

Crastin® 6130 NC010

THERMOPLASTIC POLYESTER RESIN

Common features of Crastin® thermoplastic polyester resin include mechanical and physical properties such as stiffness and toughness, heat resistance, friction and wear resistance, excellent surface finishes and good colourability. Crastin® thermoplastic polyester resin has excellent electrical insulation characteristics and high arc-resistant grades are available. Many flame retardant grades have UL recognition (class V-0). Crastin® thermoplastic polyester resin typically has high chemical and heat ageing resistance.

The good melt stability of Crastin® thermoplastic polyester resin normally enables the recycling of properly handled production waste.

If recycling is not possible, we recommend, as the preferred option, incineration with energy recovery (-24 kJ/g of base polymer) in appropriately equipped installations. For disposal, local regulations have to be observed.

Crastin® thermoplastic polyester resin typically is used in demanding applications in the electronics, electrical, automotive, mechanical engineering, chemical, domestic appliances and sporting goods industry.

Crastin® 6130 NC010 is an unreinforced, medium high viscosity polybutylene terephthalate resin for extrusion and injection moulding.

Product information

Resin Identification	PBT	ISO 1043
Part Marking Code	>PBT<	ISO 11469

Rheological properties

Melt volume-flow rate	14 cm ³ /10min	ISO 1133
Melt mass-flow rate	16 g/10min	ISO 1133
Temperature	250 °C	
Load	2.16 kg	
Melt mass-flow rate, Temperature	250 °C	
Melt mass-flow rate, Load	2.16 kg	
Viscosity number	130 cm ³ /g	ISO 307, 1157, 1628
Intrinsic viscosity	1.1	ISO 307, 1157, 1628
Moulding shrinkage, parallel	1.7 %	ISO 294-4, 2577
Moulding shrinkage, normal	1.7 %	ISO 294-4, 2577
Postmoulding shrinkage, normal, 48h at 80 °C	0.5 %	ISO 294-4
Postmoulding shrinkage, parallel, 48h at 80 °C	0.4 %	ISO 294-4

Typical mechanical properties

Tensile Modulus	2600 MPa	ISO 527-1/-2
Yield stress, 50mm/min	59 MPa	ISO 527-1/-2
Yield strain, 50mm/min	8 %	ISO 527-1/-2
Nominal strain at break	50 %	ISO 527-1/-2
Strain at break, 50mm/min	110 %	ISO 527-1/-2
Charpy notched impact strength, 23 °C	5 kJ/m ²	ISO 179/1eA
Charpy notched impact strength, -30 °C	4.5 kJ/m ²	ISO 179/1eA



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Izod notched impact strength, 23°C
Poisson's ratio

4 kJ/m²
0.38

ISO 180/1A

Thermal properties

Melting temperature, 10°C/min
Glass transition temperature, 10°C/min
Temp. of deflection under load, 1.8 MPa
Temp. of deflection under load, 1.8 MPa, annealed
Temp. of deflection under load, 0.45 MPa
Temp. of deflection under load, 0.45 MPa, annealed
Coeff. of linear therm. expansion, parallel
Coeff. of linear therm. expansion, normal
Thermal conductivity of melt
Spec. heat capacity of melt
RTI, electrical, 0.75mm
RTI, electrical, 1.5mm
RTI, electrical, 3mm
RTI, impact, 0.75mm
RTI, impact, 1.5mm
RTI, impact, 3mm
RTI, strength, 0.75mm
RTI, strength, 1.5mm
RTI, strength, 3mm

225 °C
55 °C
50 °C
60 °C
115 °C
180 °C
108 E-6/K
144 E-6/K
0.25 W/(m K)
2050 J/(kg K)
75 °C
75 °C
75 °C
75 °C
75 °C
75 °C
75 °C
75 °C
75 °C
75 °C

ISO 11357-1/-3
ISO 11357-1/-3
ISO 75-1/-2
ISO 75-1/-2
ISO 75-1/-2
ISO 75-1/-2
ISO 11359-1/-2
ISO 11359-1/-2
Internal
Internal
UL 746B
UL 746B
UL 746B
UL 746B
UL 746B
UL 746B
UL 746B
UL 746B
UL 746B
UL 746B

Flammability

Burning Behav. at 1.5mm nom. thickn.
Thickness tested
UL recognition
Burning Behav. at thickness h
Thickness tested
UL recognition
Oxygen index
FMVSS Class
Burning rate, Thickness 1 mm

