# Zytel® FR70G30V0NH BK314LM

NYLON RESIN

Zytel® FR70G30V0NH BK314LM is a 30% glass fiber reinforced, heat stabilized, flame retardant polyamide 66, laser markable resin for injection molding. It is halogen and red phosphorous free.

## Product information

| | | |
|---|---|---|
| Resin Identification | PA66-GF30 FR(40) | ISO 1043 |
| Part Marking Code | >PA66-GF30 FR(40)< | ISO 11469 |

## Rheological properties

| | dry/cond. | | |
|---|---|---|---|
| Melt volume-flow rate | 32[1]/* | cm³/10min | ISO 1133 |
| Temperature | 527 / * | °F | |
| Load | 11 / * | lb | |
| Viscosity number | 3600[2]/* | in³/lb | ISO 307, 1628 |
| Molding shrinkage, parallel | 0.2 / - | % | ISO 294-4, 2577 |
| Molding shrinkage, normal | 0.9 / - | % | ISO 294-4, 2577 |

[1]: Moisture:0.04%

[2]: Sulfuric acid 96%

## Typical mechanical properties

| | dry/cond. | | |
|---|---|---|---|
| Tensile modulus | 1.48E6 / 1.09E6 | psi | ISO 527-1/-2 |
| Tensile stress at break, 5mm/min | 21000 / 14900 | psi | ISO 527-1/-2 |
| Tensile strain at break, 5mm/min | 2.3 / 4.4 | % | ISO 527-1/-2 |
| Flexural modulus | 1.57E6 / 1.13E6 | psi | ISO 178 |
| Flexural strength | 32300 / 24400 | psi | ISO 178 |
| Charpy impact strength, 23°C | 26.6 / 28.5 | ftlb/in² | ISO 179/1eU |
| Charpy impact strength, -30°C | 21.9 / 21.9 | ftlb/in² | ISO 179/1eU |
| Charpy notched impact strength, 23°C | 3.85 / 4.61 | ftlb/in² | ISO 179/1eA |
| Charpy notched impact strength, -30°C | 3.52 / 3.43 | ftlb/in² | ISO 179/1eA |

## Thermal properties

| | dry/cond. | | |
|---|---|---|---|
| Melting temperature, 10°C/min | 495 / * | °F | ISO 11357-1/-3 |
| Glass transition temperature, 10°C/min | 176 / 68 | °F | ISO 11357-1/-3 |
| Temperature of deflection under load, 1.8 MPa | 477 / * | °F | ISO 75-1/-2 |
| Coefficient of linear thermal expansion (CLTE), parallel | 0.11 / * | E-4/°F | ISO 11359-1/-2 |
| Coefficient of linear thermal expansion (CLTE), parallel, -40-23°C | 0.122 / * | E-4/°F | ISO 11359-1/-2 |
| Coefficient of linear thermal expansion (CLTE), parallel, 55-160°C | 0.0889 / * | E-4/°F | ISO 11359-1/-2 |
| Coefficient of linear thermal expansion (CLTE), normal | 0.456 / * | E-4/°F | ISO 11359-1/-2 |
| Coefficient of linear thermal expansion (CLTE), normal, -40-23°C | 0.35 / * | E-4/°F | ISO 11359-1/-2 |
| Coefficient of linear thermal expansion (CLTE), normal, 55-160°C | 0.617 / * | E-4/°F | ISO 11359-1/-2 |
| Thermal conductivity of melt | 0.25 | W/(m K) | ISO 22007-2 |

