Chemical resistance summary

The data contained in these tables pertains to Thermo Fisher™ Nalgene™, Nunc™ and Matrix™ products only.

General Class of Chemical	Olefin Resins						Polyester Resins			"Engineering" Resins					"Commodity" Resins					Specialty Resins		
	LDPE	HDPE	PMP	PP	PPCO	FLPE	PETG	PET	Tritan™	PC	PSF	ACL	PPE	PEI	PS	HIPS	PBS	SAN	PMMA	Barex	ResMer™ N	ResMer™
Acids, dilute or weak	E	E	E	E	E	E	G	E	G	E	E	F	E	E	E	E	E	E	G	G	E	E
Acids, strong or concentrated	G	G	E	G	G	G	N	F	N	N	G	N	G	F	F	F	G	F	N	F	G	G
Acids	G	G	E	G	G	G	N	F	N	N	G	N	G	F	F	F	G	F	N	F	G	G
Bases/Alkali, Inorganic, dilute or weak	E	E	E	E	E	G	F	F	F	F	E	G	E	G	E	G	E	E	G	F	E	E
Bases/Alkali, Inorganic, strong or concentrated	E	E	E	E	E	F	N	N	N	N	G	G	G	G	E	G	E	G	F	F	E	E
Bases/Alkali, Inorganic	E	E	E	E	E	G	N	N	N	N	G	G	G	G	E	G	E	G	F	F	E	E
Amines, aliphatic	F	G	G	G	G	F	N	G	F	N	N	G	G	G	G	F	F	G	F	F	E	E
Amines, aromatic	F	F	F	G	F	G	N	G	F	N	N	G	N	E	N	N	N	N	N	F	F	F
Amines	F	G	G	G	F	G	N	G	F	N	N	G	F	G	N	N	N	N	N	F	G	G
Bases/Alkali, Organic/Inorganic	F	G	G	G	G	F	N	F	N	N	F	G	F	G	F	F	F	F	F	F	G	G
Oxidizing Agents	F	F	G	F	F	F	F	N	N	F	G	N	F	F	G	F	N	F	N	G	G	G
Oxidizing Agents, strong or concentrated	F	F	G	F	F	F	F	N	N	F	G	N	F	F	G	F	N	F	N	G	G	G
Oxidizing Agents, dilute or weak	G	G	G	G	G	G	F	F	F	F	G	N	F	G	G	F	F	F	N	G	G	G
Alcohols, aliphatic	E	E	E	E	E	E	G	E	G	G	G	G	E	E	G	G	G	F	N	E	E	E
Alcohols, aromatic	F	G	G	G	F	E	N	F	N	N	N	F	F	F	F	N	N	F	N	G	F	F
Alcohols	G	G	G	G	G	E	F	F	F	N	F	F	G	G	F	N	F	F	N	G	G	G
Aldehydes, aliphatic	G	G	G	G	G	G	G	E	G	G	G	G	G	G	F	N	N	F	F	F	G	G
Aldehydes, aromatic	N	F	G	E	E	G	N		F	N	F	G	N	F	N	N	N	N	N	F	F	F
Aldehydes	F	G	G	G	G	G	F	G	F	F	F	G	G	F	F	N	N	F	F	F	G	G
Ketones, aliphatic	F	F	F	G	G	G	N	G	F	N	N	G	G	F	N	N	N	N	N	F	N	N
Ketones, aromatic	N	N	F	N	N	E	N	G	F	N	N	E	N	N	N	N	N	N	N	F	F	F
Ketones	N	N	F	F	F	G	N	G	F	N	N	G	F	F	N	N	N	N	N	F	N	N
Esters, aliphatic	G	G	F	G	G	E	N	F	N	N	N	G	G	F	N	N	N	N	N	F	F	F
Esters, aromatic	G	G	E	G	G	G	F	F	F	F	N	G	N	F	N	N	N	F	F	F	F	F
Esters	G	G	G	G	G	G	N	F	N	N	N	G	F	F	N	N	N	N	N	F	F	F
Ethers, Aliphatic	N	F	F	N	N	G	F	G	F	N	N	G	N	E	N	N	N	N	N	F	F	F
Ethers, Aromatic	N	F	F	N	N	E	N	F	N	N	N	N	N	F	N	N	N	N	N	F	F	F
Ethers	N	F	F	N	N	G	N	F	N	N	N	F	N	G	N	N	N	N	N	F	F	F
Hydrocarbons	N	F	F	F	F	G	N	F	N	F	F	G	F	F	N	N	N	F	N	G	F	F
Hydrocarbons, aliphatic	F	G	G	G	G	E	G	E	G	G	G	G	G	G	F	F	N	G	G	E	G	G
Hydrocarbons, aromatic	N	N	N	N	N	E	N	F	N	N	N	E	N	F	N	N	N	N	N	E	F	F
Hydrocarbons, halogenated	N	N	N	F	N	G	N	F	N	N	N	G	N	F	N	N	N	N	N	E	F	F
Oils and Greases	F	G	G	G	G	E	F	G	F	G	G	G	G	E	G	G	G	G	F	G	E	E
Aqueous Solutions	E	E	E	E	E	E	E	E	E	E	E	G	E	E	E	G	E	E	E	G	E	E
Media & Sera	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	G	E	E
Dry Salts	E	E	E	E	E	E	G	E	G	G	E	G	E	E	E	G	E	E	G	E	E	E
Detergents/Surfactants	E	E	E	E	E	E	E	G	G	F	G	E	E	E	E	G	E	E	E	G	E	E
Overall chemical rating	F	G-	G-	G-	G-	G	F-	F+	F-	F-	F	F+	F	G-	F	F-	F-	F	F-	F+	G-	G-

