AmpCool® AC-100 Series Dielectric Coolants

Heat Transfer Fluids for Immersive Cooling of Batteries, Chargers, Inverters and Electronics

AmpCool AC-100 Single-phase Liquid Immersion Coolants are the highest performance, biodegradable, non-toxic, dielectric heat transfer fluids available for Thermal Management of batteries, chargers, inverters, and associated electronics. AmpCool Coolants are fire resistant and non-propagating in case of thermal runaway. AmpCool AC-100 Coolants are the only coolants made specifically for use in grid storage, fixed, mobile and vehicular applications. AmpCool features the broadest material compatibility index, highest dielectric strength, zero environmental impact, and best health and safety ratings available.

Key Features:

- **High Dielectric Strength and Excellent Heat Transfer:** Ideal for Immersion Cooling of mobile and stationary batteries, motors, and charging systems.
- **Fire Resistant and Non-Propagating**: Higher flashpoints provide a significant safety margin**.**
- **Non-Toxic, Biodegradable, Global Warming Potential = 0**
- **No Sulfur. No Phosphates. No PFAS.**
- **Food Grade Certified in US and Europe**
- **Material Compatibility Warranty**
- **Exceptional Oxidation Stability in Use:** 10-Year Service Life
- **User Safety:** Non-allergenic. Can be used without extensive personal protective equipment
- **Leak-Detection UV Dye Available.**

Composition: is made from synthetic hydrocarbons at Engineered Fluids' ISO 9001-Certified manufacturing facilities in Tyler, Texas USA from US sourced raw materials. AmpCool Coolants are made under the tightest manufacturing controls; characteristics are stringently tested and verified before shipment with a certificate of analysis available for all products.

Applications: Thermal management of battery modules and charging systems by Immersion Cooling. AmpCool Coolants are used in mobile and stationary applications AmpCool products have extremely low vapor pressure, and can be used in high altitude applications:

- **Mobile Batteries for Electric Vehicles**
- **Stationary Battery Modules for Grid Storage (BESS)**
- **Charging Systems**

Efficient and effective heat removal coupled with exceptional material compatibility makes AmpCool Dielectric Coolants the ideal choice for green, low impact, high-performance electrical cooling solutions, dramatically increasing device reliability and longevity.

Recycling, Recovery, Reprocessing and Disposal:
Engineered Fluids offers a full range of laboratory testing, maintenance, recycling, reprocessing and disposal services for all its Dielectric Coolants. This includes a100% closed-cycle Coolant Collection and Reprocessing Program, eliminating waste and enabling 100% environmentally friendly operations. Contact your Engineered Fluids representative for more information.

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CHARACTERISTICS OF AMPCOOL AC-100 DIELECTRIC COOLANTS

Product ID	AC-110	AC-120	AC-122	AC-130	AC-140
Typical Application	General purpose battery and charger cooling	High performance low viscosity, battery, and charger cable cooling	Very Low Temperature Applications	Cooling of high temperature inverters, chargers, and generators	High fire resistance battery and charger cooling
Appearance	Clear				
Fluid Behavior	Non-Compressible, Isotropic, Newtonian				
Dielectric Strength[1]	>60kV				
Vol. Resistivity (ohm-cm)	$>1x10^{14}$				
Dielectric Constant	2.080	2.100	2.100	2.100	2.220
Refractive Index n_D^{20}	1.441	1.453	1.422	1.448	1.462
Pour Point (^oC)	-57	-62	-66	-49	-52
Flash Point (^oC)	193	228	163	268	280
ISO 4406 Particle Count	19/17/14	19/17/14	19/17/14	19/17/14	19/17/14
Total Sulfur (ppm)	0	0	0	0	0
Density, g/cc @ 15.6^oC	0.82	0.82	0.79	0.82	0.84
Coefficient of Thermal Expansion, volume/^oC	0.00067	0.00065	0.00066	0.00065	0.00063
Kinematic Viscosity (cSt) 0^oC	41.10	109.4	18.99	288.0	794.61
40^oC	8.11	16.00	5.02	36.10	67.00
100^oC	2.22	3.60	1.70	6.80	9.53
Thermal Conductivity (W/m*K) 0^oC	0.1382	0.1478	0.1383	0.1518	0.1600
40^oC	0.1359	0.1459	0.1359	0.1508	0.1584
100^oC	0.1325	0.1430	0.1325	0.1495	0.1561
Specific Heat (kJ/kg*C) 0^oC	2.0608	2.0575	2060.8	2.0502	2.0460
40^oC	2.2121	2.2060	2212.1	2.2030	2.1912
100^oC	2.4390	2.4288	2439.0	2.4180	2.4090
Boiling Point:	None				
Global Warming Potential	0	0	0	0	0
Ultimate Biodegradability[2]	>95%	>70%	>95%	>61%	>50%
Materials Compatibility Warranty	Yes	Yes	Yes	Yes	Yes
Product Operational Warranties (Yrs)[3]	0, 5, 10	0, 5, 10	0,5,10	0,5,10	0, 5, 10
Shelf Life (Yrs) [3]	25	25	25	25	25

1) *Dielectric Strength is measured using ASTM D1816 method with 2mm electrode gap*
2) *Biodegradation is stated for a 28-Day Test Period. Biodegradation continues to occur after the initial test period.*
3) *See product specific warranty statement for terms and conditions. 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 on sales@engineeredfluids.com or +1.725.218.1980

Manufactured in the United States

Engineered Fluids, Inc.