

MOMENTIVE PERFORMANCE MATERIALS - GUIDELINES for CLEANING FUSED QUARTZ

For applications in which cleanliness is important, Momentive Performance Materials recommends the following procedure:

The product, particularly tubing, should be washed in deionized or distilled water with a degreasing agent added to the water. The fused quartz should then be placed in a 7% (maximum) solution of ammonium bifluoride for no more than ten minutes, or a 10 vol % (maximum) solution of hydrofluoric acid for no more than five minutes. Etching of the surface will remove a small amount of fused quartz material as well as any surface contaminants.

To avoid water spotting that may attract dirt and cause divitrification upon subsequent heating, the fused quartz should be rinsed several times in deionized or distilled water and dried rapidly.

To further reduce the possibility of contamination, care should be used in handling fused quartz. The use of clean cotton gloves at all times is essential.

Washing of translucent tubing is not recommended because the water or acid solution tends to enter the many capillaries in the material. This may cause the quartz to burst if the pieces are subsequently heated rapidly to very high temperatures.

IMPROVING THE PERFORMANCE & LIFETIME OF DEPOSITION PROCESS QUARTZWARE

Quartzware used in film deposition processes is subject to being coated with the deposit materials. The accumulation of film thickness will create stress to the film and its underlying quartz material due to the mismatch of thermal expansion coefficient, which can eventually lead to particle generation in the system.

One way to address this issue is to clean the quartzware on a regular basis to remove the deposited film. This results in a downtime of the system and an eventual replacement of the quartzware as quartz material is also being removed in the cleaning process.

Texturing the surface of the quartzware provides an innovative way to reduce the particle generation and to increase the lifetime of the quartzware. After this pre-treatment to the quartzware surface, the adhesion of deposited material to the underlying quartzware is improved and thus, a thicker film without particle generation can be achieved. This translates to less frequent cleaning and longer quartz life.

Following Momentive Performance Materials' guidelines, United Silica Products can optimize the surface of the quartz product to fulfill customer specific requirements and help reduce the cost of ownership.