E–30 days of constant exposure causes no damage. Plastic may even tolerate for years.

G–Little or no damage after 30 days of constant exposure to the reagent.

F–Some effect after 7 days of constant exposure to the reagent. Depending on the plastic, the effect may be crazing, cracking, loss of strength or discoloration. Solvents may cause softening, swelling and permeation losses with LDPE, HDPE, PP,PPCO and PMP. The solvent effects on these five resins are normally reversible; the part will usually return to its normal condition after evaporation.

N–Not recommended for continuous use. Immediate damage may occur. Depending on the plastic, the effect will be a more severe crazing, cracking, loss of strength, discoloration, deformation, dissolution or permeation loss.

Except for oxidizing acids; for oxidizing acids, see "Oxidizing Agents, strong"
TPE gaskets

Chemical resistance summary (continued)

The data contained in these tables pertains to Thermo Fisher™ Nalgene™, Nunc™ and Matrix™ products only.

General Class of Chemical	Specialty Resins, continued		Fluoropolymers					Elastomers				PVC Tubing				Fluoropolymer Tubing		Other Tubing			
	Permanox®	Thermanox®	ECTFE	ETFE	FEP	PFA	TFE/ PTFE	TPE	EPDM	EPR	Silicone	tPVC	PVC 180	PVC 380	PVC 980	FEP 890	PFA 870	Siliconet 50/65	PURS 280	LLDPE 489	PP 689
Acids, dilute or weak	E	G	E	E	E	E	E	G	G	E	F	G	G	G	G	E	E	G	G	E	E
Acids, strong or concentrated	E	F	E	E	E	E	E	F	F	G	N	F	F	F	F	E	E	F	N	G	G
Acids	E	F	E	E	E	E	E	F	F	G	N	F	F	F	F	E	E	F	N	G	G
Bases/Alkali, Inorganic, dilute or weak	E	F	E	E	E	E	E	G	E	E	G	G	G	G	G	E	E	E	F	E	E
Bases/Alkali, Inorganic, strong or concentrated	E	F	E	E	E	E	E	F	E	E	F	F	F	F	F	E	E	F	N	E	E
Bases/Alkali, Inorganic	E	F	E	E	E	E	E	F	E	E	F	F	F	F	F	E	E	G	N	E	E
Amines, aliphatic	G	G	E	E	E	E	E	G	G	G	N	N	N	N	N	E	E	F	F	F	G
Amines, aromatic	G	F	F	E	E	E	E	N	G	G	N	N	N	N	N	E	E	N	N	E	G
Amines	G	G	G	E	E	E	E	F	G	G	N	N	N	N	N	E	E	N	N	F	G
