evacuate all personnel from danger area. Use self-contained breathing apparatus where needed. Remove all sources of ignition if safe to do so. Reduce vapors with fog or fine water spray, taking care not to spread liquid with water. Shut off flow if safe to do so. Ventilate area or move container to a well-ventilated area. Flammable vapors may spread from leak and could explode if reignited by sparks or flames. Explosive atmospheres may linger. Before entering area, especially confined areas, check atmosphere with an appropriate device.

6.1.1. For non-emergency personnel

No additional information available

6.1.2. For emergency responders

No additional information available

6.2. Environmental precautions

Prevent waste from contaminating the surrounding environment. Prevent soil and water pollution. Dispose of contents/container in accordance with container supplier/owner instructions.

6.3. Methods and material for containment and cleaning up

No additional information available

6.4. Reference to other sections

See also sections 8 and 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use only non-sparking tools. Use only explosion-proof equipment.

Use in a closed system.

Avoid using pure nickel. Corrosion of pure nickel in carbon monoxide atmospheres exceeds 50 mil/yr (1.27 mm/yr) at room temperature.

Wear leather safety gloves and safety shoes when handling cylinders. Protect containers from physical damage; do not drag, roll, slide or drop. While moving cylinder, always keep in place removable valve cover. Never attempt to lift a cylinder by its cap; the cap is intended solely to protect the valve. When moving cylinders, even for short distances, use a cart (trolley, hand truck, etc.) designed to transport cylinders. Never insert an object (e.g, wrench, screwdriver, pry bar) into cap openings; doing so may damage the valve and cause a leak. Use an adjustable strap wrench to remove over-tight or rusted caps. Slowly open the valve. If the valve is hard to open, discontinue use and contact your supplier. Close the container valve after each use; keep closed even when empty. Never apply flame or localized heat directly to any part of the container. High temperatures may damage the container and could cause the pressure relief device to fail prematurely, venting the container contents. For other precautions in using this product, see section 16.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store only where temperature will not exceed 125°F (52°C). Post “No Smoking/No Open Flames” signs in storage and use areas. There must be no sources of ignition. Separate packages and protect against potential fire and/or explosion damage following appropriate codes and requirements (e.g, NFPA 30, NFPA 55, NFPA 70, and/or NFPA 221 in the U.S.) or according to requirements determined by the Authority Having Jurisdiction (AHJ). Always secure containers upright to keep them from falling or being knocked over. Install valve protection cap, if provided, firmly in place by hand when the container is not in use. Store full and empty containers separately. Use a first-in, first-out inventory system to prevent storing full containers for long periods. For other precautions in using this product, see section 16.

OTHER PRECAUTIONS FOR HANDLING, STORAGE, AND USE: When handling product under pressure, use piping and equipment adequately designed to withstand the pressures to be encountered. Never work on a pressurized system. Use a back flow preventive device in the piping. Gases can cause rapid suffocation because of oxygen deficiency; store and use with adequate ventilation. If a leak occurs, close the container valve and blow down the system in a safe and environmentally correct manner in compliance with all international, federal/national, state/provincial, and local laws; then repair the leak. Never place a container where it may become part of an electrical circuit.

7.3. Specific end use(s)

None.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Carbon monoxide (630-08-0)		
ACGIH	ACGIH OEL TWA [ppm]	25 ppm
USA OSHA	OSHA PEL TWA [1]	55 mg/m³
USA OSHA	OSHA PEL TWA [2]	50 ppm
USA IDLH	IDLH [ppm]	1200 ppm

8.2. Exposure controls

Appropriate engineering controls : Use an explosion-proof local exhaust system with sufficient flow velocity to maintain an adequate supply of air in the worker's breathing zone. Mechanical/General measures: Use in a closed system.

Hand protection : Wear working gloves when handling gas containers.

Eye protection : Wear safety glasses with side shields.