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| | | | |
|---|---|---|---|
| Specific heat capacity of melt | 2000 | J/(kg K) | ISO 22007-4 |
| RTI, electrical, 0.4mm | 284 | °F | UL 746B |
| RTI, electrical, 0.75mm | 284 | °F | UL 746B |
| RTI, electrical, 1.5mm | 284 | °F | UL 746B |
| RTI, electrical, 3.0mm | 284 | °F | UL 746B |
| RTI, impact, 0.4mm | 257 | °F | UL 746B |
| RTI, impact, 0.75mm | 257 | °F | UL 746B |
| RTI, impact, 1.5mm | 257 | °F | UL 746B |
| RTI, impact, 3.0mm | 257 | °F | UL 746B |
| RTI, strength, 0.4mm | 284 | °F | UL 746B |
| RTI, strength, 0.75mm | 284 | °F | UL 746B |
| RTI, strength, 1.5mm | 284 / * | °F | UL 746B |
| RTI, strength, 3.0mm | 284 | °F | UL 746B |
| Temperature index, tensile strength, 20 000h | 295[3] / * | °F | IEC 60216-1 |
| Temperature index, tensile strength, 5000h | 338[3] / * | °F | IEC 60216-1 |
| Thermal conductivity, in plane, in flow | 0.2[A] | W/(m K) | ASTM E 1461 |

[A]: Assessed

[3]: 3mm thickness

## Flammability

| | dry/cond. | | |
|---|---|---|---|
| Burning Behav. at 1.5mm nom. thickn. | V-0 / * | class | IEC 60695-11-10 |
| Thickness tested | 0.0591 / * | in | IEC 60695-11-10 |
| UL recognition | yes / * | | UL 94 |
| Burning Behav. at thickness h | V-0 / * | class | IEC 60695-11-10 |
| Thickness tested | 0.0157 / * | in | IEC 60695-11-10 |
| UL recognition | yes / * | | UL 94 |
| Burning Behav. 5V at thickness h | 5VA / * | class | IEC 60695-11-20 |
| Thickness tested | 0.0591 / * | in | IEC 60695-11-20 |
| UL recognition | yes / * | | UL 94 |
| Glow Wire Flammability Index, 0.75mm | 1760 / - | °F | IEC 60695-2-12 |
| Glow Wire Flammability Index, 1.5mm | 1710 / - | °F | IEC 60695-2-12 |
| Glow Wire Flammability Index, 3.0mm | 1760 / - | °F | IEC 60695-2-12 |
| Glow Wire Ignition Temperature, 0.75mm | 1340 / - | °F | IEC 60695-2-13 |
| Glow Wire Ignition Temperature, 1.5mm | 1380 / - | °F | IEC 60695-2-13 |
| Glow Wire Ignition Temperature, 3.0mm | 1470 / - | °F | IEC 60695-2-13 |
| FMVSS Class | DNI | | ISO 3795 (FMVSS 302) |

## Electrical properties

| | dry/cond. | | |
|---|---|---|---|
| Volume resistivity | >1E13 / 1E10 | Ohm.m | IEC 62631-3-1 |
| Surface resistivity | * / 1E14 | Ohm | IEC 62631-3-2 |
| Comparative tracking index | 600 / - | | IEC 60112 |
| Comparative tracking index, 23 °C | 0 / - | PLC | UL 746A |
| Electric Strength, Short Time, 1mm | 914 / - | V/mil | IEC 60243-1 |
| Dielectric Constant, 1 GHz | 3.6 / 3.9[3] | | ASTM D 2520 B |
| Dissipation Factor, 1 GHz | 125 / 346[3] | E-4 | ASTM D 2520 B |

[3]: 3mm thickness

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## Physical/Other properties

| | dry/cond. | | |
|---|---|---|---|
| Humidity absorption, 2mm | 1.8 / * | % | Sim. to ISO 62 |
| Water absorption, Immersion 24h | 2.8[4] / * | % | Sim. to ISO 62 |
| Density | 0.0516 / - | lb/in³ | ISO 1183 |

