



# technotes

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## Chemical Resistance of VYDYNE® Polyamide 66 Resins



Table 1 – Behavior of VYDYNE® Resins  
Toward Organic Solvents at Room Temperature

Reagent	Visual Change	Ratings
<b>ALCOHOLS</b>		
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
<b>ALDEHYDE</b>		
Benzaldehyde	Unchanged	E
<b>AROMATIC HYDROCARBONS</b>		
Benzene	Unchanged	E
Toluene	Unchanged	E
Xylene	Unchanged	E
<b>CHLORINATED HYDROCARBONS</b>		
Carbon Tetrachloride	Unchanged	E
Chloroform	Temporary loss of stiffness	G
Dichloroethylene	Temporary loss of stiffness	G
Dichloromethane	Temporary loss of stiffness	G
Monochlorobenzene	Unchanged	E
Perchloroethylene	Unchanged	E
<b>CYCLIC AMINE</b>		
Pyridine	Unchanged	E
<b>ESTERS</b>		
Amyl Acetate	Unchanged	E
Butyl Acetate	Unchanged	E
Ethyl Acetate	Unchanged	E
Methyl Acetate	Unchanged	E
<b>ETHERS</b>		
Ether (Diethyl)	Unchanged	E
Tetrahydrofuran	Unchanged	E
<b>KETONE</b>		
Acetone	Unchanged	E
Cyclohexanone	Unchanged	E
<b>MIXTURE OF HYDROCARBONS</b>		
Decalin	Unchanged	E
Gasoline	Unchanged	E
Kerosene	Unchanged	E
Mineral Oil	Unchanged	E
Petroleum	Unchanged	E
Resorcinol	Dissolves	S, NR
Tetralin	Unchanged	E
Turpentine	Unchanged	E
<b>SULFUR COMPOUND</b>		
Carbon Disulfide	Unchanged	E

Table 2 – Behavior of VYDYNE Resins  
Toward Acids, Bases, Halogens, etc.

Reagent	Temp °F (°C)	Visual Change	Ratings
<b>AMIDE</b>			
Dimethylformamide	75 (24)	Strong attack	NR
<b>BASES</b>			
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
Sodium Hydroxide (1%)	73 (23)	Unchanged	E
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
<b>HALOGENS</b>			
Bromine		Strong attack	NR
Chlorine		Strong attack	NR
<b>INORGANIC ACIDS</b>			
Hydrochloric Acid (20% -40%)	73 (23)	Etched after 1 sec.	P, NR
Hydrochloric Acid (Conc)	75 (24)	Dissolves	S, NR
Hydrochloric Acid (Dilute)	75 (24)	Partially dissolves	P, NR
Nitric Acid (Conc)	75 (24)	Dissolves	S, NR
Phosphoric Acid (Conc)	75 (24)	Dissolves	S, NR
Sulfuric Acid (Conc)	75 (24)	Dissolves	S, NR
Sulfuric Acid (Dilute)	75 (24)	Partially dissolves	P, NR
<b>KETONE</b>			
Gamma-Butyrolactone	75 (24)	Strong attack	NR
<b>ORGANIC ACIDS</b>			
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
<b>PHENOL COMPOUNDS</b>			
o-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
Phenol	75 (24)	Dissolves	S, NR
Xylenols	75 (24)	Dissolves	S, NR

The following abbreviations are used for the ratings: **E = Excellent G = Good F = Fair P = Poor NR = Not Recommended S = Solvent**

**Table 3—Behavior of VYDYNE Resins in Aqueous Solutions of Hydrogen Peroxide and Inorganic Salts at Room Temperature**

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

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