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Comparison of Series 2000/4000 bis-A Epoxy and Series 9400 Phenol Novolac Epoxy Laminates

Comparison of Weight Loss and Surface Integrity in Heat Cured Systems [1]

	Series 2000/4000			Series 9400		
	1 day	7 days	28 days	1 day	7 days	28 days
98% Sulfuric Acid						
% Weight Change [2]	-29.0	-88.8	D	0.4	1.0	1.0
Hardness Retention [3]	87	82	D	89	89	88
Toluene						
% Weight Change [2]	0.1	0.2	0.2	0.1	0.2	0.2
Hardness Retention [3]	90	91	90	90	90	90
MEK						
% Weight Change [2]	0.2	0.5	1.4	0	0.2	0.7
Hardness Retention [3]	90	90	88	88	90	90
99.8% Acetic Acid						
% Weight Change [2]	1.0	2.5	5.0	1.3	3.7	7.5
Hardness Retention [3]	90	89	88	89	87	85
Methylene Chloride [4]						
% Weight Change [2]	11.2	36.2	58.2	8.2	36.3	D
Hardness Retention [3]	80	77	56	82	70	50
Methyl Alcohol [4]						
% Weight Change [2]	0.5	1.3	3.1	0.5	1.5	3.2
Hardness Retention [3]	90	88	85	90	87	85

[1] Cure Schedule: Gel at RT + 2 hrs. @ 80ºC + 3 hrs @ 150ºC

[2] Sample immersed completely in chemicals for specified time. % weight change and hardness measured on same sample at the time intervals shown.

[3] Shore D scale.

[4] Series 5800/9800 furan composites are recommended for Methylene Chloride and Methyl Alcohol services.

D = Sample destroyed (broken apart or dissolved).

All laminates cured with an amine hardener (curing agent).