

Material Test Report

Safety Plus ® II Laminated Glass

Tests conducted by Mike Adams, Senior Training Officer

Scope of work:

Compatibility tests on the edge of the laminated glass with various glazing materials, solvents and water.

Specimens:

Sixteen samples were cut from a larger sheet. Eight of the samples were 5" X 3". The other eight samples were cut 3' X 3". The exposed interlayer thickness of .090, glass thickness 1/8".

Equipment:

Eight one gallon polyethylene open top containers with a solvent/water depth of one inch (1"). Immersed into the fluid a block of wood 2" X 2" X 2". On top of the container was a clear piece of glass to stop the solvent/water evaporating.

Procedure:

The sample piece of glass measuring 3" X 3" was placed on top of the wood block so that all four edges were exposed to the vapors of the solvent and high humidity of the water. The pieces of glass measuring 5" X 3" were immersed into the fluid one inch in depth on the 3" side. The gallon containers were covered in glass to keep the solvents and water from evaporating. The samples were removed every 24 hours, up to 192 hours. Then testing on some sample pieces of glass were terminated and the remaining continued to be tested.

Two of the samples tested were for compatibility to structural silicone, each of the samples were covered on three edges with approximately 1/4" X 1/4" bead of silicone, they were left for 36 hours to air cure. We then took two samples and immersed them in water, and two samples were placed upon the wood blocks.

Immersed Sample Results:

Chart Symbols: **NE**: No Effect, **DL (Amount)**: De-lamination Amount,
CF: Complete Failure

HOURS	24	48	72	96	120	144	168	192
MINERAL SPIRIT	NE	NE	NE	NE	NE	NE	NE	NE
DIBASIC ESTER	NE	NE	NE	NE	DL1/8"	DL3/8"	DL 1"	DL 1"
ACETONE	DL ¼"	DL ¼"	DL 5/16"	DL3/8"	DL 1"	CF	STOPPED	
M.E.K.	NE	NE	NE	NE	DL ¼"	DL ¼"	DL ¼"	DL¼"
WATER	NE	NE	NE	NE	NE	NE	NE	NE
ALCOHOL 90%	NE	DL1/16"	DL1/16"	DL1/16"	DL1/8"	DL3/4"	DL 1 1/2"	CF
DOW 995 SILICONE	NE	NE	NE	NE	NE	NE	NE	NE
G.E. SCS 2800	NE	NE	NE	NE	NE	NE	NE	NE

WEEKS	2	3	4	5	6	7	8	9	10
MINERAL SPIRIT	NE	NE	NE	NE	NE	NE	NE	NE	NE
WATER	NE	NE	NE	NE	NE	NE	NE	NE	NE
DOW 995 SILICONE	NE	NE	NE	NE	NE	NE	NE	NE	NE
G.E. SCS 2800	NE	NE	NE	NE	NE	NE	NE	NE	NE

The immersed glass & vapor exposed showed similar results.

Conclusion:

The adhesion of the interlayer polymer is badly effected by immersing in Solvents, Acetone and 90% Alcohol. They are slightly effected by Dibasic Ester and M.E.K. These solvents should not be used in contact with the edge of the laminate for any extended period of time. If the glass is cleaned with any solvents the edges should be dried with a wet (water) cloth and wiped dry.

Mineral Spirits and the two Silicones tested showed no effect after immersing for ten weeks and subsequently the test was terminated.

The Water test period was extended indefinitely. After 2 years of immersion under water, the test glass showed no evidence of degradation or de-lamination. The test was subsequently terminated.

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