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The tables "Chemical resistance of plastics", "Plastics and their properties" and "Viscosity of liquids" as well as the information about chemical resistance given in the particular product descriptions have been drawn up based on information provided by various raw material manufacturers. These values are based solely on laboratory tests with raw materials. Plastic components produced from these raw materials are frequently subject to influences that cannot be recognized in laboratory tests (temperature, pressure, material stress, effects of chemicals, construction features, etc.). For this reason the values given are only to be regarded as being guidelines. In critical cases it is essential that a test is carried out first. No legal claims can be derived from this information; nor do we accept any liability for it. A knowledge of the chemical and mechanical resistance alone is not sufficient for the evaluation of the usability of a product. For example, the regulations concerning flammable liquids (explosion prevention) must also be taken into consideration.

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Version 3.6 (15.12.2017)





















CHEMICALS	FORMULA	CAS-NR.	CONCENTRATION	HAZARD NOTE	thermoplastics -----  --- fluoroplastics ---   --- elastomers ---   ----- metals -----																								COMMENT					
					FLAMMABLE	HDPE	LDPE	PA	PC	PETG	PMP	POM	PP	PS	PSU	PVC HART	PVC WEICH	SAN	ECTFE / ETFE	FEP	PTFE	PVDF	EPDM	FPM / FKM	NBR	SI	AL	V2A		V4A				
Freon 12	-> see: Dichlorodifluoromethane																																	
Freon 13	-> see: Chlorotrifluoromethane																																	
Freon 13	-> see: Chlorotrifluoromethane																																	
Freon 13 B1	-> see: Bromotrifluoromethane																																	
Freon 13 B1	-> see: Bromotrifluoromethane																																	
Freon 14	-> see: Carbon tetrafluoride																																	
Freon 14	-> see: Carbon tetrafluoride																																	
Freon 142b	-> see: Chlorodifluoroethane																																	
Freon 142b	-> see: Chlorodifluoroethane																																	
Freon 152a	-> see: Difluoroethane																																	
Freon 152a	-> see: Difluoroethane																																	
Freon 21	-> see: Dichlorofluoromethane																																	
Freon 21	-> see: Dichlorofluoromethane																																	
Freon 218	-> see: Octafluoropropane																																	
Freon 218	-> see: Octafluoropropane																																	
Freon 22	-> see: Chlorodifluoromethane																																	
Freon 22	-> see: Chlorodifluoromethane																																	
Freon 31	-> see: Chlorofluoromethane																																	
Freon 31	-> see: Chlorofluoromethane																																	
Freon 32	-> see: Difluoromethane																																	
Freon 32	-> see: Difluoromethane																																	
Freon C 318	-> see: Perfluorocyclobutane																																	
Freon C 318	-> see: Perfluorocyclobutane																																	
Freon C316	-> see: Dichlorohexafluorocyclobutane																																	
Freon C316	-> see: Dichlorohexafluorocyclobutane																																	
Frigen 12	-> see: Dichlorodifluoromethane																																	
Frigen 12	-> see: Dichlorodifluoromethane																																	
