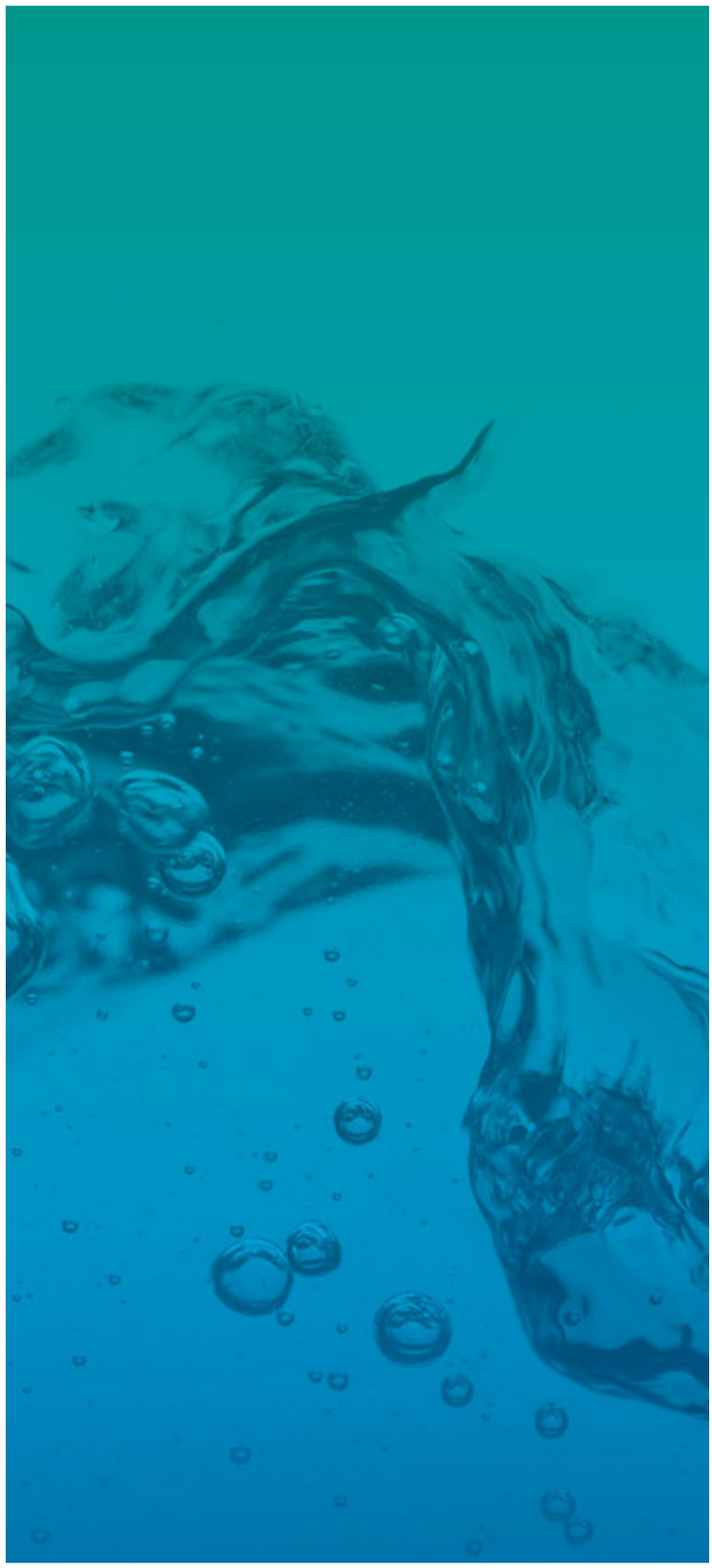
MIVOLT®

LIQUID IMMERSION COOLING



Low pour point
Low viscosity
Biodegradable
Non-volatile
Halogen free
Non-toxic

DF7 Dielectric Liquid

Technical Brochure

INTRODUCING MIVOLT DF7

A new, immersive approach to cooling electrical systems.

MIVOLT DF7 is a new liquid for the immersive cooling of electrical systems. The unique chemistry of MIVOLT DF7 allows it to act as a dielectric coolant, removing heat directly from all areas of a component. Not only does this liquid have low viscosity and biodegradable status, but as a single phase coolant it does not require any of the complex systems necessary to evaporate and condense multiphase fluids.