HB class
1.5 mm
yes
HB class
0.81 mm
yes
22 %
B
<80 mm/min

UL 94
UL 94
UL 94
UL 94
UL 94
UL 94
ISO 4589-1/-2
ISO 3795 (FMVSS 302)
ISO 3795 (FMVSS 302)

Electrical properties

Relative permittivity, 1MHz
Volume resistivity
Electric strength
Comparative tracking index

3.2
>1E13 Ohm.m
26 kV/mm
600

IEC 62631-2-1
IEC 62631-3-1
IEC 60243-1
IEC 60112



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Other properties

Density	1300 kg/m ³	ISO 1183
Density of melt	1110 kg/m ³	Internal

VDA Properties

Fogging, G-value (condensate)	0.1 mg	ISO 6452
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Injection

Drying Recommended	yes	
Drying Temperature	120 °C	
Drying Time, Dehumidified Dryer	2 - 4 h	
Processing Moisture Content	≤0.04 %	
Melt Temperature Optimum	250 °C	Internal
Min. melt temperature	240 °C	
Max. melt temperature	260 °C	
Mold Temperature Optimum	80 °C	
Min. mould temperature	30 °C	
Max. mould temperature	130 °C	
Hold pressure range	≥60 MPa	
Hold pressure time	4 s/mm	
Back pressure	As low as possible	
Ejection temperature	170 °C	Internal

Extrusion

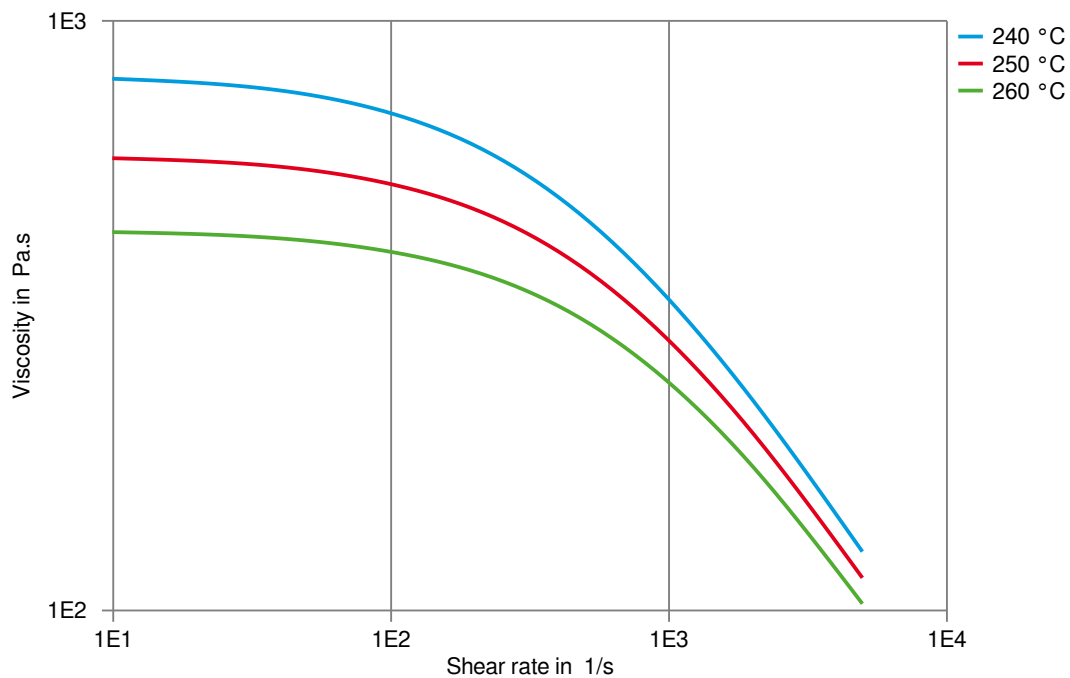
Drying Temperature	110 - 130 °C
Drying Time, Dehumidified Dryer	2 - 4 h
Processing Moisture Content	≤0.04 %
Melt Temperature Optimum	250 °C
Melt Temperature Range	240 - 260 °C



