



## COOLANOL

ExxonMobil Aviation, United States

### Product Description

Mobil COOLANOL™ silicate ester synthetic dielectric heat transfer fluids are designed to meet the special needs of sensitive electronic components and environmental control systems in aircraft, missiles and spacecraft.

The proven quality and reliability of Mobil COOLANOL is an important additional safeguard against costly and potentially catastrophic failure of critical airborne electrical equipment.

### Features and benefits

COOLANOL is specifically intended for liquid circulating systems (dynamic liquid phase) found in high-density electronic packages in aerospace and military applications. Such systems are in wide use because of their excellent heat transfer efficiency. COOLANOL should not be used in vaporizing (boiling liquid) systems.

- Superb High and Low Temperature Stability
- Versatile and Simple to Handle
- Manufactured under Stringent Quality Control
- Oxidative Stability
- Radiation Resistance
- Lubricity

### Applications

To select the proper COOLANOL fluid for a given application, first determine the upper and lower temperature parameters of the application.

1. Coolanol 20: (-101 - 149 °C / -150 – 300 °F)
2. Coolanol 25R: (-54 - 149 °C / -65 – 300 °F)
3. Coolanol OS-59: (-54 – 288 °C / -65 – 550 °F)

### Specifications

MIL-C-47220B (May 1985) military specification, though inactive, distinguishes five fluid types. Fluid types III and IV represent products from the family of COOLANOL fluids, as shown in Table 1.

**Table 1**

<b>MIL-C-47220B Fluid Type</b>	<b>Applicable Fluid</b>
Type III	COOLANOL OS-59
Type IV	COOLANOL 25R

Certain COOLANOL fluids relate to military contractor specifications as shown in Table 2

**Table 2**

<b>OEM Specifications</b>	<b>Applicable Fluids</b>
Boeing (McDonnell-Douglas)	
MMS-652, Rev A	COOLANOL 25R
Grumman GM 6003A, Amendment-No 1	
Type I	COOLANOL 25R
Hughes Aircraft HMS 20-1458 Rev E	COOLANOL 25R
Northrop MS-138, Rev A	COOLANOL 25R

## Technical details

### TYPICAL PHYSICAL AND CHEMICAL PROPERTIES\*

#### Mobil COOLANOL Dielectric Heat Transfer Fluids

<b>Property (Test Method), Units</b>	<b>COOLANOL 20</b>	<b>COOLANOL 25R</b>	<b>COOLANOL OS-59</b>
Fluid Operating Temperature Range per MIL-C-47220B	None applies	Type IV	Type III
Appearance (Visual)	Clear, light amber liquid	Clear, colorless to light amber liquid	Clear, colorless liquid
Specific Gravity (25/25°C, ASTM D 4052)			
Specification Limits Typical Value	0.884-0.890 0.887	0.890-0.900 0.893	0.879-0.882 0.880
Viscosity at -65°F (ASTM D 445), cSt			
Specification Limits Typical Value	≤ 60 44	≤ 275 240	≤1500 1400
Viscosity at 0°F (ASTM D 445), cSt			
Typical Value	8	23	63
Viscosity at 100°F (ASTM D 445), cSt			
Specification Limits	1.9-2.2 2.05	≤ 4.5 4.15	6.9
Typical Value			
Viscosity at 210°F (ASTM D 445), cSt			

Property (Test Method), Units	COOLANOL 20	COOLANOL 25R	COOLANOL OS-59
Specification Limits	0.88-1.0 0.94	≤ 1.53 1.62	2.25
Typical Value			
Viscosity at 40°C (ASTM D 445), cSt			
Specification Limits	1.97	≤ 4.4 3.95	≤ 7.0 6.5
Typical Value			
Viscosity at 100°C (ASTM D 445), cSt			
Specification Limits	0.93	≤ 1.5 1.60	≤ 2.1 2.20
Typical Value			
Pour Point (ASTM D 97), °F	<-100	<-90	<-85
Total Acid Number (ASTM D 664), mg KOH/g fluid			
Specification Limits	≤ To 0.15 0.02	≤ 0.10 0.01	≤ 0.05 0.03
Typical Value			
Moisture Content (Karl Fischer Titrator), ppm Specification Limits	≤ 150	≤ 100	≤ 150

## Health and Safety

Based on available toxicological information, this product is not expected to produce adverse effects on health when used and handled properly. Information on use and handling, as well as health and safety information, can be found in the Material Safety Data Sheet (MSDS) which can be obtained from your local distributor or via the Internet on <http://www.exxonmobil.com/lubes>.

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For additional technical information or to identify the nearest U.S. ExxonMobil supply source, call 1800 662-4525.

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Due to continual product research and development, the information contained herein is subject to change without notification. Typical Properties may vary slightly.

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