Frigen 21	-> see: Dichlorofluoromethane																																	
Frigen 21	-> see: Dichlorofluoromethane																																	
Frigen 22	-> see: Chlorodifluoromethane																																	
Frigen 22	-> see: Chlorodifluoromethane																																	
Fructose	C <sub>6</sub> H <sub>12</sub> O <sub>6</sub>	000057-48-7	each	—			1/1	1/1	1/1	1/1	1/1	1/1	0/0	1/1	1/1	1/1	0/0	0/0	0/0	0/0	0/0	0/0	0/0	1/1	1/1	1/1	1/0	1/1	1/1	0/0	1/1	1/1	1/1	1/1
Fruit pulp	—	—	—	—			1/1	1/1	(2)	1/1	1/1	0/0	1/1	1/1	1/1	0/0	0/0	1/0	0/0	0/0	1/1	1/1	1/1	1/1	1/0	1/0	1/0	1/1	0/0	(2)	1/1	1/1	1/1	
Fruit wine	—	—	—	—			1/1	1/1	(2)	(1)	1/1	0/0	1/1	1/0	0/0	0/0	1/0	0/0	0/0	1/1	1/1	(1)	1/1	1/0	(1)	1/0	0/0	(2)	1/1	1/1	1/1			
Fuel + 20% ethyl alcohol	—	—	—	F, T	X		0/0	0/0	(1)	4/4	0/0	(4)	2/2	(3)	0/0	0/0	0/0	0/0	0/0	0/0	(1)	(1)	(2)	4/4	3/0	3/0	0/0	(1)	1/1	1/1				
Fuel + 20% methyl alcohol	—	—	—	F, T	X		0/0	0/0	(1)	4/4	0/0	(4)	2/2	(3)	0/0	0/0	0/0	0/0	0/0	0/0	(1)	(1)	(2)	4/4	(3)	4/4	0/0	(1)	1/1	1/1				
Fuel, Normal	—	—	—	F, T	X		0/0	0/0	1/0	3/0	1/1	(4)	2/2	3/4	4/4	0/0	0/0	0/0	0/0	0/0	(1)	(1)	(2)	4/4	1/0	3/0	0/0	1/1	1/1	1/1				
Fuel, piston engine (JP)	—	—	—	(Xn)			0/0	0/0	(1)	(3)	0/0	0/0	1/0	1/4	0/0	0/0	0/0	0/0	0/0	0/0	0/0	(1)	(2)	4/4	1/0	1/0	0/0	(1)	(1)	(1)				
Fuel, Super	—	—	—	F, T	X		0/0	0/0	1/0	4/4	(2)	(4)	2/2	3/4	4/4	0/0	0/0	0/0	0/0	0/0	(1)	(1)	(2)	4/4	1/0	3/0	0/0	1/1	1/1	1/1				
Furalmethanal, 2-	-> see: Furfural																																	
Furan	C <sub>4</sub> H <sub>2</sub> O	000110-00-9		F+, T+	X		0/0	0/0	(3)	4/4	0/0	(4)	(2)	(3)	0/0	0/0	0/0	0/0	0/0	0/0	(1)	(1)	(3)	4/4	4/4	4/4	0/0	(1)	(1)	(1)	0/0		Furfuran; Divinylene oxide; Oxacyclopentadiene	
Furancarboxyaldehyde, 2-	-> see: Furfural																																	
Furfural	C <sub>5</sub> H <sub>4</sub> O <sub>2</sub>	000098-01-1		T			1/3	3/4	3/3	(3)	1/0	0/0	2/0	4/4	0/0	0/0	0/0	0/0	4/4	0/0	(1)	(1)	1/2	3/0	4/4	4/4	0/0	1/1	1/1	1/1	0/0		Furancarboxyaldehyde, 2-; Furaldehyde, 2-; Furalmethanal, 2-	
Furfuryl alcohol	C <sub>5</sub> H <sub>6</sub> O <sub>2</sub>	000098-00-0	techn. pure	Xn			1/1	1/3	1/0	(3)	1/0	0/0	1/0	1/3	0/0	4/4	4/4	4/4	3/4	0/0	(1)	1/1	1/3	3/0	(3)	4/4	0/0	(1)	(1)	(1)	0/0			
Gallic acid	C <sub>7</sub> H <sub>6</sub> O <sub>5</sub> x H <sub>2</sub> O	000149-91-7		Xi			1/1	1/1	1/0	(3)	0/0	0/0	(3)	1/1	0/0	0/0	0/0	0/0	1/1	0/0	(1)	1/1	1/4	3/0	1/0	3/0	0/0	1/0	1/1	1/1				
Gas liquor	—	—	—	?			0/0	0/0	(2)	(2)	0/0	0/0	(2)	1/1	0/0	0/0	0/0	0/0	0/0	0/0	(1)	(1)	(3)	(2)	(2)	0/0	(2)	0/0	0/0					
Gas oil	—	—	—	(Xn)			0/0	0/0	(1)	(2)	1/0	0/0	(2)	1/3	0/0	0/0	0/0	0/0	0/0	(1)	1/1	1/1	4/4	1/0	1/0	0/0	1/1	(1)	(1)					
Gas, natural	—	—	—	F+	X		0/0	0/0	0/10	1/0	1/0	0/0	1/0	(2)	0/0	0/0	0/0	0/0	0/0	0/0	(1)	(1)	(1)	4/4	1/0	1/0	0/0	1/1	(1)	(1)			mainly methane	
Gasoline	—	008006-61-9		(F, Xn)	X		0/0	0/0	(1)	3/4	(2)	0/0	1/2	3/4	0/0	0/0	0/0	0/0	0/0	(1)	1/1	1/1	4/4	1/0	3/0	0/0	1/1	(1)	(1)					
Gasoline	C <sub>8</sub> H <sub>12</sub> - C <sub>12</sub> H <sub>26</sub>	086290-81-5		F, Xn, N	X		2/3	3/4	1/0	3/3	(2)	2/3	1/2	3/4	4/4	3/3	2/4	0/0	0/4	1/1	1/1	1/1	1/1	4/4	(1-3)	3/0	0/0	1/1	1/1	1/1	1/1		fuel, lead-free	
Gearbox oil, EP (Hypoid), 110°C	—	—	—	?			0	0	1	1	1	0	4	(3)	0	0	0	0	0	0	(2)	0	4/4	0	4/4	0	(1)	1	1	0/0				
Gelatin	—	009000-70-8	each	—			1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	0/0		
Genantin	—	—	—	Xn			0/0	0/0	3/3	(2)	1/0	0/0	1/1	1/1	0/0	0/0	0/0	0/0	0/0	0/0	1/1	1/1	1/0	1/2	1/1	0/0	1/1	1/1	1/1			antifreeze agent , based on glycol; Clariant		























