TEMwindows
a division of SiMPore

Thank you for your purchase of TEMwindows. If you have any questions or concerns, please call or email us.
phone: 585-214-0585 or 888-323-NANO **email:** service@temwindows.com

SAMPLE PREPARATION AND CLEANING INSTRUCTIONS

Sample Preparation

TEMwindows are made of ultrathin semicondcutor materials that are extremely robust when dry, but care must be taken when wet.

Each TEMwindow is packaged in the gel-box with the continuous membrane facing up (see schematic). TEMwindows should never be placed on a surface with the membrane face down. We recommend handling from the sides of the frame with flat-sided plastic or teflon coated tweezers. Do not directly touch the membrane windows.

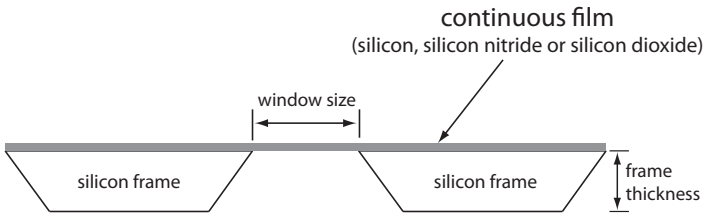
When applying a sample to a window grid, we recommend placing a small drop of solution and wicking away the excess with a clean laboratory or lens tissue. The window grid should be allowed to dry in a clean environment as rapidly as possible to minimize contamination. If adhesion or dispersion is not as desired, window grids can be plasma or ozone cleaned to reduce the native contact angle from approximately 50 degrees to less than 5 degrees.

Robustness

Every production lot of TEMwindows is tested for robustness by our QA/QC technicians. High concentrations salt solutions (100 mM NaCl) are dried on the window grids resulting in salt crystal formation. Windows must survive intact in order to for a product lot to be certified and packaged.

In addition, we also perform burst pressure testing on our windows to give our customers an idea of which TEMwindows are suitable for high vacuum applications. These data can be found on our website by clicking on 'Technical Info' in the left column of the home page.

Cross-Sectional View



Plasma Cleaning

We recommend using pure O_2 if possible as Ar will degrade thin films over time. O_2 and Ar mixtures are acceptible. In general, TEMwindows can be cleaned for significantly longer (>60 seconds) than carbon grids eliminating most organic contaminants. We recommend comparing a cleaned and uncleaned TEMwindow from the gel-box. If there is a substantial change in color or wrinkling under an optical microscope, the plasma cleaning may be too aggressive resulting in degradation of the support film. Some plasma systems may induce heating of the sample. Pure silicon TEMwindows will rapidly oxidize in the presence of oxygen at high temperatures. This is generally not a problem for most TEM sample preparation tools which are generally considered gentle.

Liquid Cleaning

For wet cleaning, TEMwindows can be placed in any solvent such as IPA or acetone. They can also be cleaned with water or dilute solutions of HCl or sulfuric acid. Silicon nitride window grids can also be cleaned with bases. Pure silicon and silicon dioxide can be cleaned with mild bases for short periods of time. TEMwindows should be held vertically with a clean tweezer when individually introduced into a fluid. The window grid can then be moved up and down for one minute and then rinsed in DI water using the same method.