VYDYNE nylon resins

CHEMICAL RESISTANCE OF NYLON 6 AND NYLON 66

TECH NOTE

Chemical Resistance of VYDYNE Nylon Resins (Nylon 66)

The following abbreviations are used for the ratings:

E = Excellent

G = Good

F = Fair

P = Poor

NR = Not Recommended

S = Solvent

Table 1 – Behavior of VYDYNE® Nylon Resins (Nylon 66) Toward Organic Solvents at Room Temperature

Reagent	Visual Change	Ratings
Benzyl Alcohol	Coarse Surface After 2 Days	NR
Butyl Alcohol	Temporary loss of stiffness	G
Ethyl Alcohol	Temporary loss of stiffness	G
Ethylene Glycol	Temporary loss of stiffness	G
Isopropyl Alcohol	Temporary loss of stiffness	G
Methyl Alcohol	Temporary loss of stiffness	G
Butyl Acetate	Unchanged	E
Ethyl Acetate	Unchanged	E
Methyl Acetate	Unchanged	E
Amyl Acetate	Unchanged	E
Ether (Diethyl)	Unchanged	E
Tetrahydrofuran	Unchanged	E
Acetone	Unchanged	E
Benzaldyhyde	Unchanged	E
Cyclohexanone	Unchanged	E
Dichlorethylene	Temporary loss of stiffness	G
Trichlorethylene	Temporary loss of stiffness	G
Perchlorethylene	Unchanged	E
Dichlormethane	Temporary loss of stiffness	G
Chloroform	Temporary loss of stiffness	G
Carbon Tetrachloride	Unchanged	E
Carbon Disulfide	Unchanged	E
Pyridine	Unchanged	E
Benzene	Unchanged	E
Monochlorbenzene	Unchanged	E
Toluene	Unchanged	E
Xylene	Unchanged	E
Kerosene	Unchanged	E
Turpentine	Unchanged	E
Tetralin	Unchanged	E
Decalin	Unchanged	E
Gasoline	Unchanged	E
Petroleum	Unchanged	E
Mineral Oil	Unchanged	E
Resorcinol	Dissolves	S, NR

Table 2 – Behavior of VYDYNE Nylon Resins (Nylon 66) Toward Acids, Bases, Halogens, etc.

Reagent	Temp °F (°C)	Visual Change	Ratings
Sulfuric Acid (Conc)	75(24)	Dissolves	S, NR
Sulfuric Acid (Dilute)	75(24)	Partially dissolves	P, NR
Hydrochloric Acid (Conc)	75(24)	Dissolves	S, NR
Hydrochloric Acid (Dilute)	75(24)	Partially dissolves	P, NR
Hydrochloric Acid (20-40%)	73(23)	Etched after 1 sec.	P, NR
Phosphoric Acid (Conc)	75(24)	Dissolves	S, NR
Nitric Acid (Conc)	75(24)	Dissolves	S, NR
Acetic Acid (Conc)	75(24)	Partially dissolves	P, NR
Acetic Acid (Conc)	200(93)	Dissolves	S, NR
Acetic Acid (Dilute)	75(24)	Etched	F, NR
Formic Acid (Conc)	75(24)	Dissolves	S, NR
Formic Acid (Dilute)	75(24)	Partially dissolves	P, NR
Chlorine	—	Strong attack	NR
Bromine	—	Strong attack	NR
Phenol	75(24)	Dissolves	S, NR
0-Chlorophenol	75(24)	Dissolves	S, NR
m-Chlorophenol	75(24)	Dissolves	S, NR
p-Chlorophenol	75(24)	Dissolves	S, NR
Cresol	75(24)	Dissolves	S, NR
Dimethylformamide	75(24)	Strong attack	NR
gamma-Butyrolactone	75(24)	Strong attack	NR
Xylenols	75(24)	Dissolves	S, NR
Sodium Hydroxide (5%)	73(23)	Minimal effect	E
Sodium Hydroxide (5%)	158(70)	Minimal effect	E
Sodium Hydroxide (10%)	73(23)	Minimal effect	E
Sodium Hydroxide (10%)	158(70)	Some “crazing” after 30 days	P, NR
Potassium Hydroxide (5%)	73(23)	Minimal effect	E
Potassium Hydroxide (5%)	158(70)	Minimal effect	E
Potassium Hydroxide (10%)	73(23)	Minimal effect	E
Potassium Hydroxide (10%)	158(70)	Some “crazing” after 30 days	P, NR

Table 3 – Behavior of VYDYNE Nylon Resins (Nylon 66) in Aqueous Solutions of Inorganic Salts at Room Temperature

Salt Solution	Visual Change	Ratings
10% Ammonium Chloride	Unchanged	F
10% Aluminum Chloride	Unchanged	F
10% Sodium Hypochlorite (0.1% Cl)	White coating after 18 days	G
10% Calcium Chloride	Unchanged	F
10% Chrome Alum	Unchanged	G
10% Ferric Chloride	Unchanged yellowing	P, NR
5% Potassium Dichromate	Unchanged yellowing	P, NR
10% Potassium Nitrate	Unchanged	G
1% Potassium Permanganate	Decomposed	NR
10% Copper Sulfate	Unchanged	G
10% Magnesium Chloride	Unchanged	G
10% Manganese Sulfate	Unchanged	G
10% Sodium Sulfate	Unchanged	G
10% Sodium Bisulfite	Unchanged	G
5% Mercuric Chloride	Swelled	P
5% Sodium Hydroxide	Etched	G
1% Sodium Hydroxide	Unchanged	G
0.5% Hydrogen Peroxide	Unchanged	G
1% Hydrogen Peroxide	Brittle after 54 days	NR
3% Hydrogen Peroxide	Brittle after 54 days	NR
10% Hydrogen Peroxide	Degrades	NR
30% Hydrogen Peroxide	Degrades	NR
10% Zinc Chloride	Unchanged	F

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