

Information About **MOLYKOTE® 3451 Chemical Resistant Bearing Grease and MOLYKOTE® 3452 Chemical Resistant Valve Lubricant**

Type

Fluorosilicone greases

Special Properties

Chemical resistance; good load-carrying ability, effective in high temperatures

Primary Uses

-MOLYKOTE® 3451 Chemical Resistant Bearing Grease - NLGI #2

Exceptional antifriction lubricant for bearings exposed to harsh chemicals, solvents, high temperatures, high speeds or heavy loads

- MOLYKOTE® 3452 Chemical Resistant Valve Lubricant - NLGI #3

Lubricant and sealant for valves, shafts and packings exposed to corrosive or aggressive chemicals or high temperatures

DESCRIPTION

MOLYKOTE 3451 Chemical Resistant Bearing Grease and *MOLYKOTE*® 3452 Chemical Resistant Valve Lubricant are fluorosilicone oils thickened with fluorinated polymers. These lubricants:

- Provide superior resistance to most chemicals
- Are compatible with most gaskets, seals and packings
- Resist washout by water, fuels, oils and solvents

These greases lubricate over a wide temperature range. *MOLYKOTE* 3451 Chemical Resistant Bearing Grease has good life at temperatures from -40 to 450°F (-40 to 232°C); *MOLYKOTE* 3452 Chemical Resistant Valve Lubricant has a serviceable temperature range from -20 to 450°F (-29 to 232°C). Both *MOLYKOTE* 3451 Chemical Resistant Bearing Grease and *MOLYKOTE* 3452 Chemical Resistant Valve Lubricant resist deterioration by solvents, acids, chlorides and other severe chemicals as well as low-pressure steam and condensate. (See Table I.)

Bearing tests show *MOLYKOTE* 3451 Chemical Resistant Bearing Grease has good life at varying high loads and speeds.

USES

MOLYKOTE 3451 Chemical Resistant Bearing Grease

MOLYKOTE 3451 Chemical Resistant Bearing Grease is an exceptional anti-friction bearing lubricant especially designed for applications that experience a wide range of temperatures, loads and speeds. It is particularly useful in bearings exposed to harsh chemicals or solvents, bearings used at high speeds and bearings subjected to heavy loads. *MOLYKOTE* 3451 Bearing Grease can be used on:

- Chemical mixers
- Needle bearings in circuit breakers
- Pumps
- Processing equipment
- Fuel- and solvent-handling equipment
- Sealed-for-life bearings that must operate at high speeds, heavy loads, and high and low temperatures



Valves protected by MOLYKOTE 3452 Chemical Resistant Valve Lubricant show no evidence of corrosion or degradation of lubricant.

TYPICAL PROPERTIES

These values are not intended for use in preparing specifications.

| | <i>Molykote</i> 3451 Chemical Resistant Bearing Grease | <i>Molykote</i> 3452 Chemical Resistant Valve Lubricant |
|--|---|--|
| NLGI Consistency | #2 | #3 |
| Color | White | White |
| Thickener | Fluorinated polymers | Fluorinated polymers |
| ASTM D 217 Penetration, worked, 60 strokes | 275 | 270 |
| Viscosity of fluorosilicone oil at 100°F (38°C), SUS | 2295 | 46,000 |
| Service Temperature Range ¹ , °F (°C) | -40 to 450 (-40 to 232) | -20 to 450 (-31 to 232) |
| Max. Dn Value ² | 200,000 | 75,000 |
| Specific Gravity at 77°F (25°C) | 1.44 | 1.50 |
| Fed Std 791 Bleed, at 400°F (204°C), percent | 2.7 | 1.2 |
| ASTM 2265 Evaporation, at 400°F (204°C), percent | 3.7 | 1.1 |
| Dropping Point, °F (°C) | >536 (>280) | >570 (>300) |
| ASTM D 1264 Water Washout, at 175°F (80°C), percent | 0.3 | 0.1 |
| Fed Std 791a ³ 4-Ball Weld Load, Kg | 400 | 400 |
| ASTM D 1478 Low-Temperature Torque | | |
| starting, g-cm at -40°F (-40°C) | 2315 | — |
| running, g-cm after 1 hr at -40°F (-40°C) | 1960 | — |

¹Estimated service temperature range based on product formulation and laboratory testing. Actual service temperature range is dependent on other factors including the specific application environment.

²Dn value = shaft size of bearing in mm x rpm; based on estimate.

³Method 6503.

Specification Writers: Please obtain a copy of the Dow Corning Sales Specification for this product and use it as a basis for your specifications. It may be obtained from any Dow Corning Sales Office, or from Dow Corning Customer Service in Midland, MI. Call (989) 496-6000.

Table I: Chemical Resistance of *MOLYKOTE* 3451 Chemical Resistant Bearing Grease and *MOLYKOTE* 3452 Chemical Resistant Valve Lubricant

