Celanese
The chemistry inside innovation™

Zytel® 70G43HSLA BK099

NYLON RESIN

Product information

Resin Identification	PA66-GF43	ISO 1043
Part Marking Code	>PA66-GF43<	ISO 11469
ISO designation	ISO 16396-PA66,GF43,M1CGHR,S10-140	

Rheological properties

	dry/cond.		
Melt mass-flow rate	35 / *	g/10min	ISO 1133
Melt mass-flow rate, Temperature	275 / *	°C	
Melt mass-flow rate, Load	5 / *	kg	
Viscosity number	110[1] / *	cm³/g	ISO 307, 1157, 1628
Moulding shrinkage, parallel	0.3 / -	%	ISO 294-4, 2577
Moulding shrinkage, normal	0.9 / -	%	ISO 294-4, 2577

[1]: 90% formic acid

Typical mechanical properties

	dry/cond.		
Tensile Modulus	14000 / 11000	MPa	ISO 527-1/-2
Stress at break, 5mm/min	230 / 180	MPa	ISO 527-1/-2
Strain at break, 5mm/min	2.5 / 3.5	%	ISO 527-1/-2
Flexural Modulus	13000 / 10000	MPa	ISO 178
Flexural Strength	340 / 260	MPa	ISO 178
Charpy impact strength, 23°C	90 / 95	kJ/m²	ISO 179/1eU
Charpy impact strength, -30°C	85 / 90	kJ/m²	ISO 179/1eU
Charpy notched impact strength, 23°C	16 / 18	kJ/m²	ISO 179/1eA
Charpy notched impact strength, -30°C	16 / 14	kJ/m²	ISO 179/1eA
Puncture energy, 23°C	4.4 / -	J	ISO 6603-2
Izod notched impact strength, 23°C	14 / 16	kJ/m²	ISO 180/1A
Ball indentation hardness, H 961/30	290 / -	MPa	ISO 2039-1
Poisson's ratio	0.33 / 0.34		
Multiaxial Impact, Total Energy, 4.5m/s, 2mm	4.4 / -	J	ISO 6603-2

Thermal properties

	dry/cond.		
Melting temperature, 10°C/min	262 / *	°C	ISO 11357-1/-3
Glass transition temperature, 10°C/min	80 / 20	°C	ISO 11357-1/-3
Temp. of deflection under load, 1.8 MPa	260 / *	°C	ISO 75-1/-2
Temp. of deflection under load, 0.45 MPa	260 / *	°C	ISO 75-1/-2
Coeff. of linear therm. expansion, parallel, -40-23°C	20 / *	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, parallel, 55-160°C	9 / *	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal, -40-23°C	61 / *	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal, 55-160°C	130 / *	E-6/K	ISO 11359-1/-2
Thermal conductivity of melt	0.25	W/(m K)	Internal
TGA curve	available		ISO 11359-1/-2

Zytel® 70G43HSLA BK099

NYLON RESIN

Flammability

	dry/cond.		
Oxygen index	24 / *	%	ISO 4589-1/-2
FMVSS Class	B		ISO 3795 (FMVSS 302)
Burning rate, Thickness 1 mm	27	mm/min	ISO 3795 (FMVSS 302)

Electrical properties

	dry/cond.		
Dissipation factor, 100Hz	130 / -	E-4	IEC 62631-2-1
Dissipation factor, 1MHz	150 / -	E-4	IEC 62631-2-1
Volume resistivity	>1E13 / -	Ohm.m	IEC 62631-3-1
Electric strength	25 / -	kV/mm	IEC 60243-1
Comparative tracking index	600 / -		IEC 60112

Other properties

	dry/cond.		
Humidity absorption, 2mm	1.5 / *	%	Sim. to ISO 62
Water absorption, 2mm	4.7 / *	%	Sim. to ISO 62
Water absorption, Immersion 24h	0.9[2] / *	%	Sim. to ISO 62
Density	1490 / -	kg/m³	ISO 1183

[2]: wall thickness 2mm

Injection

Drying Recommended	yes		
Drying Temperature	80	°C	
Drying Time, Dehumidified Dryer	2 - 4	h	
Processing Moisture Content	≤0.2	%	
Melt Temperature Optimum	295	°C	Internal
Min. melt temperature	285	°C	
Max. melt temperature	300	°C	
Screw tangential speed	≤0.2	m/s	
Mold Temperature Optimum	100	°C	
Min. mould temperature	70	°C	
Max. mould temperature	120	°C	
Hold pressure range	50 - 100	MPa	
Hold pressure time	3	s/mm	
Ejection temperature	210	°C	Internal

