如何清洗及維護保養 Cell

Care and Cleaning of Cells NO :1

In general, the surfaces of the cells of fully fused construction (such as Starna brand) are resistant to attack by most laboratory cleaning agents. However, strong alkalies will attack the optical surfaces and should be used only as a last resort. Both the quartz and glass materials may absorb some metal ions onto the surface and this may require considerable rinsing to remove it.

Cleaning Methods:

Detergent Solutions

Most laboratory detergents may be used at recommended concentrations, however if the pH is greater than 8.5 etching of the cell windows may occur. In general, neutral detergents are safer if regular cleaning is needed.

Chromic Acid

This may be used as a 5% to 10% solution in 90% sufphuric acid or as a 5% solution in 20:80 nitric:sulphuric acid. Cells should be soaked for up to 12 hours or possibly overnight and rinsed with at least 10 changes of distilled water to remove chromate ions from the glass surfaces of the cell. The reagent is very corrosive and should only be used by properly trained staff. Also, the reagent should not be used more than once a month of etching of the cell may occur.

Chlorate-Hydrochloric Acid

Immerse the cells in concentrated (SG 1.18) HCl and potassium chlorate added in small quantities up to about 10% with frequent agitation. This must be carried out in an efficient fume hood by properly trained staff.

Alcoholic Potassium Hydroxied

May be used as a 5% solution, but will etch cells if used repeatedly. Use this method only as a last resort.

General Techniques NO :2

Ultrasonic Cleaners

These cleaners may be used to clean cells. The only caution is that if the frequency of your ultrasonic cleaner is at the resonance frequency of the cell, the cell will be damaged. If you notice any cracking of the cell from ultrasonic cleaning, discontinue immediatly.

Increased Temperature Wash

When using a detergent you may increase the temperature of the detergent solution to speed cleaning.

Rinsing Tips

The most efficient rinsing technique is after washing and multiple rinses with distilled or DI water, follow with a rinse in ethanol and acetone. Both the ethanol and acetone should be reagent grade.

Phosphoric Acid

The cells will be attacked by phosphoric acid samples. The best protection is to keep the
phosphoric acid solution in the cell the shortest time necessary for your analysis and then immediately rinse and wash the cell with detergent followed by rinsing.