CHEMICALS	FORMULA	CAS-NR.	CONCENTRATION	HAZARD NOTE	thermoplastics													fluoroplastics			elastomers			metals		COMMENT											
					FLAMMABLE	HDPE	LDPE	PA	PC	PETG	PMP	POM	PP	PS	PSU	PVC HART	PVC WEICH	SAN	ECTFE /ETFE	FEP	PTFE	PVDF	EPDM	FPM / FKM	NBR		SI	AL	V2A	V4A	Haselloy C						
Wines	—	—	—	—	1/1	1/1	1/0	1/0	1/1	1/0	(2)	1/1	1/1	1/0	1/1	1/1	0/0	0/0	0/0	0/0	0/0	0/0	0/0	1/1	1/1	1/1	1/0	1/0	1/0	0/0	(4)	1/1	1/1	1/1			
Wort for fermentation	—	—	—	?	1/1	1/1	(2)	(2)	(1)	0/0	1/1	1/1	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	(1)	1/1	1/1	1/1	1/0	1/0	0/0	1/1	1/1	1/1					
Xenon	Xe	007440-63-3	—	—	0/0	0/0	1/0	(1)	1/1	0/0	1/1	(2)	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	(1)	1/1	1/1	1/1	1/0	1/0	0/0	1/1	1/1	1/1						
Xylene	C <sub>8</sub> H <sub>10</sub>	001330-20-7	—	(F), Xn X	3/4	3/4	1/0	4/4	0/0	3/4	1/2	4/4	4/4	4/4	4/4	4/4	4/4	1/2	1/1	1/0	1/3	4/4	1/3	4/4	0/0	1/1	1/1	1/1	1/1	1/1							
Yeast	—	—	each	—	1/1	1/1	1/0	(1)	1/0	0/0	1/1	1/1	0/0	0/0	1/0	1/0	0/0	1/1	1/1	1/1	1/1	1/1	1/0	1/0	1/1	0/0	1/1	(1)	(1)								
Zinc acetate	C <sub>4</sub> H <sub>7</sub> ZnO <sub>4</sub>	000557-34-6	aqueous	Xn, Xi	1/1	1/1	(2)	(2)	(2)	0/0	(2)	1/1	0/0	0/0	0/0	0/0	0/0	0/0	1/1	1/1	(1)	1/0	(3)	3/3	0/0	(3)	(1)	(1)									
Zinc bromide	ZnBr <sub>2</sub>	007899-45-8	—	C, Xn	1/1	1/1	4/4	(2)	0/0	0/0	(2)	1/1	0/0	0/0	0/0	0/0	0/0	1/1	0/0	1/1	(1)	(2)	(1)	(2)	0/0	(3)	0/0	0/0									
Zinc carbonate	ZnCO <sub>3</sub>	003486-35-9	saturated	?	1/1	1/1	(1)	1/1	1/1	0/0	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	(2)	(1)	(1)						0/0	small solubility - no chemical effect expected	
Zinc chloride	ZnCl <sub>2</sub>	007646-85-7	aqueous	(C, Xn)	1/1	1/1	3/4	(2)	0/0	0/0	2/0	1/1	0/0	0/0	0/0	0/0	0/0	0/0	1/1	1/1	1/1	1/0	1/1	1/1	0/0	3/4	1/4L	1/3L	1/1								
Zinc nitrate	Zn(NO <sub>3</sub> ) <sub>2</sub>	007779-88-6	—	O, C, Xn	1/1	1/1	1/4	(2)	0/0	0/0	(2)	1/1	1/0	1/0	1/0	1/0	1/1	0/0	1/1	1/1	(1)	1/0	(1)	(2)	0/0	(3)	(1)	(1)									
Zinc oxide	ZnO	001314-13-2	solid	Xn, Xi	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	(2)	1/1	1/1						small solubility - no chemical effect expected	
Zinc oxide ointment	—	—	—	?	0/0	0/0	(1)	(2)	(2)	0/0	(2)	(2)	1/1	0/0	0/0	0/0	1/1	0/0	(1)	1/1	(2)	(4)	(2)	(2)	0/0	(2)	(1)	(1)									
Zinc phosphate	Zn <sub>3</sub> (PO <sub>4</sub> ) <sub>2</sub>	007779-90-0	saturated	?	1/1	1/1	(1)	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	(2)	(1)	(1)						0/0	
Zinc sludge	—	—	—	?	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	1/1	0/0	0/0	0/0	0/0	0/0	0/0	(1)	(2)	0/0	0/0	0/0	0/0	(3)	0/0	0/0									
Zinc stearate	C <sub>36</sub> H <sub>70</sub> ZnO <sub>4</sub>	000557-05-1	—	Xi	1/1	1/1	(1)	1/1	0/0	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/2	1/1	1/1	1/1	1/1	(2)	1/1	(2)	0/0	(2)	(1)	(1)									
Zinc sulfate	ZnSO <sub>4</sub>	007733-02-0	10 %	—	1/1	1/1	(3)	1/0	(2)	1/0	2/0	1/1	1/1	0/0	1/1	1/0	1/1	1/1	1/1	1/1	1/1	1/1	1/0	1/1	1/0	0/0	3/4	1/1	1/1	1/1							
Zinkchlorid	ZnCl <sub>2</sub>	007646-85-7	10 %	C, Xn	1/1	1/1	3/4	1/0	0/0	1/1	2/0	1/1	1/3	0/0	1/3	1/0	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	1/1	0/0	3/4	1/4L	1/3L	1/1							