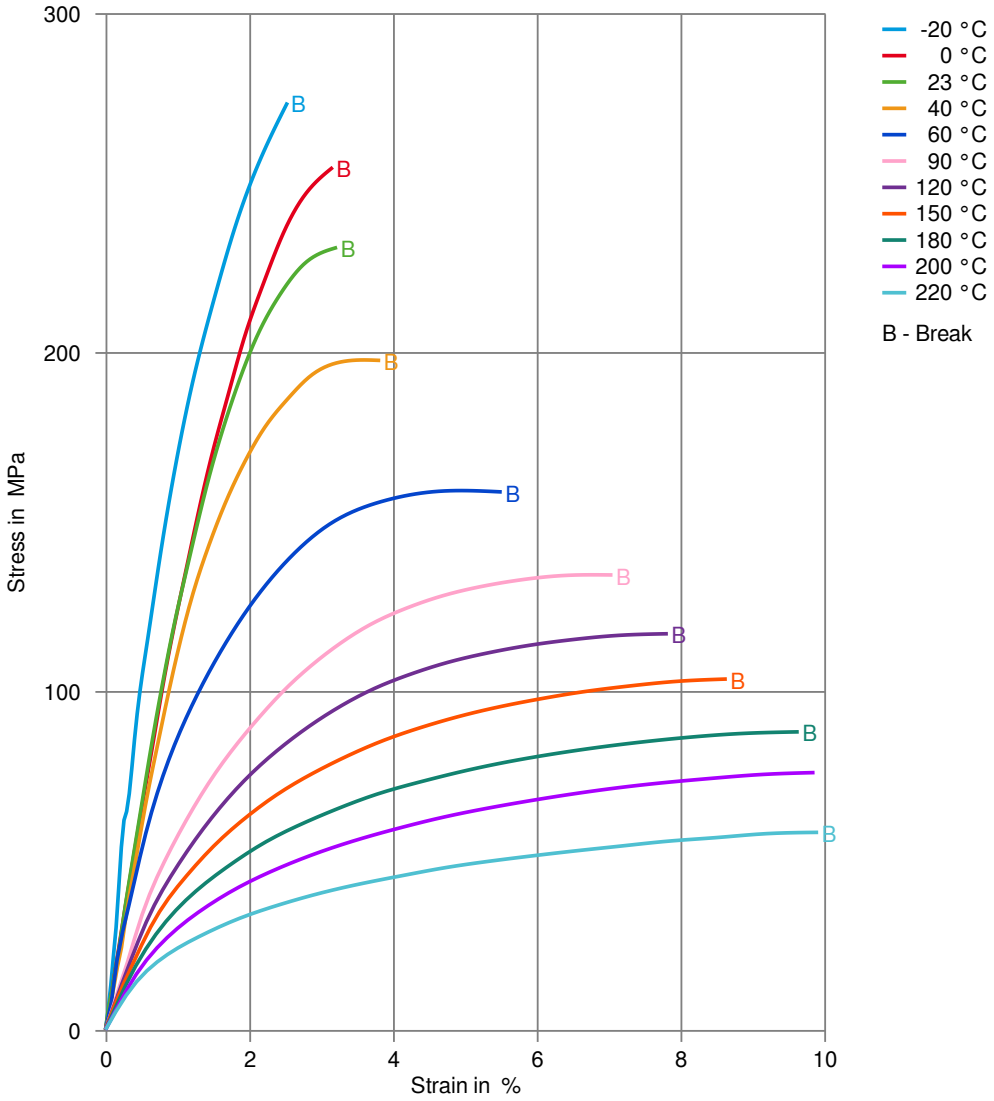
Characteristics

Additives	Release agent

Zytel® 70G43HSLA BK099

NYLON RESIN

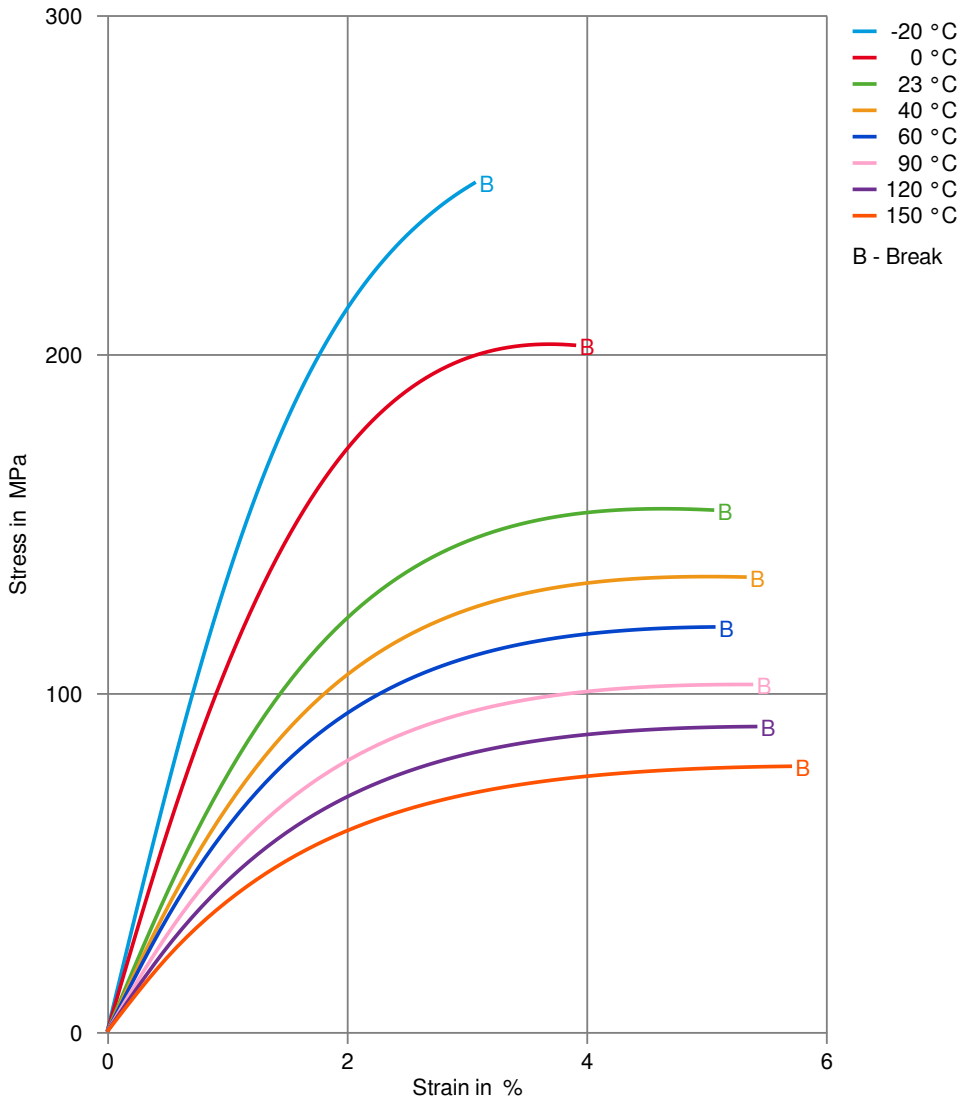
Stress-strain (dry)