[4]: 1mm

## Injection

| | | |
|---|---|---|
| Drying Recommended | yes | |
| Drying Temperature | 176 | °F |
| Drying Time, Dehumidified Dryer | 2 - 4 | h |
| Processing Moisture Content | ≤0.1 | % |
| Melt Temperature Optimum | 536 | °F |
| Min. melt temperature | 518 | °F |
| Max. melt temperature | 554 | °F |
| Max. screw tangential speed | ≤0.2 | m/s |
| Mold Temperature Optimum | 212 | °F |
| Min. mold temperature | 158 | °F |
| Max. mold temperature | 248 | °F |
| Hold pressure range | 7250 - 14500 | psi |
| Hold pressure time | 0.0762 | s/mil |
| Hold Pressure Time<br>(h is the max. wall thickness of the part in mm) | h²+2 | s |
| Ejection temperature | 419 | °F |

## Automotive

| OEM | STANDARD | ADDITIONAL INFORMATION |
|---|---|---|
| Stellantis | B62 0300 / 61/223E-218M/C1/C4 | 01378_19_02656 |

## Characteristics

| | |
|---|---|
| Processing | Injection Molding |
| Additives | Release agent, Flame retardant, Non-halogenated/Red phosphorus free flame retardant |
| Special characteristics | Flame retardant, Laser Markable |

