



# Product Information

[www.miller-stephenson.com](http://www.miller-stephenson.com)

## TriboSys™ Advanced Medical Lubricants

**MS-3170MD Oil**  
**MS-3270MD Grease**

TriboSys™ perfluorinated oil and grease provides superior quality lubrication under extreme conditions in comparison to hydrocarbon and silicone alternatives. TriboSys™ is the lubricant of choice for medical performance and complete reliability.

**Biocompatible ISO: 10993**

### Key Benefits & Characteristics

- Nonflammable • Non-Nutrient Lubrication • Oxygen Safe • Odorless and Colorless • Chemically Inert
- Withstands all sterilization techniques • Extreme Temperature Stability

Chemical Resistance	Biocompatibility	Sterilization
TriboSys™ is a clear, colorless, fluorinated synthetic oil or grease that is nonreactive, nonflammable, safe in chemical and oxygen service and is long-lasting.	Physical, chemical and toxicological testing was done according to ISO 10993 and/or USP Class VI standards to determine the biocompatibility of our grease and oil grades.	TriboSys™ withstands all forms of hospital sterilization with no migration or lubrication degradation.

### APPLICATIONS & TECHNICAL DATA

#### Common Uses

- Single and Multi-Use Surgical Device Housings
- O-Rings
- Anesthesia Machine Parts
- Oxygen Valves
- Monitoring Devices: Housings, Covers, Pumps
- Renal Care: Blood Filter Housings, Pumps
- Fluid & Drug Delivery: Syringes, Stockcocks, Luers, ect.
- Diabetes Management: Glucose Meters, Infusion Pumps, Insulin Pens

#### Typical Requirements

- Sterilization Stability: Gamma or electron beam (e-beam) radiation; ethylene oxide (EtO) or steam autoclave
- Dimensional Stability
- Chemical Stability
- Durability/Impact Resistance
- Biocompatible Tested Grades

For technical information call 800.992.2424 or 203.743.4447  
For product sales: CT 800.442.3424, CA 800.771.8161, IL 800.447.4866, Canada 800.307.2199  
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## Typical Properties

Oil	<b>MS-3170MD</b>
Grease	<b>MS-3270MD</b>
ISO Grade of Oil <sup>1</sup>	460
Estimated Useful Range <sup>2</sup>	
°C	-30-288
°F	-22-550
Oil Viscosity, cSt	
20°C (68°F)	1535
40°C (104°F)	450
100°C (212°F)	42
204°C (400°F)	6
260°C (500°F)	3.3
Oil Viscosity Index	145
Oil Pour Point	
°C	-30
°F	-22
Oil Density, g/ml	
0°C (32°F)	1.95
100°C (212°F)	1.78
Maximum Oil Volatility, ASTM D2595	
% in 22 hr.	
121°C (250°F)	-
204C (400F)	<1
Oil Separation from Grease, ASTM D6184 wt loss, % in 30 hr	
99°C (210°F)	4
204°C (400°F)	12
Vapor Pressure Krudsen	
38C (100F) torr	6 x 10 <sup>-9</sup>
260C (500F) torr	3 x 10
38C (100F) KPa	8 x 10 <sup>-10</sup>
260C (500F) KPa	4 x 10 <sup>-5</sup>

This table gives typical properties (not specifications) based on historical production performance. Viscosity may vary within ±10%

<sup>1</sup>Approximate

<sup>2</sup>Based on pour point and where evaporation is approximately 10%.

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