Zytel® 70G43HSLA BK099

NYLON RESIN

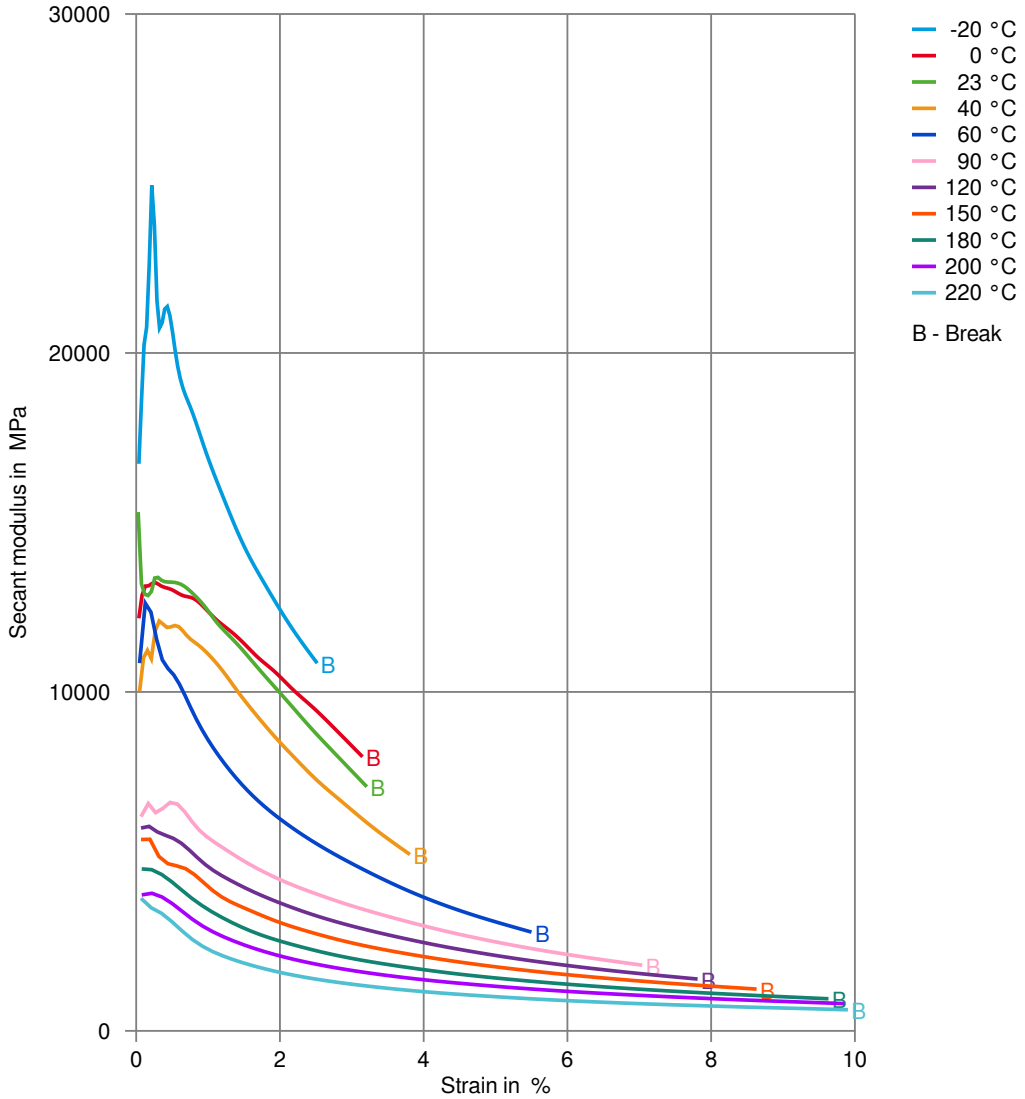
Stress-strain (cond.)



