

Product Information

High Performance Lubricants

DOW CORNING

Molykote[®] 55 O-Ring Grease

FEATURES

- High oxidation resistance
- Wide service temperature range
-65°C to +175°C (-85°F to +347°F)
- Good corrosion protection
- Compatible with many plastics and elastomers

COMPOSITION

- Silicone oil
- Ester
- Lithium soap

Silicone based grease for O-rings

APPLICATIONS

- Dynamic lubrication between rubber and metal parts in pneumatic systems in aircraft, automotive and general industrial applications

TYPICAL PROPERTIES

Specification Writers: These values are not intended for use in preparing specifications. Please contact your local Dow Corning sales office or your Global Dow Corning Connection before writing specifications on this product.

Method	Test	Unit	Result
	Color		Off-white
Consistency, density, viscosity			
	NLGI consistency class		approx. 2
ASTM D 217	Worked Penetration	mm/10	290
ISO 2811	Density at 20°C (68°F)	g/ml	0.96
DIN 51 562	Base oil viscosity at 25°C (77°F)	mm ² /s	100
Temperature			
	Service temperature	°C	-65 TO +175
		°F	-85 TO +347
ASTM D 566	Drop point	°C	220
		°F	412
ASTM-D147880	Low temperature torque test at -65°C (-85°F)		
	Initial break-away torque	Nm	325x10 ⁻³
	Torque after 20 minutes running time	Nm	35x10 ⁻³
Coefficient of friction			
	Steel ball against plastic surface (POM) Ø ball = 12.7mm, load = 6.3N, v =10 mm/s, 24h, µ=		0.03
Resistance			
DIN 51 808	Oxidation resistance, pressure drop 100h, 99°C (210°F)	bar	0.1
Corrosion protection			
DIN 51 802	SKF-Emcor method - degree of corrosion		0
FED Std 791	Bleed, 24h at 150°C (302°F)	%	3.0
	Evaporation, 24h at 150°C (302°F)	%	1.4
ASTM D 1264	Water washout resistance	%	4.2

DESCRIPTION

Molykote[®] 55 O-ring Grease is a silicone-based material that helps ensure positive lubrication and sealing by slightly swelling rubber O-rings and seals. This product is heat stable and oxidation resistant and is serviceable from approximately -65 to 175°C (-85 to 347°F).

HOW TO USE

Apply grease in the normal way using a brush, grease gun or automatic lubricating system. Molykote[®] 55 O-ring Grease can be used in centralized lubrication systems. Do not mix with other greases.

COMPATIBILITY

Molykote[®] 55 O-Ring Grease has been shown to swell natural rubber. However, compatibility of the lubricant may vary with the plasticizer content of specific materials (especially elastomers). Small-scale compatibility testing should be conducted prior to the use of this product in any application.

Molykote[®] 55 O-Ring Grease should not be used with the following materials unless thoroughly tested for your specific application:

- Silicone rubber (SR)
- Polycarbonate (PC)
- Acrylonitrile-butadiene-styrene (ABS)
- Liquid oxygen (or other strong oxidizers)

HANDLING PRECAUTIONS

Product safety information required for safe use is not included. Before handling, read product and safety data sheets and container labels for safe use, physical and health hazard information. The material safety data sheet is available on the Dow Corning website at www.dowcorning.com. You can also obtain a copy from your local Dow Corning sales representative or Distributor or by calling your local Dow Corning Global Connection.

USABLE LIFE AND STORAGE

When stored at or below 32°C (90°F), *Molykote*[®] 55 O-Ring Grease has a shelf life of 60 months from date of manufacture. Refer to product packaging for "Use By" date.

PACKAGING

Molykote[®] 55 O-Ring Grease is supplied in 100-g tubes, 150-g tubes, 1-kg cans, 3.6-kg cans, 18.1-kg pails, 25-kg pails, and 181.4-kg drums. Not all sizes available in all geographies.

LIMITATIONS

This product is neither tested nor represented as suitable for medical or pharmaceutical uses.

