

Material Safety Data Sheet

Cyclo-2244 D4 Cyclomethicone



Data Prepared: October 15th, 2014

SECTION I: IDENTIFICATION OF THE SUBSTANCE & THE COMPANY

Product Name: **Cyclo-2244 D4 Cyclomethicone**

Provided by: **CLEARCO PRODUCTS CO. INC.,**
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Willow Grove, PA 19090 U.S.A.

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General Description: Silicone Fluid, cyclic-siloxane
Physical Form: Liquid
Color: Colorless
Odor: Characteristic Odor

NFPA Profile: Health 0 Flammability 2 Instability/Reactivity 0

Note: NFPA= National Fire Protection Association

SECTION II: HAZARDS IDENTIFICATION

POTENTIAL HEALTH EFFECTS

Acute Effects

Eye: Direct contact may cause temporary redness and discomfort.
Skin: No significant irritation expected from a single short-term exposure.
Inhalation: No significant effects expected from a single short-term exposure.
Oral: Low ingestion hazard in normal use.

Prolonged/Repeated Exposure Effects

Skin: No known applicable information.
Inhalation: No known applicable information.
Oral: No known applicable information.

Other Health Effects

This product contains a chemical (s) that has the following effect (s):
Reproductive Toxicity

See Section 11 for specific details

Signs and Symptoms of Overexposure

No known applicable information.

Medical Conditions Aggravated by Exposure

No known applicable information.

The above listed potential effects of overexposure are based on actual data, results of studies performed upon similar compositions, component data and/or expert review of the product. Please refer to Section 11 for the detailed toxicology information.

SECTION III: COMPOSITION/INFORMATION ON INGREDIENTS

<u>CAS Number</u>	<u>Wt%</u>	<u>Component Name</u>
556-67-2	85.0-100.00	Octamethylcyclotetrasiloxane
541-05-9	<=0.5	Hexamethylcyclotrisiloxane

The above components are hazardous as defined in 29 CFR 1910.1200.

SECTION IV: FIRST AID MEASURES

- Eye:** If irritation occurs, flush eye(s) with lukewarm gently flowing water for 5 minutes. Obtain medical attention.
- Skin:** No health effects expected. If irritation does occur flush with lukewarm, gently flowing water for 5 minutes. If irritation persists, obtain medical advice.
- Inhalation:** Remove from the source of contamination or move to fresh air. If irritation persists, obtain medical advice.
- Oral:** If irritation or discomfort occur, obtain medical advice.
- Notes to Physician:** Treat according to person's condition and specifics of exposure.

SECTION V: FIRE FIGHTING MEASURES

- Flash Point:** 134.6°F/57 °C (Tag Closed Cup)
131°F/55 °C (Cleveland Open Cup)
- Autoignition Temperature:** 752°F/400°C
- Flammability Limits in Air:** Lower Limit: 0.75% Upper Limit:7.4%
- Extinguishing Media:** On large fires use AFFF alcohol compatible foam or water spray (fog). On small fires use AFFF alcohol compatible foam, CO2 or water spray (fog). Water can be used to cool fire exposed containers.
- Fire Fighting Measures:** Self-contained breathing apparatus and protective clothing should be worn in ighting large fires involving chemicals. Determine the need to evacuate or isolate the area according to your local emergency plan. Use water spray to keep fire exposed containers cool.
- Unusual Fire Hazards:** Vapors are heavier than air and may travel to a source of ignition and flash back. Static electricity will accumulate and may ignite vapors. Prevent a possible fire hazard by bonding and grounding or inert gas purge. Fire burns more vigorously than would be expected.

SECTION VI: ACCIDENTAL RELEASE MEASURES

Containment/Clean up: Remove possible ignition sources. Determine whether to evacuate or isolate the area according the your local emergency plan. Observe all personal protection equipment recommendations described in Sections 5 and 8. For large spills, provide diking or other appropriate containment to keep material from spreading. If diked material can be pumped, store recovered material in appropriate container. Clean up remaining materials from spill with suitable absorbent. Clear area as appropriate since spilled materials, even in small quantities, may present a slip hazard. Final cleaning may require use of steam, solvents or detergents. Dispose of saturated absorbent or cleaning materials appropriately, since spontaneous heating may occur. Local, state and federal laws and regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which federal, state and local laws and regulations are applicable. Sections 13 and 15 of this MSDS provide information regarding certain federal and state requirements.

Note: See section 8 for Personal Protective Equipment for Spills. Call (215) 6369-2640, if additional information is required.

SECTION VII: HANDLING AND STORAGE

Use with adequate ventilation. Avoid eye contact. Avoid breathing vapor, mist, dust, or fumes. Keep container closed.

