Polyurea Advantages and Benefits

Turbo Liner Inc.

1 West Cameron
Kellogg, ID 86837
Ph: 877-678-8726
Fax: 208-786-7506

· No VOC's and Little to No Odor
· Some Systems are USDA and Potable Approved
· Weather Tolerant: Cures at -25ºF to >300ºF even in High Humidity
· Excellent Resistance to Thermal Shock
· Flexible: Bridges Cracks
· Waterproof, Seamless and Resilient
· Unlimited Mil Thickness in One Application
· Spray, Hand Mix and Caulk Grade Materials
· Excellent Bond Strengths to Properly Prepared Substrates
· Resistant to Various Solvents, Caustics and Mild Acids
· Low Permeability, Excellent Sustainabilit
· Hybrid and Aeromatic Polyurea Meet F.D.A Federal Regulations

Other Information	
Typical Physical Properties Of Polyurea	
Tensile Strength,psi	Up to 4000
Shore Hardness	A 30 to D 65
Elongation,%	Up to 1000
Tear Strength,pli	250 to 600
100% Modulus,psi	500 to 2000
Burst Strength,psi	250 to 500
Flex/Crack Bridging	> 1/8"
(-26°C / -15°F)	

Polyurea Performance Comparison

Polyurea Chemical Resistance Chart

7 day exposure per ASTM D-1308 – Immersion @ 25°C

Legend: R=Recommended (no damage), C=Caution (some swelling, discoloration), N=Not Recommended

Chemical Typical	Typical Polyurea	Chemical Typical	Typical Polyurea
Acetic Acid, 10%	R	Methyl Ethyl Keytone	N
Acetone	N	Mineral Spirits	R
Ammonium Hydroxide, 20%	R	Motor Oil	R
Ammonium Nitrate	R	MTBE	R
Ammonium Phosphate	R	Nitric Acid, 10%, 20%	N
Antifreeze, 50% Ethylene Glycol	N	Nitric Acid, 40%	N
Battery Acid (Sulfuric Acid)	N	Nitric Acid, 50%	N
Benzene	N	Phosphoric Acid, 10%	R
Brine (satruated 130,000 ppm)	R	Phosphoric, Acid, 25-85% (conc.)	n
Brake Fluid	N	Potassium Hydroxide, 10%	R
Chlorine (2,000 ppm in H^2O)	R	Potassium Hydroxide, 20%, 50%	N
Citric Acid	R	Propylene Carbonate	C
Copper Chromate Arsenic (4% working solution)	R	Rio Hondo Crude	R
Diesel Fuel	R	Skydrol (aircraft hydraulic oil)	N
Dimethyl Formaldehyde	N	Sodium Chloride	R
Gasoline – unleaded	C	Sodium Hydroxide, 5%, 10%, 25%	R
Hexane	R	Sodium hydroxide, 50% (conc.)	C
Hydrochloric Acid 5%, 10%	R	Sodium Hyperchlorite (household bleach)	C
Hydrochloric Acid 25%	N	Stearic Acid	R
Hydrofluoric Acid	N	Sulfuric Acid, 5%, 10%, 20%	R
Hydraulic Oil	C	Sulfuric Acid, 25%, 50%	N
Isopropyl Alchol	C	Sulfuric Acid, 98% (conc.)	N
Jet A Fuel	R	Toluene	C
Kerosene	R	1,1,1 Trichloroethane	C
Lactic Acid	R	Trisodium Phosphate	R
Liquid Nitrogen Fertilizer (28-0-0)	R	Vinegar (5% Acetic Acid)	R
Liquid Urea Fertilizer	R	Water	R
Methanol	C	Xylene	R

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Typical Adhesion Characteristics

System Reactivity, (sec)		2.5	3.5
Blistering	Bare steel	none	none
	Urethane primer	none	none
	Epoxy primer	F,#2	F,#2
Corrosion from scribe, mm	Bare steel	4	7
	Urethane primer	>10	>10
	Epoxy primer	9.5	8
Elcometer adhesion, psi	Bare steel	>2000	>2000
	Urethane primer	500	800
	Epoxy primer	1200	1100
1000 hours ASTM B-117 Salt Fog Exposure			

Substrate	Elcometer Adhesion, (psi)
Concrete, dry	400, SF
Concrete, primed	> 400, SF
Steel, 2-mil blast profile	> 2000
Aluminium, cleaned	>2000
Wood	250, SF

Performance Type	**Ployurea**	**Ployurethane**	**Ployester**	**Epoxy**	**Vinyl Ester**	**Acrylic**	**Polysulfide**
Physical strength	Low – High	Low – Mid	High	High	High	Mid - High	Low - Mid
elongation	High	High	Low	Low	Low	Low - Mid	High
Impact resistance	High	Mid - High	Mid	Mid	Mid	Mid - High	Mid - High
Abrasion resistance	High	Mid - High	Mid - High	Mid - High	Mid - High	Mid - High	Mid
Adhesion to concrete	Low - High	Low – Mid	Mid	High	Mid	Low - Mid	Low - Mid
Cure shrinkage	Low	Low	High	Low	High	High	Low
permeability	Low	Mid - High	Low	Low	Low	Low - Mid	Mid - High
UV Resistance	Mid - High	Low - High	Mid - High	Low	Mid	High	High
Creep	Low	High	Low - Mid	Low - Mid	Low - Mid	Low - Mid	High
Temperature limit	Low - High	Mid	Low - Mid	Mid - High	Mid - High	Mid	Low - Mid
Chemical Resistance							
Mineral acids	Low - Mid	Low - Mid	Mid - High	Mid - High	Mid - High	Mid	Low - Mid
Organic acids	Mid	Low - Mid	High	Mid	High	Mid	Low - Mid
akalis	Mid - High	Low - Mid	Mid	High	High	High	Low - Mid
Chlorinated solvents	Low - Mid	Low - Mid	Low - High	Low - High	Mid - High	Low - Mid	Low - Mid
Oxygenated solvents	Low – Mid	Low - Mid	Low - High	Low - High	Mid - High	Low - Mid	Low - Mid
Hydrocarbon solvents	Low - Mid	Low - Mid	Mid - High	Mid - High	Mid - High	Low - High	Low - Mid
Salts	High	Mid - High	High	High	High	High	Mid - High
Water	High	Low - High	Mid - High	Mid - High	Mid - High	Mid - High	Low - High