MIDEL 7131 Materials Compatibility

As a general rule, materials that are used in the manufacture of standard mineral oil-filled transformers are compatible with MIDEL 7131.

The technical department at M&I Materials Limited are continuously testing the compatibility of MIDEL 7131 with commonly used transformer materials, as well as some ancillary materials such as hoses and adhesives.

This page lists by application the materials which have been tested and are thus considered compatible with MIDEL 7131.

It also draws attention to materials which are considered incompatible or are recommended for use only in particular circumstances. For example neoprene rubber may be used as a binder in cork composites but should not be used on its own. The list is not exhaustive and is intended for guidance only.

Materials are listed by type but within a specific type there may be available several proprietary formulations. The response of different formulations to MIDEL 7131 may vary according to the additives used. This applies particularly to elastomers and polymers.

It is strongly recommended that if a material not listed is critical to equipment performance the manufacturer should be consulted and tests carried out. We would be pleased to liaise with the manufacturer and if necessary carry out tests ourselves.

Application	Compatible Materials
Seals and 'O' Rings	Nitrile Rubber (BS2751)[1], 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[2] (Nebar White and Nebar Orange), Cork Bonded with Nitrile / Chloroprene (WCL TD1120), Frenzelit Gaskets
Wire and Wire Enamels	Polyesterimide / Polyamidimide Coated Copper (Synflex), Polyester, Epoxy, Polyurethane
Tank Enamels[3]	Alkyd, Polyurethane Modified Alkyd, Polyurethane, Epoxy
Insulating Varnishes	Alkyd, Acrylic, Epoxy, Polyurethane, Polyimide
Plastics / Sheet	boPET (Mylar), Cellulose Triacetate, Polyester (Melinex), Cotton / Epoxy Resin (TUFNOL 4F / 45), Cotton / Phenolic Resin (TUFNOL CARP), PVC Sheet[4] (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, Polyviny Alcohol (PVA)
	Epoxy / Glass, Silicone Glass, Polyurethane / Glass, Polyester / Glass,

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PRODUCTS & PROPERTIES
MIDEL 7131
- FIRE SAFETY
- ASSET LIFE EXTENSION
- ENVIRONMENTAL PROTECTION
- MOISTURE TOLERANT
- HIGH PERFORMANCE
- LOW MAINTENANCE
- THERMAL PROPERTIES OF MIDEL 7131
--- KINEMATIC VISCOSITY
--- DENSITY
--- SPECIFIC HEAT
--- THERMAL CONDUCTIVITY
--- THERMAL EXPANSION COEFFICIENT
- MIDEL 7131 MATERIALS COMPATIBILITY
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Sleevings	Silicone Coated Glass Braided Sleeving (SCGB)
Metals	Copper, Phosphor Bronze, Aluminium, Iron, Brass, Zinc Plated Steel[5]
Cable	Fluoropolymer (Raychem Flexlite), PVC[4] (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, Aramid Paper (Nomex), Pressboard[6],Phenolic Paper Laminate, Porcelain, Cotton Tape, Mica Insulation (Mica), Polyurethane Casting Resin, Diamond Patterned Epoxy Paper, Elephantide, Plywood, PVC Cable Sheathing[4]

1. Nitrile rubber is produced in many grades, some of which may contain additives or binders which are not compatible with MIDEL 7131, For this reason it is recommmended that customers use BS2751 Nitrile.

2. Neoprene Rubber is an acceptable binder for cork but should not be used on its own. EPDM is plasticised by both mineral oil and MIDEL 7131, and so should be avoided in immersion conditions.

3. Tank Enamels based on natural resins (solvented in IMS), although resistant to MIDEL 7131, may leach out acidity on ageing.

4. PVC may release plasticisers into MIDEL 7131 and after prolonged immersion become brittle.

5. Zinc Plated Steel components are not recommended apart from small fasteners. Chromate passivation, although unaffected by MIDEL 7131, will break down at normal transformer operating temperatures and ideally should not be used.

6. Certain papers and pressboards may release dye into MIDEL 7131. This has not been found to adversely affect MIDEL 7131 or its insulation properties.

Application	Incompatible Materials
Rubber and Plastics	EPDM, Neoprene Rubber, Natural Rubber, Polychloroprene, Polystyrene, Cross Linked Polyethylene (XLPE)
Hose	Cross Linked Polyolefin (Raychem ZHTM), AQP Elastomer (Aeroquip FC332AQP), Elastomer (Raychem DR-25-1-0-SP), UV Stabilised Polyolefin (Raychem HX-SCE)
Sealant	Low Modulus Silicone (Bostik Bond-Flex)
Miscellaneous	Ethylene Propylene Rubber (Self Amalgamating Tape)

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