HEALTH AND ENVIRONMENTAL INFORMATION

To support Customers in their product safety needs, Dow Corning has an extensive Product Stewardship organization and a team of Product Safety and Regulatory Compliance (PS&RC) specialists available in each area.

For further information, please see our website, www.dowcorning.com or consult your local Dow Corning representative.

LIMITED WARRANTY INFORMATION - PLEASE READ CAREFULLY

The information contained herein is offered in good faith and is believed to be accurate. However, because conditions and methods of use of our products are beyond our control, this information should not be used in substitution for customer's tests to ensure that Dow Corning's products are safe, effective, and fully satisfactory for the intended end use. Suggestions of use shall not be taken as inducements to infringe any patent.

Dow Corning's sole warranty is that the product will meet the Dow Corning sales specifications in effect at the time of shipment.

Your exclusive remedy for breach of such warranty is limited to refund of purchase price or replacement of any product shown to be other than as warranted.

DOW CORNING SPECIFICALLY DISCLAIMS ANY OTHER EXPRESS OR IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE OR MERCHANTABILITY.

DOW CORNING DISCLAIMS LIABILITY FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES.

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DOW CORNING CORPORATION

Material Safety Data Sheet

Page: 1 of 7

Version: 1.3

Revision Date: 2006/08/18

MOLYKOTE(R) 55 O-RING GREASE

1. IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY

Dow Corning Corporation
South Saginaw Road
Midland, Michigan 48686

24 Hour Emergency Telephone: (989) 496-5900

Customer Service: (989) 496-6000

Product Disposal Information: (989) 496-6315

CHEMTREC: (800) 424-9300

MSDS No.: 01889826

Revision Date: 2006/08/18

Generic Description: Silicone grease.

Physical Form: Grease

Color: White

Odor: Slight odor

NFPA Profile: Health 1 Flammability 1 Instability/Reactivity 0

Note: NFPA = National Fire Protection Association

2. HAZARDS IDENTIFICATION

POTENTIAL HEALTH EFFECTS

Acute Effects

Eye: Direct contact may cause mild irritation.

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: Repeated or prolonged exposure may cause irritation.

Inhalation: No known applicable information.

Oral: Repeated ingestion or swallowing large amounts may injure internally.

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,

MOLYKOTE(R) 55 O-RING GREASE

component data and/or expert review of the product. Please refer to Section 11 for the detailed toxicology information.

3. COMPOSITION/INFORMATION ON INGREDIENTS

None present. This is not a hazardous material as defined in the OSHA Hazard Communication Standard.

4. FIRST AID MEASURES

Eye:	Immediately flush with water for 15 minutes.
Skin:	No first aid should be needed.
Inhalation:	No first aid should be needed.
Oral:	Get medical attention.
Notes to Physician:	Treat according to person's condition and specifics of exposure.

5. FIRE FIGHTING MEASURES

Flash Point:	> 214 °F / > 101.1 °C (Closed Cup)
Autoignition Temperature:	Not determined.
Flammability Limits in Air:	Not determined.
Extinguishing Media:	Dry chemical.
Fire Fighting Measures:	Self-contained breathing apparatus and protective clothing should be worn in fighting large fires involving chemicals.
Unusual Fire Hazards:	None.

6. ACCIDENTAL RELEASE MEASURES

Containment/Clean up:	Sections 13 and 15 of this MSDS provide information regarding certain federal and state requirements. Clean up remaining materials from spill with suitable absorbent. Clean 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. Observe all personal protection equipment recommendations described in Sections 5 and 8. 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.
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Note: See section 8 for Personal Protective Equipment for Spills. Call (989) 496-5900, if additional information is

MOLYKOTE(R) 55 O-RING GREASE

required.

7. HANDLING AND STORAGE

Use with adequate ventilation. Traces of benzene (carcinogen) may form if heated in air above 300 F (149 C). Provide ventilation to control vapor exposure within inhalation guidelines when handling at elevated temperatures. Review the OSHA benzene regulation for detailed information on safe handling requirements. Avoid eye contact. Do not take internally.