Static electricity will accumulate and may ignite vapors. Prevent a possible fire hazard by bonding and grounding or inert gas purge. Keep container closed and away from heat, sparks, and flame.

SECTION VIII: EXPOSURE CONTROLS/PERSONAL PROTECTION

Component Exposure Limits

CAS Number
556-67-2

Wt%
Octamethylcyclotetrasiloxane

Component Name
Dow corning guide:TWA 10 ppm

Engineering Controls

Local Ventilation: Recommended
General Ventilation: Recommended

Personal Protective Equipment for Routine Handling

- Eyes: Use proper protection- safety glasses as a minimum
- Skin: Washing at mealtime and end of shift is adequate
- Suitable Gloves Handle in accordance with good industrial hygiene and safety practices.
- Inhalation: Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposures guidelines. IH personnel can assist in judging the adequacy of existing engineering controls.
- Suitable Respirator: General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits. Where concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and use NIOSH/MSHA approved respirators.

Personal Protective Equipment for Spills

- Eyes: Use full face respirator
- Skin: Washing at mealtime and end of shift is adequate
- Inhalation/Suitable Respirator: Respiratory protection recommended. Follow OSHA Respirator Regulations (29 CFR 1910.134) and use NIOSH/MSHA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.
- Precautionary Measures: Avoid eye contact. Avoid breathing vapor, mist, dust, or fumes. Keep container closed. Use reasonable care.

Note: These precautions are for room temperature handling. Use at elevated temperature or aerosol/spray applications may require added precautions. For further information regarding aerosol inhalation toxicity, please refer to the guidance document regarding the use of silicone-based materials in aerosol applications that has been developed by the silicone industry (www.SEHSC.com) or contact Clearco Products customer service.

SECTION IX: PHYSICAL & CHEMICAL PROPERTIES

Physical Form	Liquid
Color	Colorless
Odor	Odorless
Specific Gravity @ 25 deg C	0.95
Viscosity	2.2 mm ² /s
Freezing/Melting Point	17.5° C
Boiling Point	175° C
Vapor Pressure @ 25C	0.012 kPa
Vapor Density	Not determined
Solubility in Water	Not determined
pH	7
Volatile Content	Not determined
Flash Point	134.6°F/57° C (Tag Closed Cup) 131°F/55° C (Cleveland Open Cup)
Autoignition Temperature	752°F/400° C
Flammability Limits in Air:	Lower Limit 0.75% Upper Limit 7.4%

Note: The above information is not intended for use in preparing product specifications.

SECTION X: STABILITY AND REACTIVITY

Chemical Stability:	Stable
Hazardous Polymerization:	Hazardous polymerization will not occur.
Conditions to Avoid:	None
Material to Avoid:	Oxidizing material can cause a reaction.

Hazardous Decomposition Products

Thermal breakdown of this product during fire or very high heat conditions may evolve the following decomposition products: Carbon oxides and traces of incompletely burned carbon compounds. Silicon Dioxide. Formaldehyde.

SECTION XI:

TOXICOLOGICAL INFORMATION

Acute Toxicology Data for Product

	<u>Species</u>	<u>Test Results</u>	<u>Type of Test</u>
Inhalation LC50:	Rat	36 mg/L	4hr vapor

Component Toxicology Information

Octamethylcyclotetrasiloxane administered to rats by inhalation at concentrations of 500 and 700 ppm resulted in statistically significant decreases in the number of pups born and the live litter size in both the first and second generations. Prolonged estrous cycles, and decreased mating and fertility indices were observed following 700 ppm exposure in the second generation only. There were also increases in the incidence of deliveries of offspring extending over an unusually long time period (dystocia).

Results from a 2 year repeated vapour inhalation exposure study to rats of octamethylcyclotetrasiloxane (D4) indicate effects (benign uterine adenomas) in the uterus of female animals. This finding occurred at the highest exposure does (700ppm) only.

Studies to date have not demonstrated if these effects occur through pathways that are relevant to humans.

Based on the available information on its potential to cause harm to human health, Health Canada, in a 2008 screening assessment, has concluded that octamethylcyclotetrasiloxane is not entering the environment in a quantity or concentration or under conditions that constitute or may constitute a danger in Canada to human life or health (http://www.ec.gc.ca/substances/ese/eng/challenge/batch2_556-67-2.cfm).

Repeated exposure in rats to D4 resulted in what appears to be protoporphyrin accumulation the relevance of this finding to humans is unknown.

Special Hazard Information on Components**Reproductive Toxicity**

<u>CAS Number</u>	<u>Wt%</u>	<u>Component Name</u>
556-67-2	85.0-100.00	Octamethylcyclotetrasiloxane

Evidence of reproductive effects in laboratory animals.