Zytel® 70G43HSLA BK099

NYLON RESIN

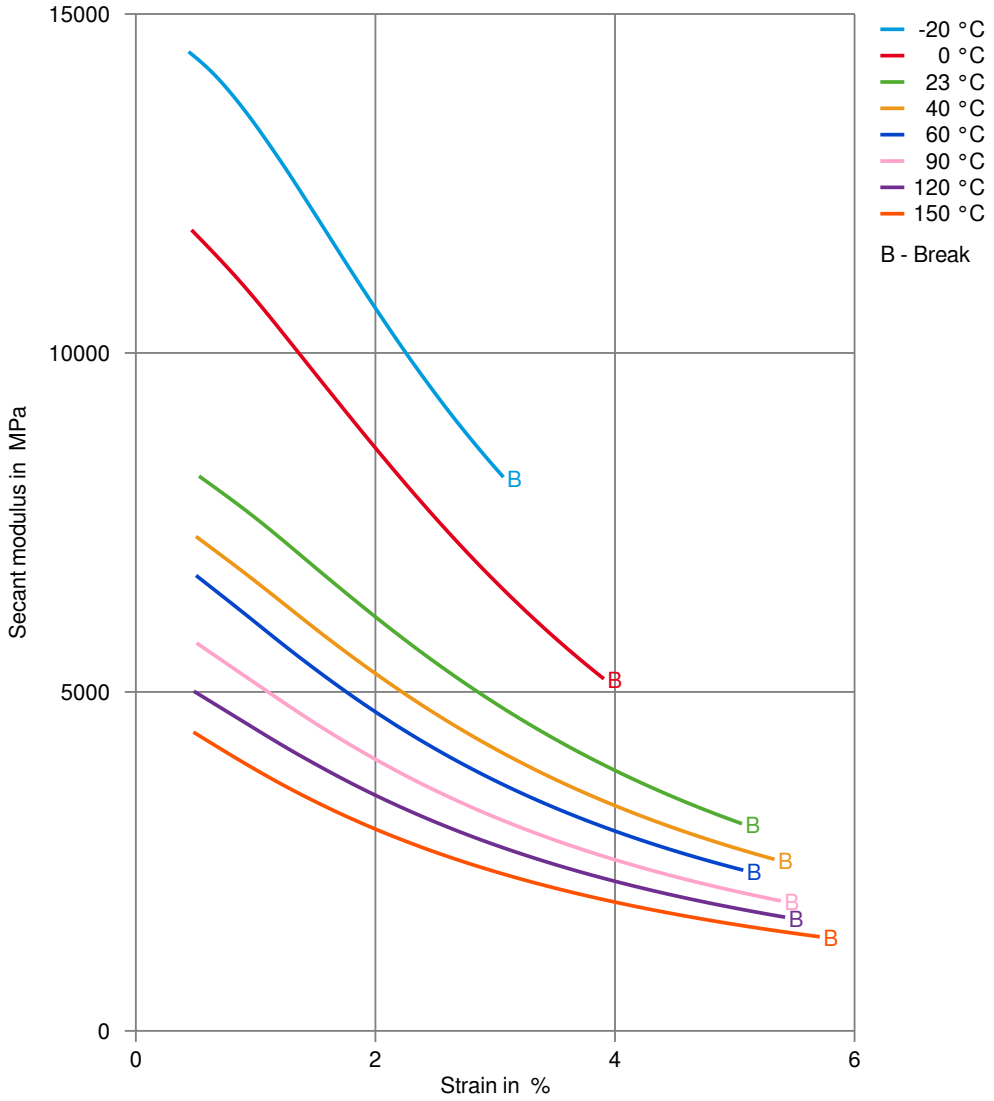
Secant modulus-strain (dry)



