



TECHNICAL BULLETIN 6

Chemical and Stain Resistance of Aristech Acrylics LLC Acrylic Sheet

The following tables provide stain and chemical resistance ratings for Aristech Acrylics LLC Acrylic Sheet, Grades Altair® I-300 and GPA.

Table 1

1. 5.2 Stain Resistance per ANSI Z124.1—1995

		ALTAIR®I-300	
		Covered	Uncovered
1.	Black crayon	2	2
2.	Shoe polish	2	2
3.	Washable ink	1	1
4.	Gentian violet	1	1
5.	Lipstick	2	2
6.	Hair dye	2	2
7.	Iodine solution	1	1
		11	11
		TOTAL 22	

2. 5.5 Chemical Resistance per ANSI Z124.1—1995

		ALTAIR®I-300	
		Covered	Uncovered
1.	Petroleum naphtha	Unaffected	Unaffected
2.	Ethyl Alcohol	Unaffected	Unaffected
3.	Amyl acetate	Unaffected	Unaffected
4.	Household Ammonia, 10% Water Solution	Unaffected	Unaffected
5.	10% citric acid	Unaffected	Unaffected
6.	6% urea	Unaffected	Unaffected
7.	3% Hydrogen Peroxide	Unaffected	Unaffected
8.	Sodium hypochloride (Chlorox)	Unaffected	Unaffected
9.	5% phenol solution (Lysol)	Unaffected	Unaffected
10.	Toluene	Unaffected	Unaffected
11.	Ethyl acetate	Unaffected	Unaffected
12.	1% lye solution (Drano)	Unaffected	Unaffected
13.	Acetone	Unaffected	Unaffected

The testing was performed by an independent laboratory.

Stain resistance:

1= non staining

2= removable by alcohol or naphtha

Table 2

Chemical Resistance of Aristech Acrylics LLC Acrylic Altair®I-300 with other substances.

Reagent	Result
1. Gasoline	Unaffected
2. Alcohol, (Ethyl, Methyl, Isopropyl)	Unaffected
3. Amyl Acetate	Unaffected
4. Carbon Tetrachloride	Unaffected
5. Moth Spray	Unaffected
6. Fly Spray	Unaffected
7. Household Soap	Unaffected
8. Soapless Detergents	Unaffected
9. Trisodium Phosphate	Unaffected
10. Olive Oil	Unaffected
11. Household Ammonia 10%	Unaffected

Table 2

Chemical Resistance of Aristech Acrylics LLC Acrylic Altair® I-300 with other substances

Reagent	Result
12. Citric Acid 19%	Unaffected
13. Coffee	Unaffected
14. Sodium Bisulphate	Unaffected
15. Lipstick	Unaffected
16. Urea 6.6%	Unaffected
17. Shoe Polish	Unaffected
18. Tea	Unaffected
19. Beet Juice	Unaffected
20. Vinegar	Unaffected
21. Ink Washable	Unaffected
22. Mild Silver Protein	Unaffected
23. Bluing	Superficial Only
24. Dye	Superficial Only
25. Iodine Solution	Superficial Only
26. Mercurochrome	Superficial Only
27. Phenol 3%	Superficial Only
28. Hydrogen Peroxide	Superficial Only
29. Hypochlorite Bleach	Superficial Only
30. Toluene	Superficial Only
31. Benzene	Superficial Only
32. Lacquer Thinner	Superficial Only
33. Ethyl Acetate	Superficial Only
34. Gentian Violet 2%	Superficial Only
35. Lye 1%	Superficial Only
36. Acetone	Superficial Only

Table 3

Chemical Resistance Aristech Acrylics LLC Acrylic

Property	ASTM D-543-78 Method (2)	Units	GPA	Altair® I-300
Chemical Resistance				
Weight Gain After 7 Days Immersion at 77°F. (1% or less is considered negligible)		%		
30% Sulfuric Acid			0.2	0.3
3% Sulfuric Acid			0.4	0.5
10% Nitric Acid			0.3	0.4
5% Acetic Acid			0.4	0.5
10% Hydrochloric Acid			0.3	0.4
Oleic Acid			0.0	0.0
10% Sodium Hydroxide			0.3	0.4
1% Sodium Hydroxide			0.4	0.5
10% Ammonium Hydroxide			0.4	0.5
2% Sodium Carbonate			0.4	0.5
10% Sodium Chloride			0.3	0.4
3% Hydrogen Peroxide			0.4	0.6
Distilled Water			0.4	0.5
50% Ethyl Alcohol			0.8	1.7
95% Ethyl Alcohol			1.4	1.1
Acetone			D	R-S
Ethyl Acetate			D	R-S
Ethylene Dichloride			D	R-S
Carbon Tetrachloride			0.03	0.0
Toluene			D	0.0
Gasoline (Heptane)			0.0	0.0
99% Isopropyl Alcohol			0.1	-0.2
99% Methyl Alcohol			8.1	17.6
Lacquer Thinner			D	0.3
Dibutyl Sebacate			-0.1	0.0
10% Citric Acid			0.3	0.4
5% Phenol Solution			A-C	A-C

Chemical Resistance Code: A — Attacked, C — Colored, D — Dissolved, R — Rubbery, S — Swollen, T — Turbid

(1) Data given are average values and should not be used for specification purposes.