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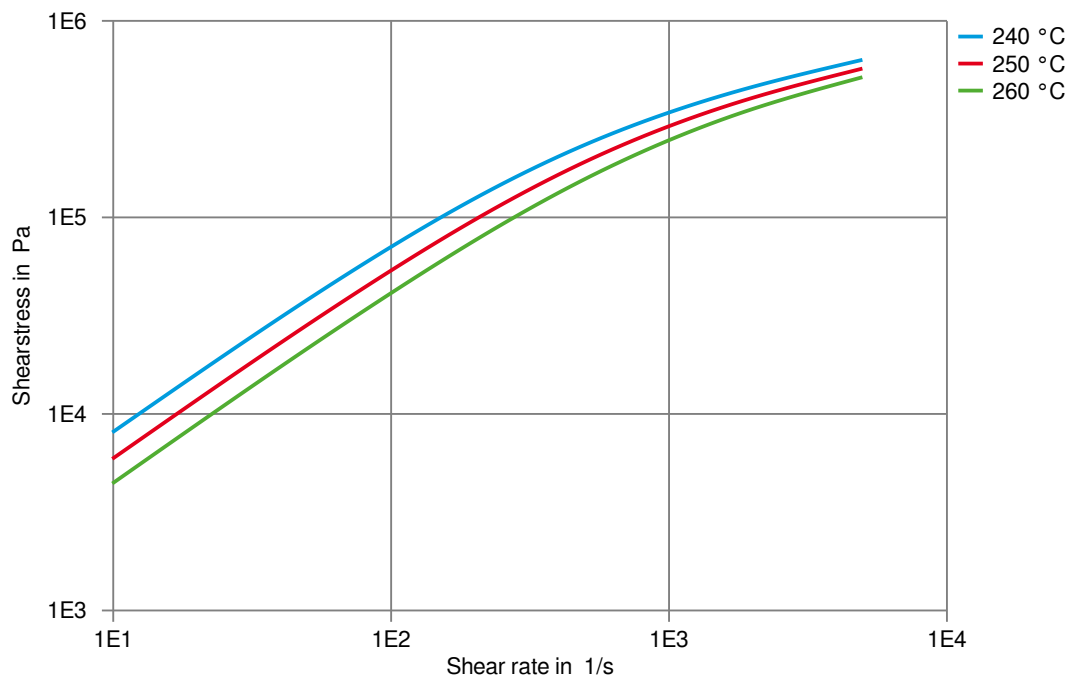
Viscosity-shear rate



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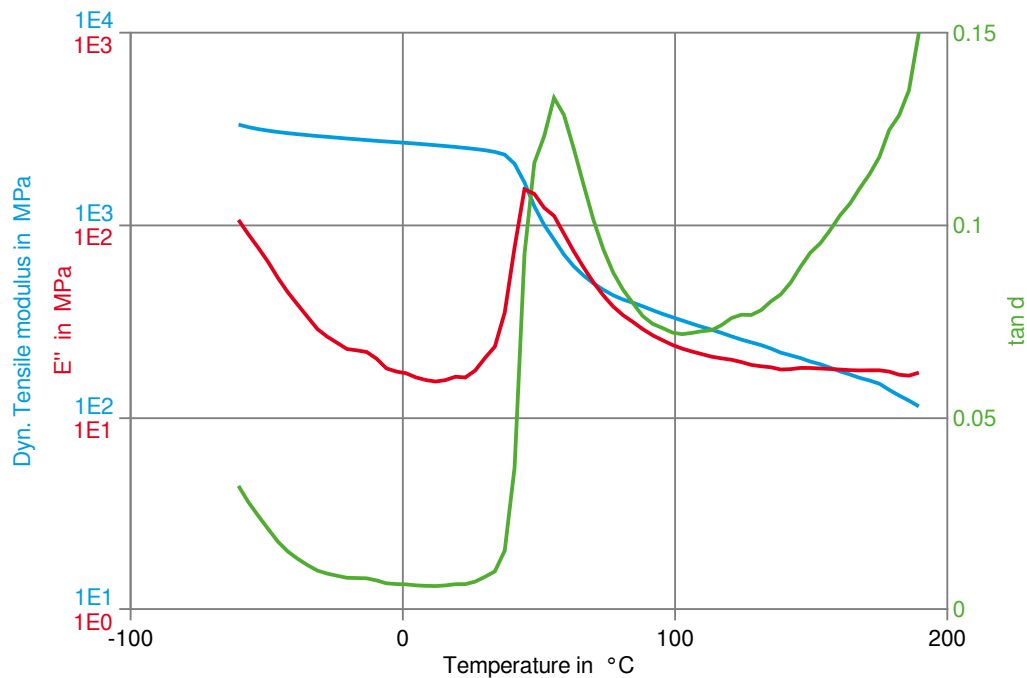
Shearstress-shear rate



