



Protection From Acid Etching

Background: A new method employed by graffiti vandals or “taggers” is the use of glass etching compounds. These over the counter items usually contain hydrofluoric, ammonium bifluoride and/or sulfuric acids. These etching compounds can be mixed with shoe polish and applied to windows where they will react with the glass within minutes. The use of polyester film as a sacrificial barrier has been found to be very useful in preventing damage to windows by physical and chemical attack.

Test Matrix: The 6 mil Glass Shield films were tested for their protective capabilities against readily available glass etching materials.

Armour Etch® glass etching cream and Etch Bath® glass dipping solution were applied to 6 mil Glass Shield on ordinary 3mm annealed clear float glass. The test panels were placed in a horizontal position (worse case) and the etch compounds were left in contact with the film for 24, 48 and 72 hours. The results from the exposures are listed below.

Film	24 Hour	48 Hour	72 Hour
Bare Glass	Severe (5 minutes)	N/A	N/A
6 mil Glass Shield Etch Cream	No Damage	No Damage	No Damage
6 mil Glass Shield Etch Solution	No Damage	No Damage	No Damage

Conclusion: Neither the Etch Cream, nor the Etch Bath, caused glass damage during the extended test duration with the 6 mil Glass Shield. The Etch Cream caused a very slight “haze” on the glass surface with the 6 mil Glass Shield but only after 72 hours. The latter result would not be expected in a realistic window configuration for the reasons enumerated below. The Etch Cream was applied as a very thick coating. Therefore, the acid did not completely dry-out during the entire test duration. In actual use, the coating is assumed to be somewhat thinner, thus less likely to cause damage. In a real-world scenario, the glass would more than likely be cleaned within 48 hours, probably quicker if not a weekend. Additionally, the experiment was carried out in a horizontal orientation. More commonly, windows and glazing is vertical thus allowing for run-off. Furthermore, the effect of exterior environmental factors, solar heat, wind, etc... would cause these etchants to dissipate faster; decreasing the actual duration the etchant is in contact with the glass. Worth noting, the Etch Bath material is extremely low in viscosity and does not wet out the film’s surface well. The liquid etch would run off vertically installed glass rather quickly.

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