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Add boiling hot water to the Vari-Etch container, dissolve the powder and etch your glass. It is as simple as that; sort of...

Making the Vari-Etch Solution

Vari-Etch Frosting Powder dissolves slowly in cold tap water. Add boiling hot water, not quite up to the shoulder of the one quart bottle, cap the jar and shake vigorously. If making one or five gallons, add very hot water not quite to the top of the bucket and stir the mixture. The mixture will cool down due to the endothermic reaction (As the powder dissolves, the solution absorbs energy from its ingredients, reducing its overall temperature. Remember that from chemistry class?).

To complete the dissolution it may be helpful to place the container in a bath of hot (but not boiling) water. Let it warm and then shake or stir it. Repeat this process as needed, being patient and attentive to the temperature of the water bath. After dissolving the powder in the heated water, allow the mixture to cool thoroughly before opening the bottle or bucket.

If crystals form in the liquid, you can repeat the hot water bath, stirring process to dissolve the crystals once again.

The Vari-Etch Solution

Vari-Etch will etch different glasses at different rates (Note: Borosilicate glass will not be etched by the Vari-Etch liquid). The degree of etching can be varied to obtain different surface finishes by adjusting the water ratio. Once the solution has been prepared as described in the instructions above (normal concentration), you can separate a portion of the solution into another safe container, add an equal amount of water to the solution, and dilute it (making 1/2 strength solution). Place a piece of glass into the diluted solution for 1/2 hour to a full hour and see the result. This will illustrate the variety of finishes you can achieve with Vari-Etch from His Glassworks, Inc.

EXPERIMENT!

As mentioned above, this solution will etch different glasses at different rates, sometimes leaving areas that will not be etched but other areas will be. This may be of particular interest to fusers and bead makers.

Vari-Etch Frosting Powder is a mixture of 'dry' acids and inert compounds that when mixed with water will frost-etch glass at a rapid rate. Typically three to five minutes of soaking in Vari-Etch will result in a finely etched surface. Longer periods of immersion will result in a more aggressive etch on the surface. Over time, the solution of Vari-Etch will turn a dark amber color. This reaction is due to light exposure and does not affect the etching quality of the solution nor does it mean that the solution needs to be replaced.

The use of a secondary rinse bath is strongly encouraged prior to the final rinse at your sink. This first rinse bath will eventually become acidic and should be treated with care. This liquid can then be neutralized with the addition of soda-ash (baking soda) and then disposed of down the drain.

The most beneficial use for Vari-Etch is the fingerprint sealing of sandblasted glass surfaces. A soak in a bath of Vari-Etch for 10 to 15 minutes will effectively etch the glass surface into a uniform frosted finish that will not absorb finger print oils. Adjusting the concentration of the Vari-Etch bath will result in a variety of surface finishes on the sandblasted surface. No longer will you need to be oiling the old sandblasted glass to protect it.

Economy

Vari-Etch Frosting Powder requires only water to activate the solution to full power and it can be used and reused for a long period of time. After lengthy or frequent use it may require the addition of more Vari-Etch Frosting Powder and water to supplement or "rejuvenate" the mixture.

Additions of costly or dangerous acids are unnecessary and there are a myriad of solution strengths possible for a variety of finish effects. Because the material can be easily rejuvenated, there is little reason to discard the used material.

Storage

Vari-Etch should be stored in original container when possible. If other containers must be used, inspect those containers for structural integrity and periodically inspect all storage containers for signs of potential loss if integrity. Move contents to fresh containers if any cracks or areas of possible leakage are found. Store in cool, dry, well-ventilated area.

Disposal

Vari-Etch solution is a weak acid (Ph 5.1) and can be neutralized by the addition of soda ash or baking soda (sodium bi-carbonate). To reduce the acidity and render the solution 'inactive' *slowly* mix $\frac{3}{4}$ pound of baking soda per quart of Vari-Etch to reduce the acidity to approximately 7.0, neutral. This process should be done in a large container, as some bubbling will occur. No hazardous fumes will be created during the neutralizing process, as only CO₂ (carbon dioxide) bubbling will occur. The material can then be flushed down the drain with a large flow of water or disposed of in an appropriate manner. Please check and comply with your local regulations regarding the addition of fluoride ions to the waste water system in case of large disposal amounts.

Safety First!

- Keep out of reach of children and pets.
- This mixture is not safe to drink.
- Do Not store this mixture in any container that may be mistaken for a drink container.
- Avoid contact with skin, eyes and mouth. Wash your hands thoroughly with a pumice type soap and warm water after use. Remove any clothing that has come in contact with the Vari-Etch solution and wash thoroughly.
- Application of a hand cream after exposure is recommended.
- Do not breathe dust from the powder mixture before adding water. Use in an area with adequate ventilation.
- Protective eyewear and gloves are recommended. A plastic or rubber style apron is also recommended if splashing may occur.
- *Do Not* reuse this container for anything other than the Vari-Etch liquid.
- The active ingredient in Vari-Etch Frosting Powder is Ammonium Bifluoride (ABF), 48% by weight (see attached MSDS), 52% inert ingredients.
- The liquid solution of Vari-Etch is Ph 5.1.
- No component of Vari-Etch Frosting Powder is listed as being carcinogenic.
- Vari-Etch Frosting Powder is Non-Flammable.