(2) Samples conditioned per ASTM D-618-61, Procedure B, except where noted.

Table 4

Solvent Resistance per ASTM D-1300* Chemical	Altair® I-300	Solvent Resistance per ASTM D-1300* Chemical	Altair® I-300
Esters:		Acids:	
Amyl Acetate	A	Citric Acid	A
Ethyl Acetate	B	Hydrogen Peroxide, 3%	B
Petroleum Distillates:		Bases:	
Gasoline or Naphtha	A	Hypochlorite Bleach 1	B
Alcohols:		Trisodium Phosphate	A
Methyl Alcohol	A	Organic Solvents:	
Household Compounds:		Halogen Bearing Chains:	
Moth Spray 3	A	Ethylene Dichloride	C
Mild Silver Protein (such as 20% argyrol)	A	Unsaturated Rings:	
Ink, washable	A	Phenol Solution, 3% 2	B
Household Soaps and Washing Powders	A	Toluene	B
Mercurochrome Solution	B	Ketones:	
Bluing	B	Acetone	B
Dye	B	Methyl Ethyl Ketone	B
Iodine Solution, 1% in Alcohol	B	Lacquer Thinner	B
Disinfectants (such as 3% Phenol Solution)	B		

* ASTM D-1300 Test requires that 2-3 drops of a specified chemical be applied to the surface of the acrylic and covered with a watch glass (to prevent the chemical from evaporating). The chemical is allowed to contact the acrylic surface for 14 hours. After that time, the surface is examined and given one of the ratings listed above.

A—Unaffected

B—Cleaned by application of a mild abrasive.

C—Surface attacked.

1 Representative products would be Clorox, Drano, and Sani-Flush.

2 Representative products would be Tintex, Rit and Lysol.

3 Representative products would be Larvex, Flit, or Dreft.

Table 5

Chemicals in Common Household Compounds

Chemical	Example of Household Compound	Concentration (%)
Acids:		
Acetic Acid	Vinegar	5.0
Boric Acid	Listerine	Unspecified
Hydrochloric Acid	Lysol	0.5
Hydrogen Peroxide	Hydrogen Peroxide Solution	3.0
Peroxy Sulfate	Vanish	0.04
Sodium Acid Sulfate	Vanish	75.0
Bases:		
Sodium Hypochlorite	Clorox	5.3
Ammonia Derivatives	Bobricks Ammonia Cleaner	Unspecified
	Windex	Unspecified
	Lysol Bathroom Cleaner	Unspecified
Sodium Hydroxide	Dow Oven Cleaner	Unspecified
	Liquid Plumr	Unspecified
	Drano	Unspecified
Organic Solvents:		
Halogen Bearing Chains:		
Trichloroethylene	Aero Spot Remover	Unspecified
1, 1, 1, — Trichloroethane	Aero Spot Remover	Unspecified
Unsaturated Rings:		
Phenol Derivatives	409 Bathroom Cleaner	0.10
Chlorinated Phenol Derivatives	409 Bathroom Cleaner	0.08
	Pinesol	0.1
	Enden	Unspecified
	Ban	Unspecified

Table 5 (continued)

Chemicals in Common Household Compounds

Chemical	Example of Household Compound	Concentration (%)
Organic Solvents:		
Ethers:		
Unspecified	Black Flag	0.2
Oxalic Acid (straight chain)	Delete	Unspecified
Benzoic acid (ring structure)	Listerine	Unspecified
Esters:		
Acetate Derivatives	Lysol Bathroom Cleaner	1.5
Alcohols:		
Isopropyl Alcohol	Pinesol	10.9
Unspecified	Ban	Unspecified
Unspecified	Listerine	25.0
Unspecified	Tincture Merthiolate	50.0
Menthol Derivative (ring structure)	Listerine	Unspecified
Menthol Derivative (ring structure)	Ben Gay	Unspecified
Saturated Straight Chains:		
Unspecified	Lysol	Unspecified
Unspecified	Lysol Bathroom Cleaner	Unspecified
Petroleum Distillates: Includes both saturated and unsaturated straight chains and saturated ring structures.		
Petroleum Distillates	Black Flag	Unspecified
	Favor	Unspecified
	Lighter Fluid	Unspecified

For cautions and other information relating to handling of an exposure to this product, please see the applicable material safety data sheet published by Aristech Acrylics LLC.

These instructions are based upon experience with Aristech Acrylics LLC products only. Experience with products of other manufacturers is specifically disclaimed. For most uses, check for local code approval and test for application suitability. These procedures, techniques and suggested materials should only be used by personnel who are properly trained in the safe handling of the chemicals and the equipment with which they are working. Avoid aromatic solvents, clean with mild soap and water, avoid abrasives. These suggestions are based on information believed to be reliable, however, Aristech Acrylics LLC makes no warranty, guarantee, or representation and assumes no obligations or liability as to the absolute correctness or sufficiency of any of the foregoing, or that additional or other measures may not be required under particular conditions or circumstances.



7350 Empire Drive • Florence, KY 41042
(859) 283-1501 • Toll Free 800-354-9858
www.aristechacrylics.com

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