Skin and body protection	:	Wear metatarsal shoes and work gloves for cylinder handling, and protective clothing where needed. Wear appropriate chemical gloves during cylinder changeout or wherever contact with product is possible.
Respiratory protection	:	When workplace conditions warrant respirator use, follow a respiratory protection program that meets or exceeds the requirements of the appropriate Health and Safety Regulations. Use an air-supplied or air-purifying cartridge if the action level is exceeded. Ensure that the respirator has the appropriate protection factor for the exposure level. If cartridge type respirators are used, the cartridge must be appropriate for the chemical exposure. For emergencies or instances with unknown exposure levels, use a self-contained breathing apparatus (SCBA).
Environmental exposure controls	:	Refer to local regulations for restriction of emissions to the atmosphere.
Other information	:	Consider the use of flame resistant anti-static safety clothing.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Gas
Appearance	:	Colorless, odorless gas.
Molecular mass	:	28 g/mol
Colour	:	Colourless
Odour	:	Odourless.
Odour threshold	:	No data available
pH	:	Not applicable.
Relative evaporation rate (butylacetate=1)	:	No data available
Relative evaporation rate (ether=1)	:	Not applicable.
Melting point	:	-205.1 °C
Freezing point	:	No data available
Boiling point	:	-191.5 °C
Flash point	:	Not applicable.
Critical temperature	:	-139.8 °C
Auto-ignition temperature	:	605 °C
Decomposition temperature	:	400 °C
Flammability (solid, gas)	:	12.5 – 74 vol %
Vapour pressure	:	Not applicable.
Critical pressure	:	3499 kPa
Relative vapour density at 20 °C	:	No data available
Relative density	:	No data available
Density	:	1.2501 kg/m³ (at 0 °C)
Relative gas density	:	1
Solubility	:	Water: 41 g/l (at 20 °C)
Partition coefficient n-octanol/water (Log Pow)	:	1.78
Partition coefficient n-octanol/water (Log Kow)	:	Not applicable.
Viscosity, kinematic	:	Not applicable.
Viscosity, dynamic	:	Not applicable.
Explosive properties	:	Not applicable.
Oxidizing properties	:	None.
Explosive limits	:	No data available

9.2. Other information

Gas group	:	Compressed gas
Additional information	:	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

May occur. Can form explosive mixture with air. Oxidizing agents.

10.4. Conditions to avoid

Keep away from heat/sparks/open flames/hot surfaces. – No smoking.

10.5. Incompatible materials

Oxidizing agents, Oxygen, Flammables, Metal oxides, halogenated fluorides, metals in the presence of moisture and/or sulfur compounds.

10.6. Hazardous decomposition products

Carbon monoxide will decompose above 752°F (400°C) to form carbon dioxide and carbon.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral) : Not classified
Acute toxicity (dermal) : Not classified
Acute toxicity (inhalation) : TOXIC IF INHALED.

Carbon monoxide (\f)630-08-0	
LC50 Inhalation - Rat [ppm]	1880 ppm/4h
ATE US (gases)	1880 ppmv/4h

Skin corrosion/irritation : Not classified
pH: Not applicable.

Serious eye damage/irritation : Not classified
pH: Not applicable.

Respiratory or skin sensitisation : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Reproductive toxicity : MAY DAMAGE FERTILITY OR THE UNBORN CHILD.

STOT-single exposure : Not classified

STOT-repeated exposure : CAUSES DAMAGE TO ORGANS (CENTRAL NERVOUS SYSTEM) THROUGH PROLONGED OR REPEATED EXPOSURE.

Aspiration hazard : Not classified

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Classification criteria are not met. No ecological damage caused by this product.

12.2. Persistence and degradability

Carbon monoxide (630-08-0)	
Persistence and degradability	Will not undergo hydrolysis. Not readily biodegradable. Not applicable for inorganic products.

12.3. Bioaccumulative potential

Carbon monoxide (630-08-0)	
Partition coefficient n-octanol/water (Log Pow)	1.78
Partition coefficient n-octanol/water (Log Kow)	Not applicable.

Carbon monoxide (630-08-0)	
Bioaccumulative potential	Not expected to bioaccumulate due to the low log Kow (log Kow < 4). See section 9.

12.4. Mobility in soil

Carbon monoxide (630-08-0)	
Mobility in soil	No data available.
Ecology - soil	Because of its high volatility, the product is unlikely to cause ground or water pollution.

12.5. Other adverse effects

Effect on the ozone layer : None.

Global warming potential [CO2=1] : 1.9

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product/Packaging disposal recommendations : Do not attempt to dispose of residual or unused quantities. Return container to supplier.

SECTION 14: Transport information

In accordance with DOT

Transport document description (DOT) : UN1016 Carbon monoxide, compressed, 2.3

UN-No.(DOT) : UN1016

Proper Shipping Name (DOT) : Carbon monoxide, compressed

Class (DOT) : 2.3 - Class 2.3 - Poisonous gas 49 CFR 173.115

Hazard labels (DOT) : Poison Gas
2.3 - Poison gas
2.1 - Flammable gas

DOT Special Provisions (49 CFR 172.102) : 4 - This material is poisonous by inhalation (see 171.8 of this subchapter) in Hazard Zone D (see 173.116(a) of this subchapter), and must be described as an inhalation hazard under the provisions of this subchapter.

