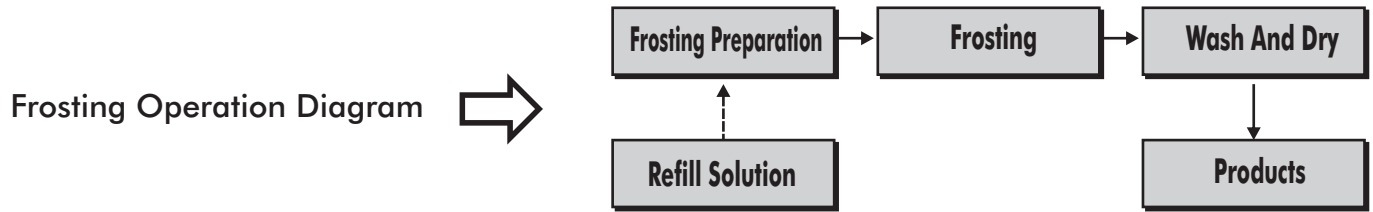


ACID BASED FROSTING OPERATION INSTRUCTIONS



• Preparation

Frosting powder, hydrochloric acid ($\geq 31\%$), PVC or plastic containers, rubber gloves and safety glasses

• Frosting Solution Preparation

1. Pour the powder into a PVC or plastic container.
2. Add industrial grade hydrochloric acid slowly into the container with agitation.
3. Cover the mixed solution at least 24 hours for maturation, and stir twice per day for further maturation. (The maturation time is longer, the effect will be better.)

Notes:

- a. Please make sure the concentration of the HCl acid is not less than 31%.
- b. The weight ratio of powder to HCl is 1:0.5. (except EtchOn Quartz Frost, the weight ratio of Quartz Frost to HCl is 1:0.3)
- c. This is an endothermic reaction, so the newly prepared frosting solution is rather viscous. Use the solution until it achieves normal state. In summer, it needs 2-3 days; while in winter, it needs 3-5 days.

• Glass Pretreated

Wash the glass with water, if needed, pre-treat the glass surface with diluted HCl acid (5-15%), and then wash with water.

• Frosting Operation

1. Stir the solution well with a wood or plastic rod, then filter the solution with 10-20 mesh nylon material. Note: The collected solid residue can readily be reused after mixed with HCl acid.

2.

a. FLAT GLASS

Cover one side with PVC film if you just want frost one side, and then dip the glass into the frosting solution or spray frosting solution on the glass surface. We often frost the glass for 20-60 seconds.

b. GLASS BOTTLE

Use rubber holder to hold the bottle, and then dip in the frosting solution.

3. Drip the glass for 10-25 seconds and wash with water.

Rinsing Wash the glass with running water thoroughly. Use 5-15% diluted HCl acid for deep cleaning.

• Drying Dry the glass with hot air.

• Frosting Solution Refills

The concentration of the frosting solution will decrease after frosting a few hours. Additional concentrated frosting solution (1:0.30 or 1:0.40) should be added into the frosting working system to maintain normal production.

• Treatment of Waste Water

During frosting operation, acidic waste water needs to be neutralized with lime water until $\text{pH}=8-10$.

Safety Notes

1. Wear safety glasses and rubber gloves at all times during both the frosting preparation and operation. During the preparation, please wear respirator to protect from the HCl volatilization.
2. Carry out frosting operation in a ventilated room.
3. In case of contacting with skin or eyes, wash immediately with running water for 5-15 minutes. Then seek medical attention if discomfort still persists.