

# X-RAY Windows

## Guidelines for Cleaning AP3 X-Ray Windows (Technical Note)

AP3 x-ray windows are very thin. Care should be taken while handling these windows. The guidelines below should be strictly followed in order to protect the window from damage.

### Contact

The AP3 window can be easily damaged by improper treatment. Do NOT touch the window surface with anything, including a cotton swab or soft brush. Physical abrasion can easily damage the membrane or the silicon support grid. It is also important to protect the window as much as possible from dust and other particulate contamination, which can induce window failure.

Avoid any physical shock to the window. Sudden impacts can damage the window or support grid and

### Cleaning

To clean a window, the window mount should be oriented so a solvent can run downward across the FRONT (reflective side) surface of the window and drip off without accumulating on the window (See Fig.1). Apply a gentle stream of solvent to the metal flange *above* the window, as shown below, and allow it to stream across the surface of the window until the window is clean. **NEVER squirt or spray the solvent directly onto the window surface. NEVER allow any solvent to get onto the backside of the window!** Allow the window to dry in air or in an N<sub>2</sub> chamber.

Only clean the window if absolutely necessary. Cleaning can cause damage or destroy a window. Pressurized spray-can dusters should not be used near the window. Do not use Plasma cleaners.

Do NOT use any cleaning agent that may attack the aluminum overcoat or the epoxy seal (e.g., acids, bases, detergents, or water).

Appropriate cleaning solvents include high purity methanol and isopropyl alcohol. Particulates and other contaminants can damage the window membrane or leave behind unacceptable residues during the cleaning process.

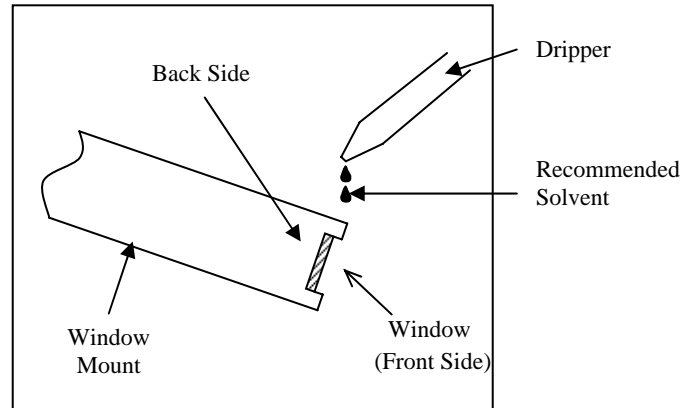


Fig. 1: AP3 Cleaning Technique

### Mounting

The window must be mounted with the FRONT side (the reflective side) facing the high-pressure side of the instrument. Never allow the window to experience more than **2 atm** of differential pressure in the forward direction or **1 atm** in the reverse direction (back pressure).

### Temperature

The window should not be subjected to temperatures higher than **40°C** with a differential pressure (**70°C** without differential pressure.)

### Pumping/Venting

A detector chamber must be pumped down slowly in order to reduce the risk of pressure shock to the window.

When venting, retract the detector, and then vent the chamber slowly in order to prevent any particles from hitting and damaging the window.

*If you have any questions about the proper handling of AP3 windows, please contact MOXTEK.*



452 West 1260 North  
Orem, UT 84057  
P 801.225.0930  
F 801.221.1121

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