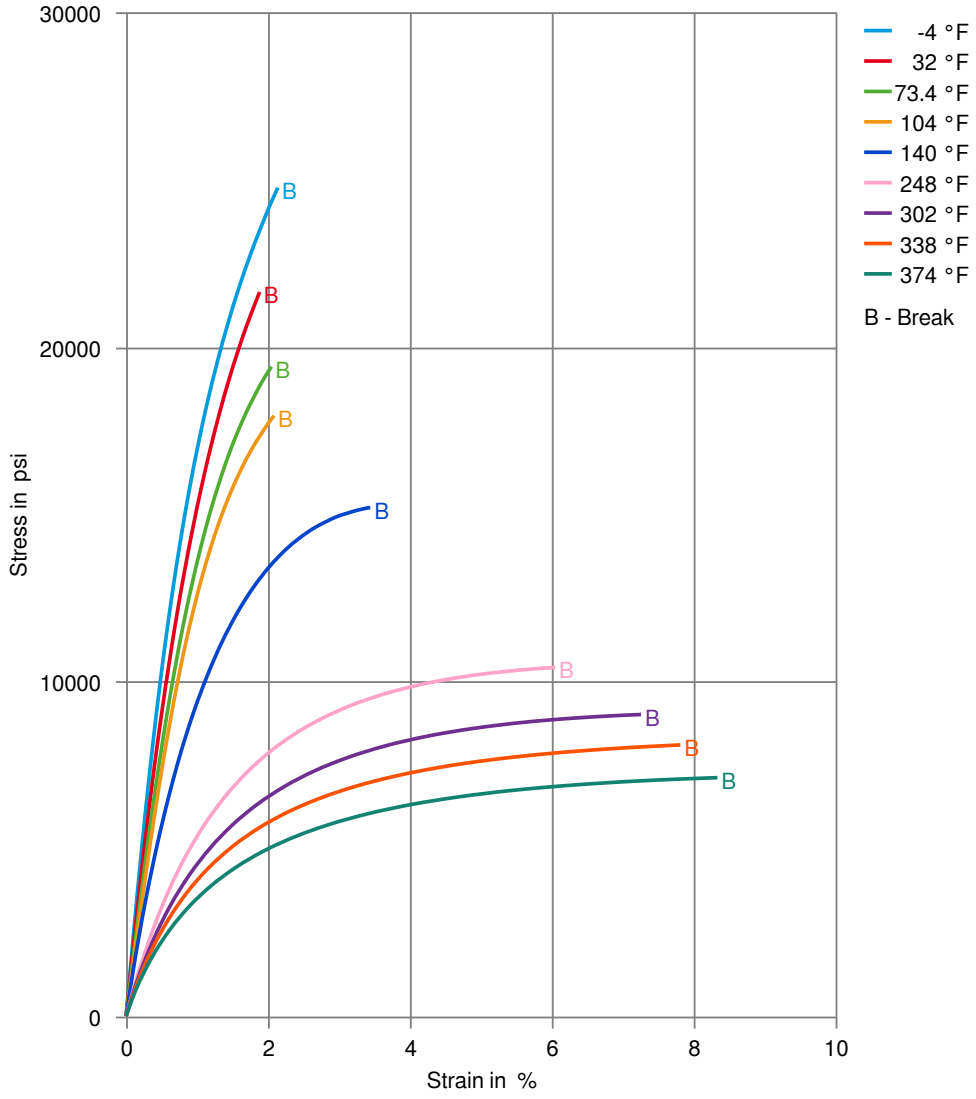
## Additional information

| | |
|---|---|
| Injection molding | Moulding datasheets<br>Moulding guide |

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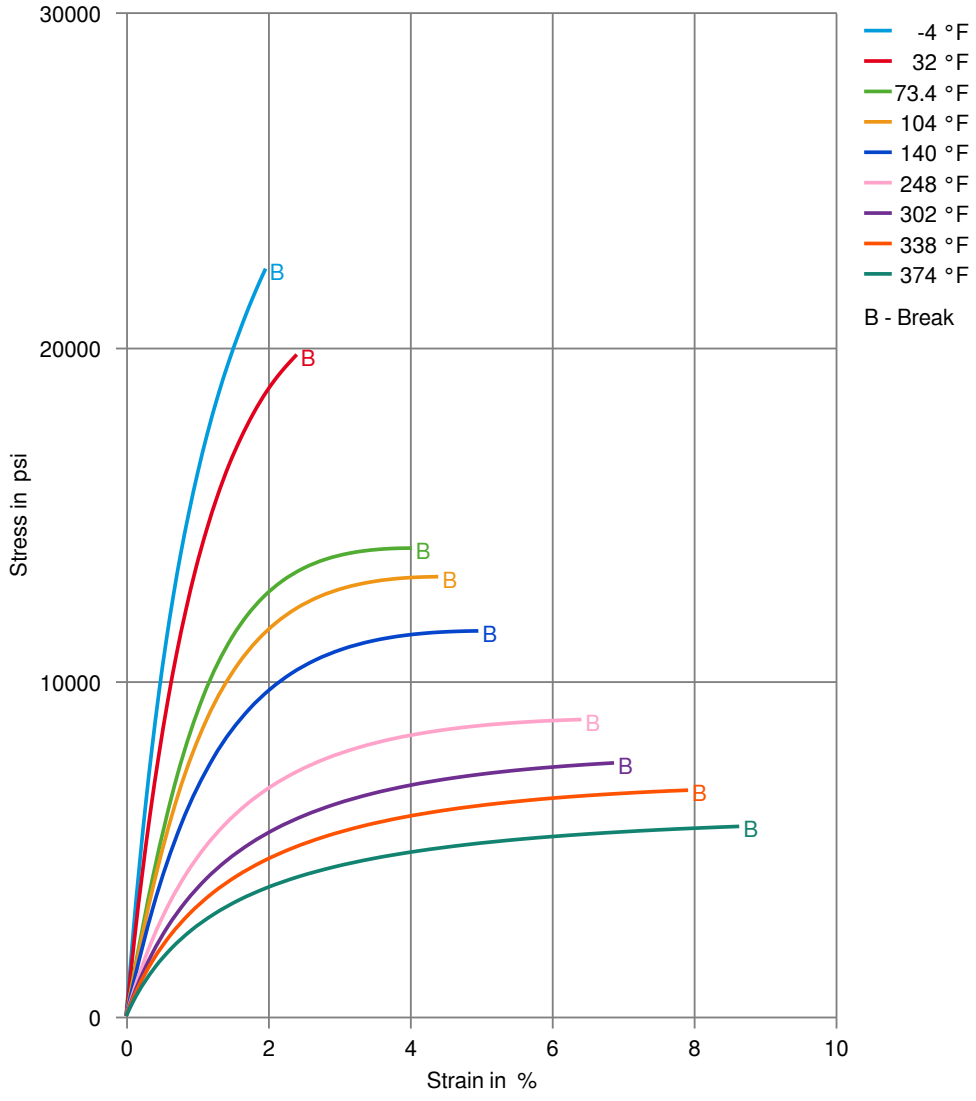
## Stress-strain (dry)