Use reasonable care and store away from oxidizing materials.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION**Component Exposure Limits**

There are no components with workplace exposure limits.

Engineering Controls

Local Ventilation: None should be needed.
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: No special protection needed.
Inhalation: No respiratory protection should be needed.
Suitable Respirator: None should be needed.

Personal Protective Equipment for Spills

Eyes: Use proper protection - safety glasses as a minimum.
Skin: Washing at mealtime and end of shift is adequate.
Inhalation/Suitable Respirator: No respiratory protection should be needed.
Precautionary Measures: Avoid eye contact. Do not take internally. Use reasonable care.

MOLYKOTE(R) 55 O-RING GREASE

Comments: Traces of benzene (carcinogen) may form if heated in air above 300 F (149 C). Provide ventilation to control vapor exposure within inhalation guidelines when handling at elevated temperatures. Review the OSHA benzene regulation for detailed information on safe handling requirements.

Note: These precautions are for room temperature handling. Use at elevated temperature or aerosol/spray applications may require added precautions.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical Form: Grease
Color: White
Odor: Slight odor
Specific Gravity @ 25°C: 1.1
Viscosity: Not determined.
Freezing/Melting Point: Not determined.
Boiling Point: Not determined.
Vapor Pressure @ 25°C: Not determined.
Vapor Density: Not determined.
Solubility in Water: Not determined.
pH: Not determined.
Volatile Content: Not determined.
Flash Point: > 214 °F / > 101.1 °C (Closed Cup)
Autoignition Temperature: Not determined.
Flammability Limits in Air: Not determined.

Note: The above information is not intended for use in preparing product specifications. Contact Dow Corning before writing specifications.

10. STABILITY AND REACTIVITY

Chemical Stability: Stable.
Hazardous Polymerization: Hazardous polymerization will not occur.
Conditions to Avoid: None.
Materials 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. Metal oxides. Formaldehyde.

11. TOXICOLOGICAL INFORMATION

MOLYKOTE(R) 55 O-RING GREASE**Special Hazard Information on Components**

No known applicable information.

12. ECOLOGICAL INFORMATION**Environmental Fate and Distribution**

Complete information is not yet available.

Environmental Effects

Complete information is not yet available.

Fate and Effects in Waste Water Treatment Plants

Complete information is not yet available.

Ecotoxicity Classification Criteria

Hazard Parameters (LC50 or EC50)	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.

13. 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 (989) 496-6315, if additional information is required.

14. TRANSPORT INFORMATION**DOT Road Shipment Information (49 CFR 172.101)**

Not subject to DOT.

Ocean Shipment (IMDG)

Not subject to IMDG code.

Air Shipment (IATA)

MOLYKOTE(R) 55 O-RING GREASE

Not subject to IATA regulations.

Call Dow Corning Transportation, (989) 496-8577, if additional information is required.

15. 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: No
Fire: No
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

<u>CAS Number</u>	<u>Wt %</u>	<u>Component Name</u>
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MOLYKOTE(R) 55 O-RING GREASE

4485-12-5 15.0 - 40.0 Lithium stearate

New Jersey

<u>CAS Number</u>	<u>Wt %</u>	<u>Component Name</u>
63148-52-7	> 60.0	Dimethyl, phenylmethyl siloxane, trimethyl-terminated
4485-12-5	15.0 - 40.0	Lithium stearate
122-62-3	15.0 - 40.0	Di(2-ethylhexyl) sebacate

Pennsylvania

<u>CAS Number</u>	<u>Wt %</u>	<u>Component Name</u>
63148-52-7	> 60.0	Dimethyl, phenylmethyl siloxane, trimethyl-terminated
4485-12-5	15.0 - 40.0	Lithium stearate
122-62-3	15.0 - 40.0	Di(2-ethylhexyl) sebacate

16. OTHER INFORMATION

Prepared by: Dow Corning Corporation

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.

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