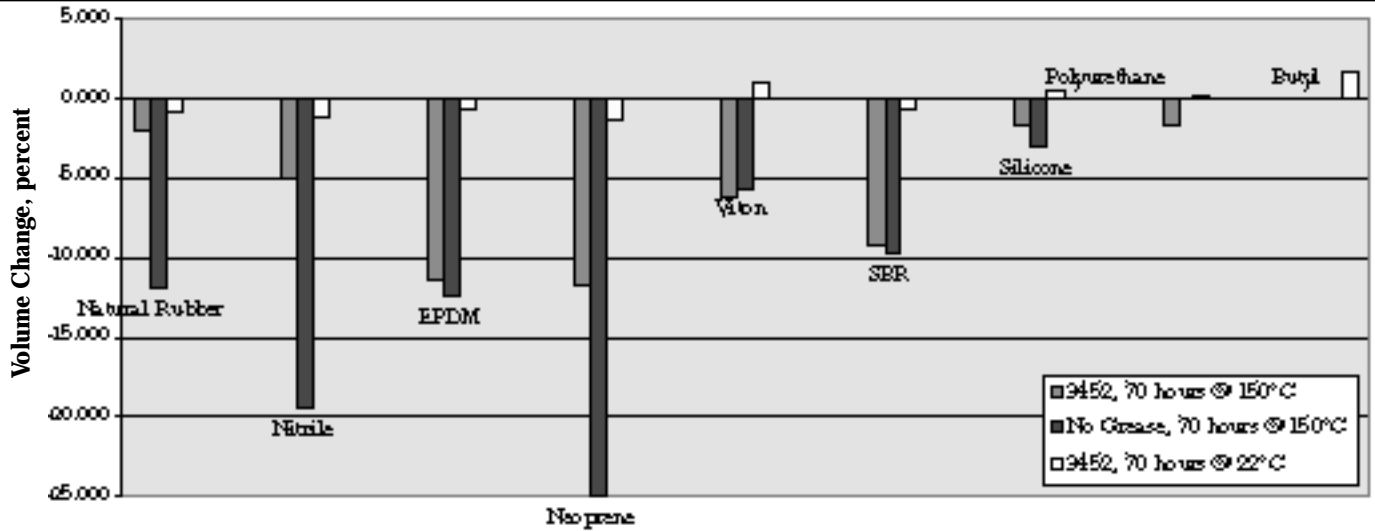
| | <i>MOLYKOTE</i> 3451 Chemical Resistant Bearing Grease | <i>MOLYKOTE</i> 3452 Chemical Resistant Valve Lubricant | Hydrocarbon Grease ² |
|--|---|--|------------------------------------|
| <u>After 24 hours at 77°F (25°C)¹</u> | | | |
| Diesel | Good ³ | Good | Poor |
| Kerosene | Good | Good | Fair |
| Silicone Fluid | Fair | Good | Poor |
| Toluene | Good | Good | Poor |
| Hexane | Fair | Fair | Poor |
| Xylene | Good | Good | Poor |
| Isopropanol | Good | Good | Fair |
| Methanol | Good | Good | Fair |
| VM&P Naphtha | Good | Good | Poor |

¹Test method – Federal Standard 791C-6.2.

²A lithium-thickened petroleum grease.

³Good – no observable effect on grease [grease slightly soft; poor adhesion]; Fair – grease very soft; cracked and poor adhesion; Poor – grease hardened or dissolved; no adhesion.

Figure 1: Percent Volume Change of Various Rubbers in *MOLYKOTE* 3452 Chemical Resistant Valve Lubricant



***MOLYKOTE* 3452 Chemical Resistant Valve Lubricant**

MOLYKOTE 3452 Chemical Resistant Valve Lubricant is an exceptional valve lubricant and sealant product particularly suited for applications where corrosive or aggressive chemicals are used. *MOLYKOTE* 3452 Valve Lubricant can be used on:

- Plug valves
- Mechanical seals and packings
- Slow-speed roller and journal bearings
- Moderate-speed ball bearings
- Instruments in high vacuum, at high temperatures and in corrosive atmospheres
- Rotary and reciprocating shaft seals
- Flexible ball joints

LIMITATIONS

MOLYKOTE 3451 Chemical Resistant Bearing Grease should not be applied to surfaces to be painted.

MOLYKOTE 3451 Chemical Resistant Bearing Grease and *MOLYKOTE* 3452 Chemical Resistant Valve Lubricant are not recommended for use with highly oxidative chemicals (liquid Cl₂ or liquid O₂, for example).

These greases are soluble in ketones such as acetone, methyl ethyl ketone and methyl isobutyl ketone.

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

HOW TO USE

Application

MOLYKOTE 3451 Chemical Resistant Bearing Grease and *MOLYKOTE* 3452 Chemical Resistant Valve Lubricant can be applied using conventional methods of grease application – brushing, grease gun or automatic applicators.

SHIPPING LIMITATIONS

None.

STORAGE AND SHELF LIFE

When stored at or below 90°F (32°C), *MOLYKOTE* 3451 Chemical Resistant Bearing Grease and *MOLYKOTE* 3452 Chemical Resistant Valve Lubricant have a shelf life of 60 months from date of manufacture.

Note: In storage, a small amount of oil may separate from *MOLYKOTE* 3451 Chemical Resistant Bearing Grease. This separation does not materially affect the lubricating qualities of the grease. Simply stir fluid back into the grease.

PACKAGING

MOLYKOTE 3451 Chemical Resistant Bearing Grease is available in tubes cartridges and pails

MOLYKOTE 3452 Chemical Resistant Valve Lubricant is available in tubes, cartridges, pails.

SAFE HANDLING INFORMATION

PRODUCT SAFETY INFORMATION REQUIRED FOR SAFE USE IS NOT INCLUDED. BEFORE HANDLING, READ PRODUCT AND MATERIAL SAFETY DATA SHEETS AND CONTAINER LABELS FOR SAFE USE, PHYSICAL AND HEALTH HAZARD INFORMATION. THE MATERIAL SAFETY DATA SHEET IS AVAILABLE FROM YOUR DOW CORNING REPRESENTATIVE, OR DISTRIBUTOR, OR BY WRITING TO DOW CORNING CUSTOMER SERVICE, OR BY CALLING (989) 496-6000.

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