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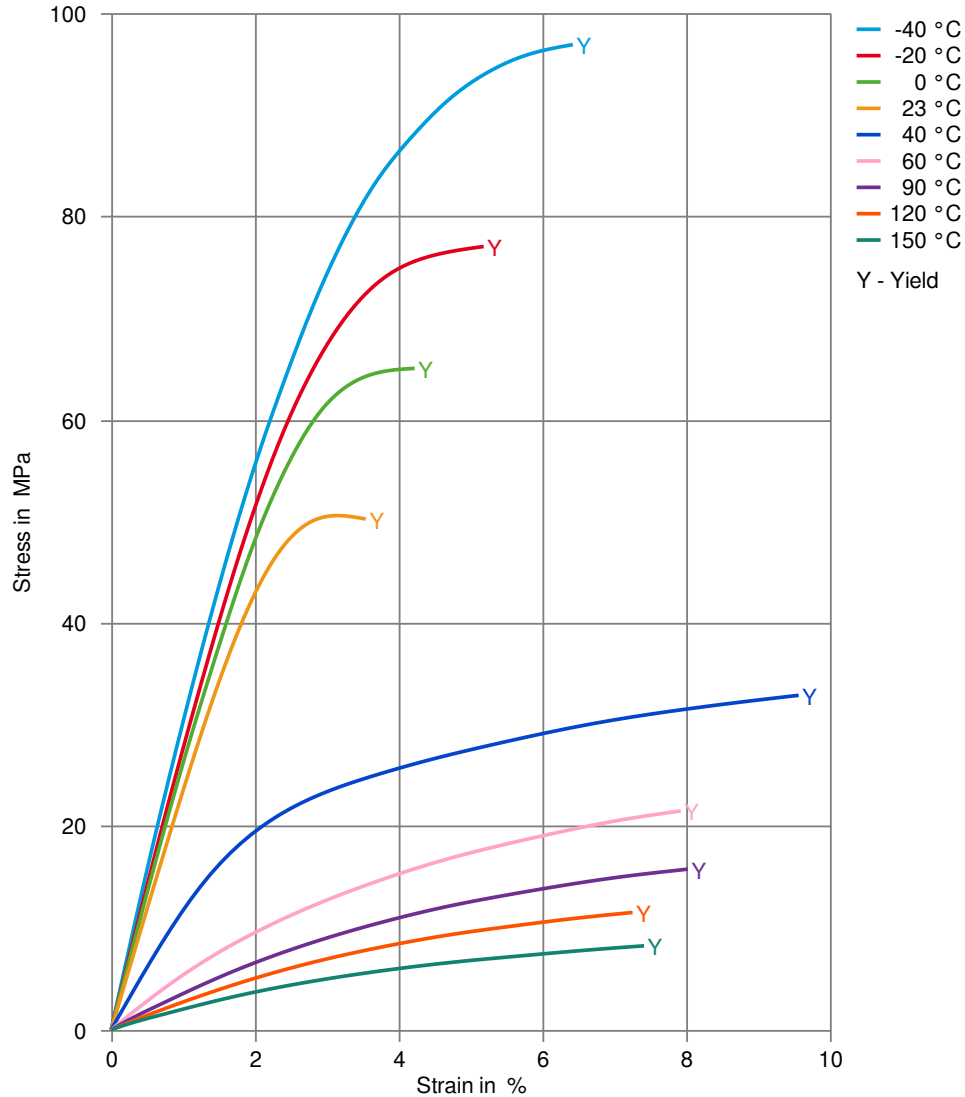
Dynamic Tensile modulus-temperature
(measured on Crastin® S600F20 NC010)