SECTION XII:

ECOLOGICAL INFORMATION

Environmental Fate and Distribution

Air: Low molecular weight volatile siloxanes in air are degraded by reaction with hydroxyl radicals, which is the dominant degradation process for most chemicals in the atmosphere.

Water: Low molecular weight volatile siloxanes have very low water solubility and evaporate to air.

Soil: Low molecular weight volatile siloxanes in soil are removed by several simultaneously occurring processes including volatilization, hydrolysis, and clat-catalyzed degradation.

Environmental Effects

Toxicity to Water Organisms: This product is volatile and has a very short half life in the aquatic environment and therefore does not present a risk to aquatic organisms.

Toxicity to Soil Organisms: Due to its volatility, this product is unlikely to be found in the terrestrial compartment.

Bioaccumulation: Low molecular weight volatile siloxanes bioconcentrate in fish exposed under controlled laboratory conditions that are not representative of conditions found in the environment.

Fate and Effects in Waste Water Treatment Plants

Low molecular weight volatile siloxanes are efficiently removed (>90%) during wastewater treatment with approximately equal amounts going to the atmosphere and the sludge. Low molecular weight volatile siloxanes in treated wastewater effluent will be bound to particulate matter because of very low water solubility.

	<u>Ecotoxicity Classification Criteria</u>		
Hazard Parameters (LC50 or EC 50)	High	Medium	Low
Acute Aquatic Toxicity (mg/L)	<=1	>1 and <=100	>100
Acute Terrestrial Toxicity	<=100	>100 and <=2000	>2000

This table is adapted from "Environmental Toxicology and Risk Assessment", ASTM STP 1179, p.34, 1993.

This table can be used to classify the ecotoxicity of this product when ecotoxicity data is listed above. Please read the other information presented in the section concerning the overall ecological safety of this material.

SECTION XIII: DISPOSAL CONSIDERATIONS

RCRA Hazard Class (40 CFR 261)

When a decision is made to discard this material, as received, is it classified as a hazardous waste?

No

State or local laws may impose additional regulatory requirements regarding disposal. Call (215) 639-2640, if additional information is required.

SECTION XIV: TRANSPORT INFORMATION

DOT Road Shipment Information (49 CFR 172.101)

Proper Shipping Name: Combustible liquid, n.o.s.
Hazard Technical Name: Cyclopolydimethylsiloxane
Hazard Class: C
UN/NA Number: NA 1993
Packing Group: III
Hazard Label(s): None
Remarks: Above applies only to containers over 119 gallons or 450 liters

Ocean Shipment (IMDG)

Proper Shipping Name: Flammable Liquid, N.O.S.
Hazard Technical Name: Cyclopolydimethylsiloxane
Hazard Class: 3
UN/NA Number: UN 1993
Packing Group: III
Hazard Label(s): flammable liquid

Air Shipment (IATA)

Proper Shipping Name: Flammable Liquid, N.O.S.
Hazard Technical Name: Cyclopolydimethylsiloxane
Hazard Class: 3
UN/NA Number: UN 1993
Packing Group: III
Hazard Label(s): flammable liquid

Call Clearco Products Co Inc, (215) 639-2640, if additional is required.

SECTION XV: REGULATORY INFORMATION

Contents of this MSDS comply with the OSHA Hazard Communication Standard 29 CFR 1910.1200.

TSCA Status: All chemical substances in this material are included on or exempted from listing on the TSCA Inventory of Chemical Substances.

EPA SARA Title III Chemical Listings

Section 302 Extremely Hazardous Substances (40 CFR 355):

None

Section 304 CERCLA Hazardous Substances (40 CFR 302):

None

Section 311/312 Hazard Class (40 CFR 370):

Acute: No
Chronic: Yes
Fire: Yes
Pressure: No
Reactive: No

Section 313 Toxic Chemicals (40 CFR 372):

None present or none present in regulated quantities

Note: Chemicals are listed under the 313 Toxic Chemicals section only if they meet or exceed a reporting threshold.

Supplemental State Compliance Information

California

Warning: This product contains the following chemical(s) listed by the State of California under the Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65) as being known to cause cancer, birth defects or other reproductive harm.

None known.

Massachusetts

No ingredient regulated by MA Right-to-Know Law present.

New Jersey

CAS Number

556-67-2

Wt%

85.0-100.0

Component Name

Octamethylcyclotetrasiloxane

Pennsylvania

CAS Number

556-67-2

Wt%

85.0-100.0

Component Name

Octamethylcyclotetrasiloxane

SECTION XVI:**OTHER INFORMATION**

These data are offered in good faith as typical values and not as product specifications. No warranty, either expressed or implied, is hereby made. The recommended industrial hygiene and safe handling procedures are believed to be generally applicable. However, each user should review these recommendations in the specific context of the intended use and determine whether they are appropriate.