

# BIOCOMPATIBLE LUBRICANTS FOR CATHETER MOTORS

**INDUSTRY:**  
Medical

**APPLICATION:**  
Catheter Motor

**COMPONENT:**  
O-Ring

**LOCATION:**  
USA



## BACKGROUND

Lubricants for catheter mechanisms must be biocompatible in case of accidental contact with the body cavity. A medical design company specializing in Thrombectomy devices approached Nye in search of a lubricant for their aspiration catheter motor. They needed to replace a lubricant for the motor's O-ring that did not meet their biocompatibility requirements. The motor featured a mix of rotating and sliding components, was exposed to high vacuum, and featured a plastic-on-metal design.

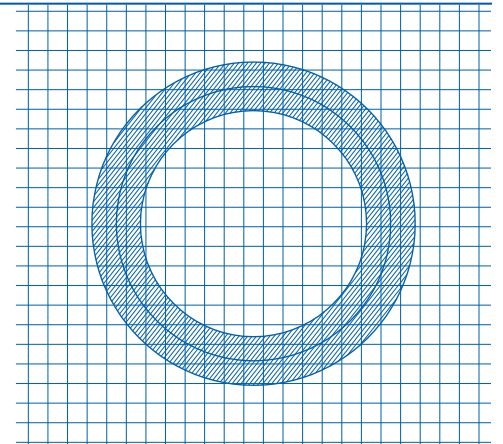
## CHALLENGE

- Can Nye provide a biocompatible, plastic-compatible lubricant that can withstand vacuum and high temperatures?

## SOLUTION

### **NYEMED<sup>®</sup> 7477 & NYEMED<sup>®</sup> 7560**

- Biocompatible per ISO 10993-5, 10993-10, and 10993-11
- Resists oxidation & moisture
- Compatible with plastics & elastomers
- Withstand vacuum conditions



## RESULTS

Nye sent the customer several samples from our NyeMed<sup>®</sup> line of biocompatible gels and fluids. The customer then conducted material compatibility and vacuum testing as well as testing to ensure the gel could withstand 10,000 rpm. Both NyeMed<sup>®</sup> 7477 and NyeMed<sup>®</sup> 7560 passed all of the customer's internal testing and was approved for use.

## Typical Properties

Base Oil Properties	Conditions	NyeMed® 7477	NyeMed® 7560	Test Method
Chemistry	–	PFPE	Synthetic Hydrocarbon	–
Temperature Range	–	-50 to 250 °C	-40 to 120 °C	–
Flash Point	–	Non-Flammable	> 310 °C	ASTM D92
Base Fluid Apparent Viscosity	25 °C	202 cP	767 cP	CTM*
	45 °C	106 cP	260 cP	CTM*
<b>Grease Properties</b>				
Apparent Viscosity (cP)	25 °C, 50/s shear rate	17,540	27,500	CTM*
Density	25 °C	1.95 g/cm <sup>3</sup>	0.88 g/cm <sup>3</sup>	CTM*
Oil Separation	24 h, 100 °C	4.6%	1.5%	ASTM D6184
Evaporation	24 h, 100 °C	0.04%	0.3%	ASTM D972

\*CTM: Nye Company Test Method

**Since 1844: Our performance is reflected in the value we bring to our customers.**

Nye Lubricants is a leader in the innovation, formulation and provision of synthetic lubricants, enabling and improving breakthrough products and critical new technologies. We bring proven experience, deep technical knowledge and customer focus to solve our customers' toughest challenges, adding tangible value to products in a wide range of industries and applications.

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