Key Features:

- Extremely low pour point -75°C
- Low viscosity
- Biodegradable
- Non-volatile
- Halogen free
- Non-toxic

MIVOLT DF7 PROPERTIES

Thermal Properties	Units	Method	MIVOLT DF7
Density at 20°C	kg/m³	ISO 3675	916
Specific Heat at 20°C	J/kg-K	ASTM E1269	1907
Kinematic Viscosity at 20°C	mm2/s	ISO 3104	16.4
Thermal Conductivity at 20°C	W/m-K	ASTM D7896	0.129
Coefficient of Expansion at 20°C	1/K	ASTM D1903	0.00080
Cold Behaviour			
Kinematic Viscosity at -10°C	mm²/s	ISO 3104	87.4
Kinematic Viscosity at -30°C	mm²/s	ISO 3104	534
Pour Point	°C	ISO 3016	-75
Fire Safety			
Flash Point	°C	ISO 2719	194
Fire Point	°C	ISO 2592	218
Auto-Ignition Temperature	°C	ASTM E659	385
Environmental Impact			
Biodegradability		OECD 301	Biodegradable
Global Warming Potential	GWP		<1
Ozone Depleting Potential	ODP		0
Chemical Properties			
Neutralisation Value	mg KOH/g	IEC 62021-2	<0.03
Net Calorific Value	MJ/kg	ASTM D 240-02	33.5
Dielectric Properties			
AC Breakdown Voltage	kV	IEC 60156	>75
Volume Resistivity at 20°C	GΩ.m	IEC 60247	>90

MIVOLT DF7 MATERIALS COMPATIBLITY

Based upon testing with ester based dielectric liquids.

Application	Compatible Materials
Seals and 'O' Rings	Nitrile Rubber (BS2751), Silicone Rubber, Polyurethane Rubber, Fluorocarbon Rubber (Viton), PTFE (Teflon), Nylon
Gaskets and Jointings	Cork Bonded with Nitrile (Nebar Grey & Nebar Purple) / Cork Bonded with Neoprene Rubber (Nebar White and Nebar
Wire and Wire Enamels	Polyesterimide / Polyamide-imide Coated Copper (Synflex), Polyester, Epoxy, Polyurethane
Tank Enamels	Alkyd, Polyurethane Modified Alkyd, Polyurethane, Epoxy
Insulating Varnishes	Alkyd, Acrylic, Epoxy, Polyurethane, Polyimide
Metals	Copper, Phosphor Bronze, Aluminium, Iron, Brass, Zinc Plated Steel Epoxy / Glass, Silicone Glass, Polyurethane / Glass, Polyester / Glass, Silicone Coated Glass Braided Sleeving (SCGB)
Sleevings	Epoxy / Glass, Silicone Glass, Polyurethane / Glass, Polyester / Glass, Silicone Coated Glass Braided Sleeving (SCGB)
Plastics / Sheet	boPET (Mylar), Cellulose Triacetate, Polyester (Melinex), Cotton / Epoxy Resin (TUFNOL 4F / 45), Cotton / Phenolic Resin (TUFNOL CARP), PVC Sheet (Sika-Trocal), Glass / Epoxy Resin (HGW), Polyetheretherketone Film (APTIV Grade 1000), Polymethyl Methacrylate (Perspex), Polycarbonate, Polypropylene, Polythene, Fibre Reinforced Epoxy Glass (FRP), Acetal Copolymer (Ertacetal C), Close Cell Polymethacrylimide (PMI) Foam, Polyvinyl Alcohol (PVA)
Cable	Fluoropolymer (Raychem Flexlite), PVC (Soflex TQ), Cross Linked Modified Polyester (Raychem 99M)
Hose	Goodyear SAE J30R3 (inner only compatible), Gates Premoflex, Trelleborg Chemikler D-UPE (inner only compatible)
Adhesives / Sealants	Bisphenol F-Epoxy Resin (Araldite 2014), Dimethacrylate Ester (Loctite 601), Silicone Sealant (loctite 5920), Gum Arabic Adhesive
Miscellaneous	Kraft Paper, Aramind Paper (Nomex), Pressboard, Phenolic Paper Laminate, Porcelain, Cotton Tape, Mica Insulation (Mica), Polyurethane Casting Resin, Diamond Patterned Epoxy Paper, Elephantide, Plywood, PVC Cable Sheathing

ENVIRONMENTAL HEALTH & SAFETY

We advise that you read through the MIVOLT DF7 Material Safety Data Sheet (MSDS) before using this product, which contains specific handling and storage instructions.

Please contact our technical team to request an MSDS, or alternatively, please visit the MIVOLT website where you will be able to download a copy.

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