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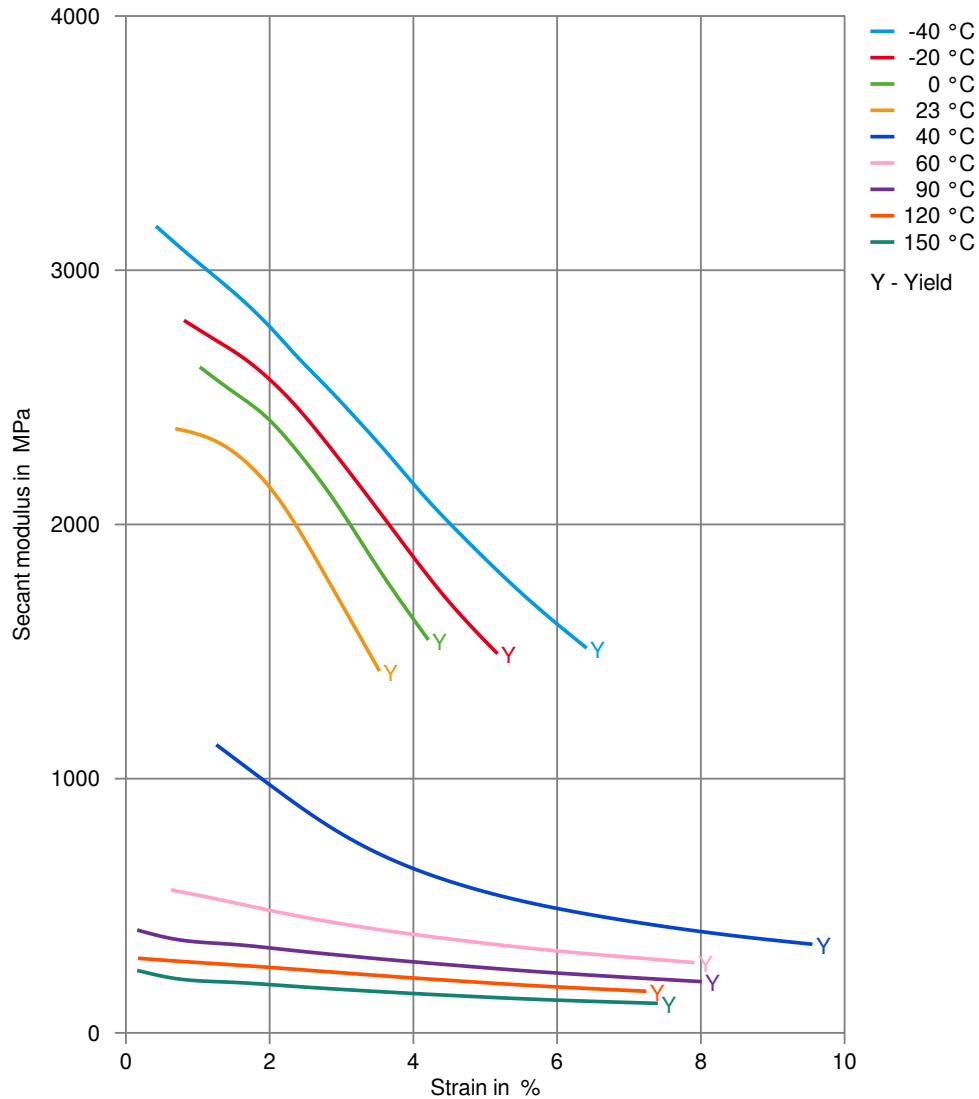
Stress-strain
(measured on Crastin® 6129 NC010)



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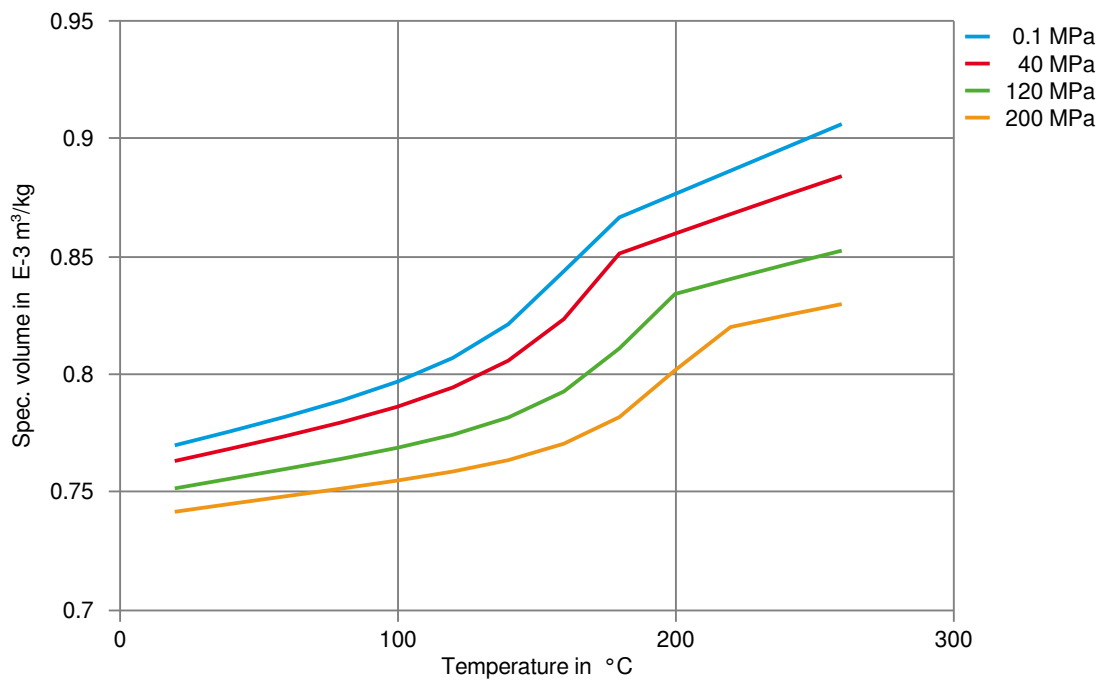
Secant modulus-strain
(measured on Crastin® 6129 NC010)