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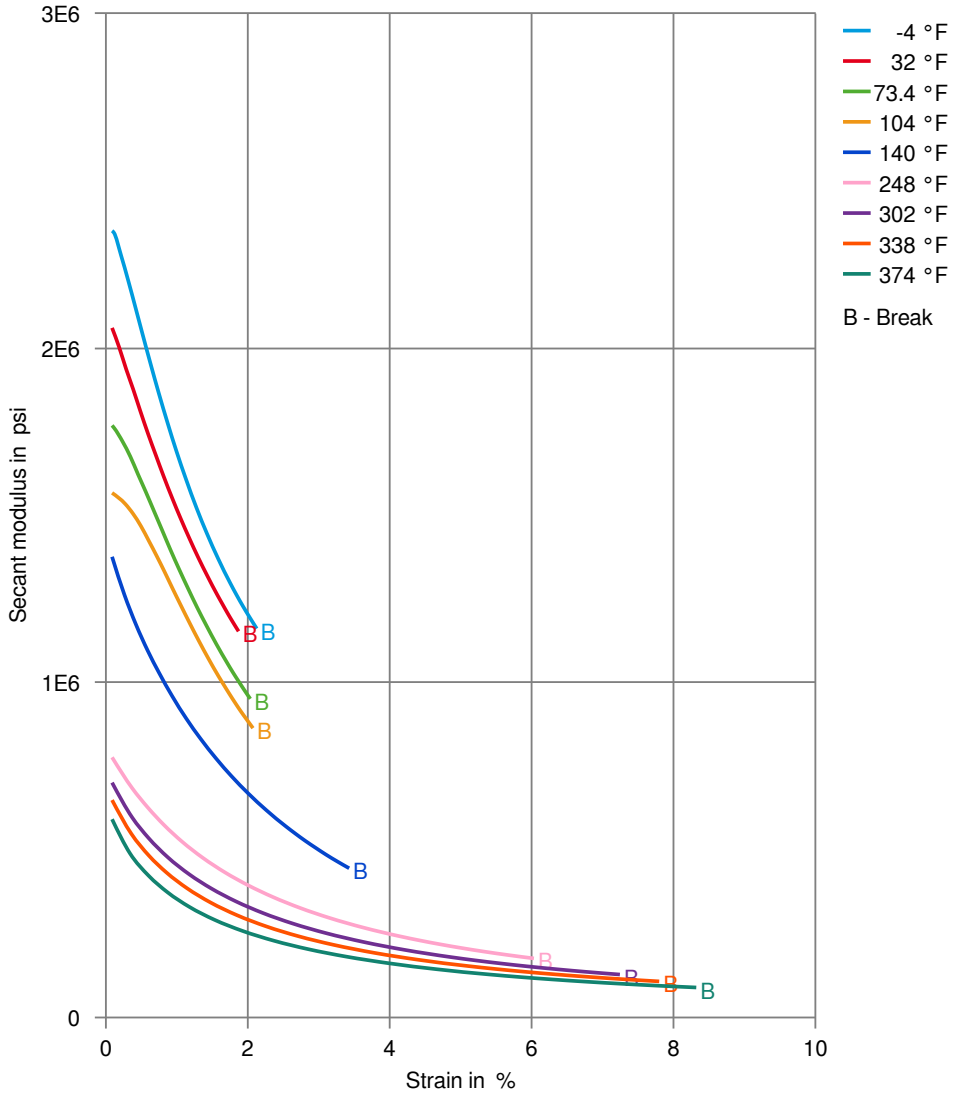
## Stress-strain (cond.)



