

PROTECTING TRANSISTORS IN MEDICAL DEVICES AGAINST MOISTURE

INDUSTRY:
Medical

APPLICATION:
Saline Solution IV

COMPONENT:
Transistor

LOCATION:
USA



BACKGROUND

A medical device manufacturer approached Nye in search of a lubricant for their new transistor design. The transistors within this medical device were located on a printed circuit board that was positioned next to a tube containing saline. The manufacturer was concerned that the coating on their PCB would not sufficiently prevent saline intrusion. Connector lubricants can act as a seal to keep dirt and moisture away from critical components. This customer needed a biocompatible lubricant that would seal the transistors and protect them from saline, water intrusion, and corrosion.

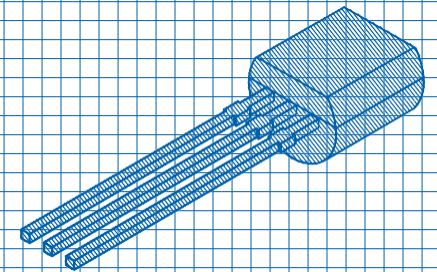
CHALLENGE

- Can the lubricant seal the transistor to keep out saline and prevent corrosion?
- Can we provide a small dispensing option for hand-held application?

SOLUTION NYEMED® 7560 10CC SYRINGE

A medium viscosity, UV-dyed, synthetic hydrocarbon grease.

- Provides an environmental seal to protect against moisture and oxidation
- Biocompatible per three ISO 10993 standards
- Does not swell most plastics and elastomers
- UV dye enhances tracing and visualization



RESULTS

Given the customer's operating conditions, Nye provided a sample of NyeMed® 7560, a biocompatible lubricant with proven success in cable and connector applications. The customer conducted stringent validation testing which included immersing the lubricant in saline. NyeMed® 7560 passed these tests, proving that our lubricant prevented corrosion, did not interfere with electric signals, and was compatible with PCB materials. The customer implemented NyeMed® 7560 in their design and remains satisfied with its performance.

Base Oil Properties	Conditions	NyeMed® 7560	Test Method
Chemistry		Synthetic Hydrocarbon	
Temperature Range		-40 to 120°C	
Base Fluid Apparent Viscosity (cP)	25°C	767	NYE CTM
	45°C	260	
Grease Properties			
Apparent Viscosity (cP)	25°C, 50/s shear rate	27,500	NYE CTM
Oil Separation	24 hrs, 100°C	1.5%	ASTM D-6184
Evaporation	24 hrs, 100°C	0.3%	ASTM D-972

Biocompatibility	Standard	Result	Meaning
Cytotoxicity L929 Agar Diffusion (Direct Contact)	ISO 10993-5	Grade 0	No Cellular Reactivity
Skin Irritation (Direct Contact)	ISO 10993-10	Primary Irritation Index 0.0	Negligible Irritant
Acute Systemic Toxicity (Direct Injection)	ISO 10993-11	Negative	Pass

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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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