Additional information

Emergency Response Guide (ERG) Number : 119 (UN1016);168 (NA9202)

Other information : No supplementary information available.

Special transport precautions : 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 there is adequate ventilation. - Ensure that containers are firmly secured. - Ensure 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.

Transport by sea

UN-No. (IMDG) : 1016

Proper Shipping Name (IMDG) : CARBON MONOXIDE, COMPRESSED

Class (IMDG) : 2 - Gases

Division (IMDG) : 2.3 - Toxic gases

MFAG-No : 119

Air transport

UN-No. (IATA) : 1016

Proper Shipping Name (IATA) : Carbon monoxide, compressed

Class (IATA) : 2 - Gases

Civil Aeronautics Law : Gases under pressure/Gases toxic under pressure(Hazardous materials notice Appended Table 1 Article 194 of the Enforcement Regulations)

SECTION 15: Regulatory information

15.1. US Federal regulations

Carbon monoxide (630-08-0)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory.

15.2. International regulations

CANADA

Carbon monoxide (630-08-0)
Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

Carbon monoxide (630-08-0)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

15.2.2. National regulations

Carbon monoxide (630-08-0)
Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory) Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China) Listed on the Japanese ENCS (Existing New Chemical Substances) inventory Listed on the Japanese ISHL (Industrial Safety and Health Law) Listed on KECL/KECI (Korean Existing Chemicals Inventory) Listed on NZIoC (New Zealand Inventory of Chemicals) Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances) Listed on the Canadian IDL (Ingredient Disclosure List) Listed on INSQ (Mexican National Inventory of Chemical Substances) Listed on the TCSI (Taiwan Chemical Substance Inventory)

15.3. US State regulations

Carbon monoxide(630-08-0)	
U.S. - California - Proposition 65 - Carcinogens List	No
U.S. - California - Proposition 65 - Developmental Toxicity	Yes
U.S. - California - Proposition 65 - Reproductive Toxicity - Female	No
U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No
State or local regulations	U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List U.S. - Pennsylvania - RTK (Right to Know) List

This product can expose you to Carbon monoxide, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

SECTION 16: Other information

Other information : Prior to using any plastics, confirm their compatibility with this chemical.

When you mix two or more chemicals, you can create additional, unexpected hazards. Obtain and evaluate the safety information for each component before you produce the mixture. Consult an industrial hygienist or other trained person when you evaluate the end product. Before using any plastics, confirm their compatibility with this product.

Linde asks users of this product to study this SDS and become aware of the product hazards and safety information. To promote safe use of this product, a user should (1) notify employees, agents, and contractors of the information in this SDS and of any other known product hazards and safety information, (2) furnish this information to each purchaser of the product, and (3) ask each purchaser to notify its employees and customers of the product hazards and safety information.

The opinions expressed herein are those of qualified experts within Linde Inc. We believe that the information contained herein is current as of the date of this Safety Data Sheet. Since the use of this information and the conditions of use are not within the control of Linde Inc, it is the user's obligation to determine the conditions of safe use of the product.

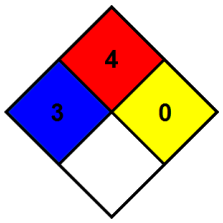
Linde SDSs are furnished on sale or delivery by Linde or the independent distributors and suppliers who package and sell our products. To obtain current SDSs for these products, contact your sales representative, local distributor, or supplier, or download from www.lindeus.com. If you have questions regarding Linde SDSs, would like the document number and date of the latest SDS, or would like the names of the Linde suppliers in your area, phone or write the Linde Call Center (Phone: 1-844-44-Linde (1-844-445-4633); Address: Linde Call Center, Linde Inc, P.O. Box 44, Tonawanda, NY 14151-0044).

Revision date : 01/07/2022

NFPA health hazard : 3 - Materials that, under emergency conditions, can cause serious or permanent injury.

NFPA fire hazard : 4 - Materials that rapidly or completely vaporize at atmospheric pressure and normal ambient temperature or that are readily dispersed in air and burn readily.

NFPA instability : 0 - Material that in themselves are normally stable, even under fire conditions.



SDS US (GHS HazCom 2012) - Linde 2022

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.