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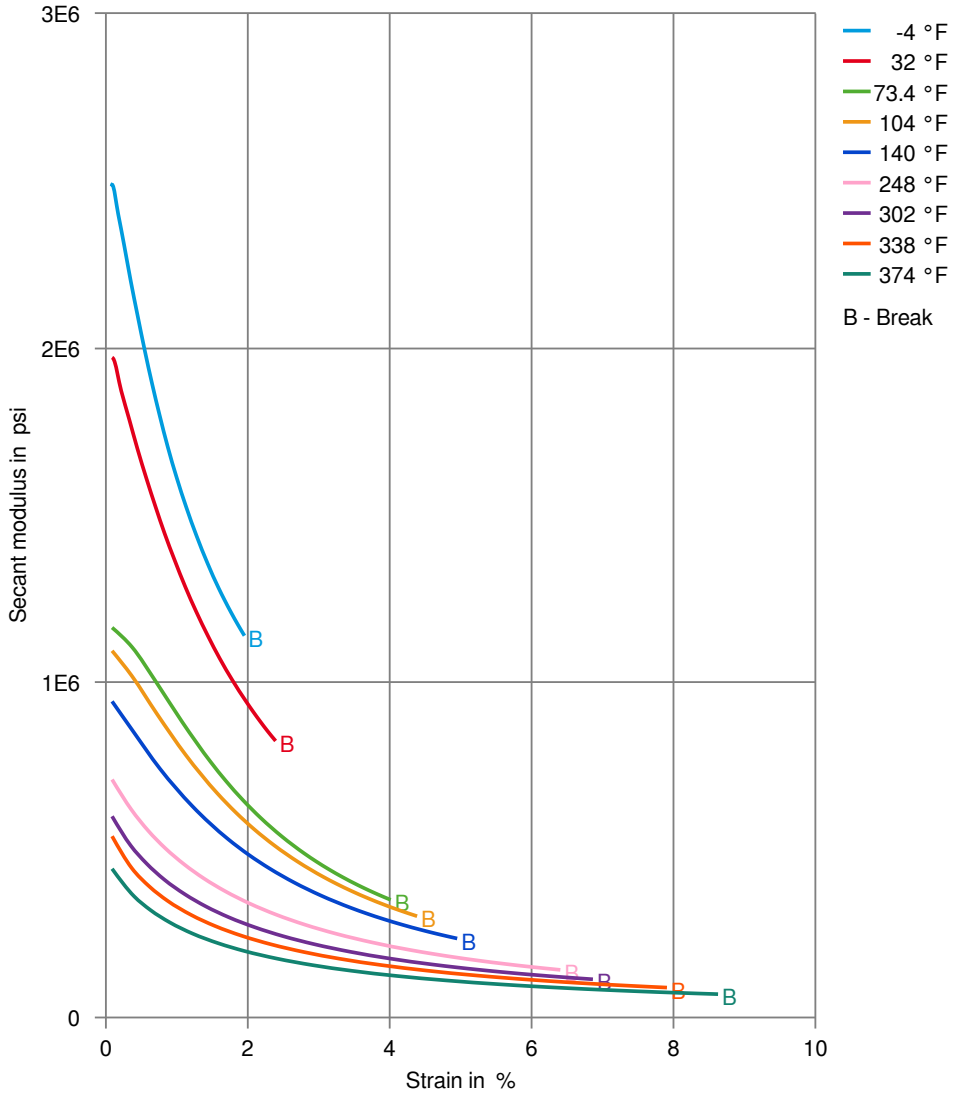
## Secant modulus-strain (dry)



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## Secant modulus-strain (cond.)



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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

### Salt solutions

- ✔ Sodium Chloride solution (10% by mass), 23°C
- ✘ Sodium Hypochlorite solution (10% by mass), 23°C

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- ✔ 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).



Revised: 2026-09-29 Source: Celanese Materials Database

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