Zytel® 70G43HSLA BK099

NYLON RESIN

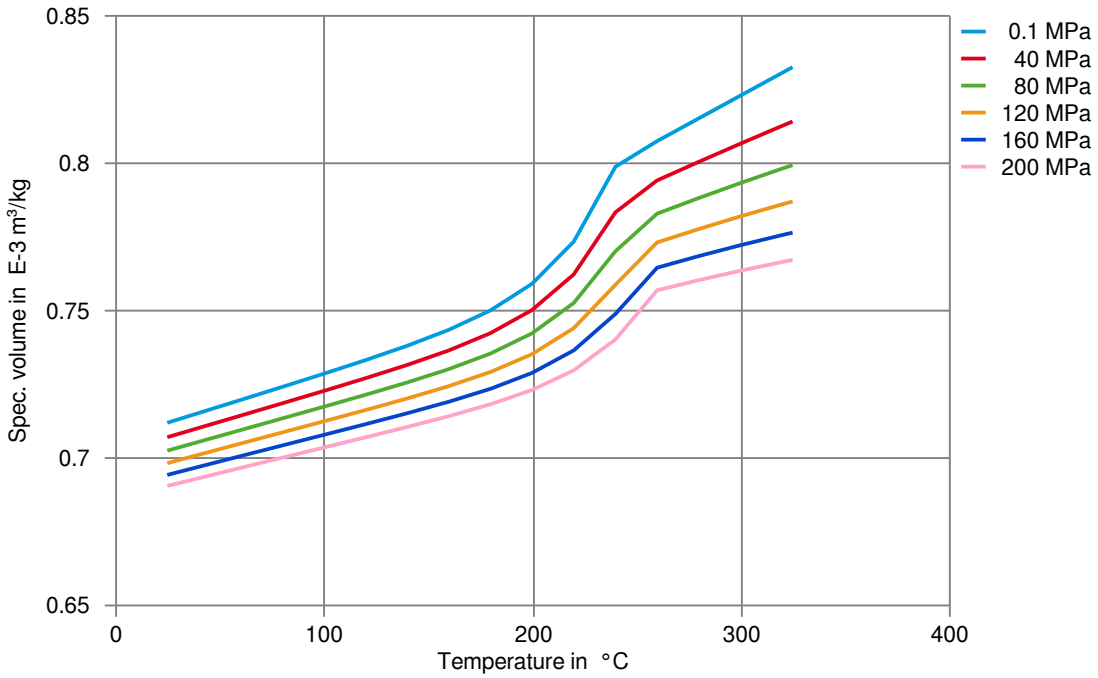
Secant modulus-strain (cond.)



Zytel® 70G43HSLA BK099

NYLON RESIN

Specific volume-temperature (pvT)



Zytel® 70G43HSLA BK099

NYLON RESIN

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

Zytel® 70G43HSLA BK099

NYLON RESIN

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).