



# Product Information

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

## TriboSys™ Advanced Medical Lubricants

**MS-3110MD Oil**  
**MS-3210MD 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, Stopcocks, Luers, etc.
- 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-3110MD</b>
Grease	<b>MS-3210MD</b>
ISO Grade of Oil <sup>1</sup>	7
Estimated Useful Range <sup>2</sup>	
°C	-70-104
°F	-94-220
Oil Viscosity, cSt	
20°C (68°F)	17.4
40°C (104°F)	7.8
100°C (212°F)	2
204°C (400°F)	-
260°C (500°F)	-
Oil Viscosity Index	-
Oil Pour Point	
°C	<-70
°F	<-94
Oil Density, g/ml	
0°C (32°F)	1.89
100°C (212°F)	1.70
Maximum Oil Volatility, ASTM D2595	
% in 22 hr.	
121°C (250°F)	75
204°C (400°F)	-
Oil Separation from Grease, ASTM D6184 wt loss, % in 30 hr	
99°C (210°F)	9
204°C (400°F)	-

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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