Bases/Alkali, Organic/ Inorganic	G	F	G	E	E	E	E	F	G	G	N	N	N	N	N	E	E	F	N	G	G
Oxidizing Agents	G	N	E	E	E	E	E	N	F	F	F	F	F	F	F	E	F	N	N	G	G
Oxidizing Agents, strong or concentrated	G	N	E	E	E	E	E	N	F	F	F	F	F	F	F	E	E	F	N	F	G
Oxidizing Agents, dilute or weak	G	F	E	E	E	E	E	F	F	F	G	F	F	F	F	E	E	G	N	G	G
Alcohols, aliphatic	E	G	E	E	E	E	E	E	E	G	G	F	F	F	F	E	E	G	N	E	E
Alcohols, aromatic	G	G	E	E	E	E	E	N	N	N	F	N	N	N	N	E	E	N	N	F	F
Alcohols	G	G	E	E	E	E	E	F	F	F	F	N	N	N	N	E	E	F	N	G	G
Aldehydes, aliphatic	G	E	E	E	E	E	E	G	E	E	F	N	N	N	N	E	E	F	N	G	G
Aldehydes, aromatic	E	E	E	E	E	E	E	N	N	F	F	N	N	N	N	E	E	N	N	G	E
Aldehydes	G	E	E	E	E	E	E	F	F	G	F	N	N	N	N	E	E	N	N	G	G
Ketones, aliphatic	F	G	G	G	E	E	E	N	G	G	N	N	N	N	N	E	E	N	N	G	G
Ketones, aromatic	F	G	E	E	E	E	E	N	G	G	F	N	N	N	N	E	E	N	N	N	N
Ketones	F	G	G	G	E	E	E	N	G	G	N	N	N	N	N	E	E	N	N	F	F
Esters, aliphatic	G	F	E	E	E	E	E	N	F	G	F	N	N	N	N	E	E	N	N	G	G
Esters, aromatic	E	F	G	E	E	E	E	N	N	N	N	N	N	N	N	E	E	N	N	G	G
Esters	G	F	G	E	E	E	E	N	N	F	N	N	N	N	N	E	E	N	N	G	G
Ethers, Aliphatic	F	G	E	E	E	E	E	N	N	N	N	N	N	N	N	E	E	N	N	N	N
Ethers, Aromatic	F	F	G	E	E	E	E	N	N	N	F	N	N	N	N	E	E	F	N	N	N
Ethers	F	F	G	E	E	E	E	N	N	N	N	N	N	N	N	E	E	N	N	N	N
Hydrocarbons	F	F	G	G	E	E	E	F	N	F	N	N	N	N	N	E	N	F	F	F	F
Hydrocarbons, aliphatic	G	E	E	E	E	E	E	E	F	G	F	F	F	F	F	E	E	F	E	G	G
Hydrocarbons, aromatic	N	F	E	G	E	E	E	N	N	G	N	N	N	N	N	E	E	N	N	F	F
Hydrocarbons, halogenated	N	N	G	E	E	E	E	F	N	F	N	N	N	N	N	E	E	N	N	N	N
Oils and Greases	G	G	E	E	E	E	E	F	N	F	F	F	F	F	F	E	E	G	E	G	G
Aqueous Solutions	E	E	E	E	E	E	E	G	E	E	E	G	G	G	G	E	E	E	F	E	E
Media & Sera	E	E	E	E	E	E	E	E	E	E	E	G	G	G	G	E	E	G	F	E	E
Dry Salts	E	E	E	E	E	E	E	G	E	E	G	G	G	G	G	E	E	G	G	E	E
Detergents/Surfactants	E	G	E	E	E	E	E	G	E	E	G	G	G	G	G	E	E	G	G	E	E
Overall chemical rating	**G**	**F+**	**E-**	**E**	**E**	**E**	**E**	**F-**	**F**	**F+**	**F-**	**F-**	**F-**	**F-**	**F-**	**E**	**E**	**F-**	**N**	**G-**	**G-**

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