Two values are given per substance  
left number = value at +20°C / right number = value at +50°C.

<b>0</b>	no data available
<b>1</b>	resistant
<b>2</b>	practically resistant
<b>3</b>	partially resistant
<b>4</b>	not resistant
<b>K</b>	no general information available
<b>L</b>	danger of pitting or stress-cracking corrosion
<b>( )</b>	estimated value
<b>E</b>	explosive
<b>O</b>	oxidizing
<b>F</b>	highly flammable
<b>F+</b>	extremely flammable
<b>T</b>	toxic
<b>T+</b>	very toxic
<b>C</b>	corrosive
<b>Xn</b>	harmful
<b>Xi</b>	irritant
<b>N</b>	dangerous for the environment

#### Thermoplastics

<b>HDPE</b>	Polyethylene (high density)
<b>LDPE</b>	Polyethylene (low density)
<b>PA</b>	Polyamide (Nylon)
<b>PC</b>	Polycarbonate
<b>PETG</b>	Polyethylene terephthalate glycol (PET copolymer)
<b>PMP</b>	Polymethylpentene (TPX)
<b>POM</b>	Polyoxymethylene, polyacetal
<b>PP</b>	Polypropylene
<b>PS</b>	Polystyrene
<b>PSU</b>	Polysulfone
<b>PVC</b>	Polyvinyl chloride
<b>SAN</b>	Styrene-acrylonitrile

#### Fluoroplastics

<b>E-CTFE</b>	Ethylene-chlorotrifluoroethylene (Halar )
<b>ETFE</b>	Ethylene-tetrafluoroethylene
<b>FEP</b>	Tetrafluoroethylene-perfluoropropylene (Teflon, FEP)
<b>PTFE</b>	Polytetrafluoroethylene (Teflon)
<b>PVDF</b>	Polyvinylidene fluoride

#### Elastomers

<b>EPDM</b>	Ethylene-propylene-diene rubber
<b>FPM/FKM</b>	Fluorinated rubber (Viton)
<b>NBR</b>	Acryl-nitrile-butadiene rubber
<b>SI</b>	Silicone rubber

#### Metals

<b>Al</b>	Aluminium
<b>V2A</b>	Stainless steel 1.4301 (AISI 304)
<b>V4A</b>	Stainless steel 1.4401 (AISI 316)
<b>Hastelloy C</b>	Nickel-chromium-molybdenum alloy