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Specific volume-temperature (pvT)



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Chemical Media Resistance

Acids

- ✓ Acetic Acid (5% by mass), 23°C
- ✓ Citric Acid solution (10% by mass), 23°C
- ✓ Lactic Acid (10% by mass), 23°C
- ✗ Hydrochloric Acid (36% by mass), 23°C
- ✗ Nitric Acid (40% by mass), 23°C
- ✗ Sulfuric Acid (38% by mass), 23°C
- ✗ Sulfuric Acid (5% by mass), 23°C
- ✗ Chromic Acid solution (40% by mass), 23°C

Bases

- ✗ Sodium Hydroxide solution (35% by mass), 23°C
- ✓ Sodium Hydroxide solution (1% by mass), 23°C
- ✓ Ammonium Hydroxide solution (10% by mass), 23°C

Alcohols

- ✓ Isopropyl alcohol, 23°C
- ✓ Methanol, 23°C
- ✓ Ethanol, 23°C

Hydrocarbons

- ✓ n-Hexane, 23°C
- ✓ Toluene, 23°C
- ✓ iso-Octane, 23°C

Ketones

- ✓ Acetone, 23°C

Ethers

- ✓ Diethyl ether, 23°C

Mineral oils

- ✓ SAE 10W40 multigrade motor oil, 23°C
- ✗ SAE 10W40 multigrade motor oil, 130°C
- ✗ SAE 80/90 hypoid-gear oil, 130°C
- ✓ Insulating Oil, 23°C

Standard Fuels

- ✗ ISO 1817 Liquid 1 - E5, 60°C
- ✗ ISO 1817 Liquid 2 - M15E4, 60°C
- ✗ ISO 1817 Liquid 3 - M3E7, 60°C
- ✗ ISO 1817 Liquid 4 - M15, 60°C
- ✗ Standard fuel without alcohol (pref. ISO 1817 Liquid C), 23°C
- ✗ Standard fuel with alcohol (pref. ISO 1817 Liquid 4), 23°C
- ✓ Diesel fuel (pref. ISO 1817 Liquid F), 23°C
- ✓ Diesel fuel (pref. ISO 1817 Liquid F), 90°C
- ✗ Diesel fuel (pref. ISO 1817 Liquid F), >90°C



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Salt solutions

- ✓ Sodium Chloride solution (10% by mass), 23°C
- ✓ Sodium Hypochlorite solution (10% by mass), 23°C
- ✓ Sodium Carbonate solution (20% by mass), 23°C
- ✓ Sodium Carbonate solution (2% by mass), 23°C
- ✓ Zinc Chloride solution (50% by mass), 23°C

Other

- ✓ Ethyl Acetate, 23°C
- ✗ Hydrogen peroxide, 23°C
- ✗ DOT No. 4 Brake fluid, 130°C
- ✗ Ethylene Glycol (50% by mass) in water, 108°C
- ✓ 1% nonylphenoxy-polyethyleneoxy ethanol in water, 23°C
- ✓ 50% Oleic acid + 50% Olive Oil, 23°C
- ✓ Water, 23°C
- ✗ Water, 90°C
- ✓ Phenol solution (5% by mass), 23°C

Symbols used:

- ✓ possibly resistant
Defined as: Supplier has sufficient indication that contact with chemical can be potentially accepted under the intended use conditions and expected service life. Criteria for assessment have to be indicated (e.g. surface aspect, volume change, property change).
- ✗ not recommended - see explanation
Defined as: Not recommended for general use. However, short-term exposure under certain restricted conditions could be acceptable (e.g. fast cleaning with thorough rinsing, spills, wiping, vapor exposure).

