

SafetyCool® SC-100 Dielectric Coolant

Heat Transfer Fluid for Direct-to-Chip and Cold-Plate Cooling Systems

SafetyCool SC-100 is a low-viscosity dielectric heat transfer fluid engineered specifically for use in sealed, closed-loop cooling systems utilizing cold-plates and other indirect forms of thermal transfer. SC-100's low viscosity allows efficient circulation through micro channel cold plates, manifolds and heat exchangers. It efficiently and safely removes heat from high-power electronic devices without the inherent risks of leaks and arcing associated with water and conductive glycol solutions. While SC-100 is dielectric, it is not intended for full-immersion cooling due to its vapor pressure.

Key Features:

- **Low Viscosity and Efficient Heat Transfer:** Supports high flow rates, rapid heat removal and reduced pumping energy in micro-channel cold plates and compact coolant loops.
- **Dielectric Protection:** Provides an electrically non-conductive coolant protecting electronics and people from arcing and associated dangers of water and coolant leaks, while eliminating the complex maintenance requirements of deionized water.
- **Non-Toxic, Biodegradable, Global Warming Potential = 0**
- **User Safety:** Non-allergenic. Can be used without extensive personal protective equipment
- **Exceptional Oxidation Stability in Use:** 10-Year Service Life
- **High-Purity Synthetic Hydrocarbon Chemistry** for clean, stable operation.
- **Wide Fluid Operating Range:** Maintains fluidity at very low temperatures while providing a high boiling point for demanding thermal environments.
- **Water-Free and Glycol-Free:** Eliminates electrical conductivity and corrosion concerns associated with water-based coolants.
- **Serviceable and Recoverable:** Can be sampled, tested, filtered and reprocessed to support long equipment life and controlled maintenance.
- **No Sulfur. No Phosphates. No PFAS.**
- **Food Grade Certified in both USA and Europe**
- **Material Compatibility Warranty**



Nonfood Compounds
FOOD GRADE HT-1

Applications: SC-100 is designed specifically for pumped, closed-loop thermal management systems in which coolant flows through direct-to-chip cold plates or other liquid-cooled heat exchangers. Its dielectric properties provide an additional margin of electrical protection where coolant lines, fittings and cold plates operate within or close to the energized hardware.

Typical SC-100 closed-loop cooling applications include:

- **High-Performance Computing:** CPU, GPU, FPGA direct-to-chip cold plates
- **Microwave and RF Systems:** Power amplifiers, transmitters, radar modules and phased-array electronics
- **Power Electronics:** Inverters, converters, power supplies, motor drives and charging systems
- **Optical and Semiconductor Equipment:** LASER systems, photonics, inspection and process equipment
- **Defense, Aerospace and Industrial Systems:** Ruggedized electronics requiring sealed, non-aqueous cooling loops

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CHARACTERISTICS OF SAFETYCOOL DIELECTRIC COOLANT

Product ID	SC-100
Typical Application	Ultra Low viscosity Dielectric Heat Transfer Fluid for closed system circulation
Appearance	Clear
Fluid Behavior	Non-Compressible, Isotropic, Newtonian
Dielectric Strength	>40kV
Resistivity (ohm-cm)	>1x10 ¹²
Dielectric Constant	2.1
Refractive Index n _D ²⁰	1.46
Pour Point (°C)	-50
TCC Flash Point (°C)	98
ISO 4460 Particle Cnt.	10/10/2012
Density, g/cc @ 16°C	0.77
Coefficient of Thermal Expansion, volume/°C	0.0006
Kinematic 25°C	3.7
Viscosity 40°C	2.2
(cSt) 60°C	1.5
Thermal 25°C	0.130
Conductivity 40°C	0.128
(W/m*K) 60°C	0.126
Specific 25°C	2.05
Heat 40°C	2.13
(kJ/kg°C) 60°C	2.21
Global Warming Potential	0
Biodegradability	>70%
Materials Compatibility Warranty	Yes
Product Operational Warranties (Yrs) ¹	0, 5, 10
Shelf Life (Yrs) ²	25

Composition:

SC-100 is formulated from high-purity synthetic hydrocarbons. It is manufactured at Engineered Fluids' ISO 9001-certified facilities under controlled synthesis and testing procedures. Product characteristics are verified before shipment, with a Certificate of Analysis available for each batch.

System Design:

SC-100 systems should use pumps, micro-channel cold plates, seals, hoses, manifolds and heat exchangers selected for hydrocarbon service. Material compatibility and operating limits should be confirmed for each system design. Contact Engineered Fluids for application review and current compatibility guidance.

Recycling, Reprocessing and Disposal:

Engineered Fluids offers a full range of laboratory testing, maintenance, recycling, reprocessing and disposal services for all of its Dielectric Coolants. This includes our unique 100% closed-cycle Coolant Collection and Reprocessing Program, eliminating waste and enabling 100% environmentally friendly operations. Contact your Engineered Fluids representative for more information.

1) Biodegradation is stated for a 28-Day Test Period. Biodegradation continues to occur after the initial test period.

2) See product specific warranty statement for terms and conditions.

3) Shelf-Life duration is stated for an original sealed steel container, Shelf-life period is included in the warranty period.

Need more information? Please contact us at
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Manufactured in
the United States

