

Explanatory Document on QUARTZ GLASS Handling

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Before using QUARTZ GLASS, please be sure to read this document together with the Product Safety Data Sheet, and to use the quartz glass product correctly and properly.
Be aware that failure to obey the Precautionary Items could lead to injury!
Also, failure to obey the Precautionary Items could also be a cause of product breakage or other damage, and injury related to such damage!

WARNING!!



Beware of cuts!

- 1) This product is made of GLASS.
 - (1) A glass product breaks easily, and there is a fear that if impacted, breakage could occur, pieces could fly off or fall downwards, and injury could occur.
 - Please do not impact this product. When working with this product, always be sure to wear protective equipment, including gloves, protective glasses, safety boots, etc.
 - If, in any case, breakage does occur, please be aware that broken edges are sharp, and could be a cause of cut injuries, and take appropriate care accordingly.
 - This product is not suited for use as a pressurized utensil. If you are forced to use this as a pressurized utensil, then be sure to take safety measures first, such as by covering it with a protective cover, etc.
 - (2) If, during use, work is continued when a crack or other defect has occurred, and/or further attrition occurs, then there is a fear that the product's mechanical strength will be remarkably reduced, and that this will become a source of breakage, which may cause physical injury and/or damage.
 - If you discover a crack or other defect during use, or when the product has been used to a degree where it has deteriorated or where attrition has occurred, then always exchange this for a new product!



Always wear gloves!



Always wear protective glasses!

CAUTION!



Beware of respiratory system damage or injury!



Beware of eyeball injuries!

- 1) Dust particles are generated when quartz glass is cut or polished!
 - (1) Continual breathing in of dust particles could cause damage to the lungs and/or bronchial tubes!
 - Always wear a protective dust mask, or use dust-protection equipment! Also, after completing your work, please be sure to clean your mouth by gargling.
 - Please consult a physician if you feel any physical irregularities.
 - (2) If dust particles enter the eye, there is a fear of eyeball injury!
 - Always wear protective glasses!
 - If any dust does get into an eye, immediately wash with large amounts of water, and if necessary, receive the care of a physician.



Always wear a dust-resistant mask!



Always wear protective glasses!



**Danger of injury!
Beware of chemical injury!**

- 2) Quartz glass erodes when exposed to a solvent or gas!
 - Hydrofluoric acid, phosphoric acid, an alkali or an alkali metal compound solvent, or the surrounding environment of such, can cause erosion of the quartz glass and/or a loss of surface transparency. The ablation resulting from erosion may cause an injury, and there is a fear that any such injury could lead to more serious physical injury and/or injury or damage due to chemicals, etc.
 - Gaps may occur in the product due to erosion; such gaps could cause a leakage of solvent and/or gas.
 - Increased loss of transparency makes the product easy to break or become broken.
 - If erosion or loss of transparency occurs beyond the usage limit, please exchange for a new product.
 - For certain types of product shapes, it may be difficult to fully remove solvent. Therefore, please use only after rinsing thoroughly with pure water, and then fully drying the product.

CAUTION!



**Beware of
breakage!**

- 3) Be sure to take sufficient precautions when washing a non-transparent quartz glass product.
- When cleaning fluid has penetrated into gap portions of this material, if rapid heating or high-temperature heating is performed in a state where there has been insufficient drying, and thus cleaning fluid still remains in this gap, then breakage could occur at any such gap portions.
- 4) Waste raw material, working dust, remainder material, used products, or any other waste is a source of environmental contamination.
- Always be sure to request an authorized industrial waste disposal firm to dispose, as legally regulated, of this waste as industrial waste matter.

Items of Special Precaution When Handling QUARTZ GLASS

- 1) Touching quartz glass with the naked hand will leave a smudge, etc., on the glass, such as fingerprints. Any smudging, etc., of quartz glass could easily cause a loss of transparency.
- Never touch the product directly with the naked hand! Also, when storing or setting aside the product, please be sure to place it in a polyvinyl bag, or take other precautions to ensure that no dirt, dust, or any other foreign contaminant attaches to the product.
 - If the product is used at high temperatures when an impurity has become attached to the product surface, the result will be a reduction of product life. Also, use with a surface-attached impurity also means that the product could break easily; there is a fear that such breakage could cause physical injury.
 - When removing smudges or other impurities, in general, after immersion for several minutes in around 5°C to 10°C hydrofluoric acid, wash and rinse sufficiently and thoroughly with pure water (demineralized water), and then allow the product to dry well.
- 2) Precautions when using quartz glass at high temperatures, or for long periods of time
- Quartz glass has a high heat-resistance temperature, and it can resist temperatures as high as 1,000°C. However, for long-period use at a temperature of 1,100°C or above, deformation-due to the product's own weight or to added weight-may gradually occur. Product life can be extended by taking appropriate response measures, such as by adopting product-support methods, adding changes to usage states, etc.
- 3) Precautions when using quartz glass in rapid heating or rapid cooling situations
- Quartz glass has an extremely small coefficient of heat expansion. Therefore, compared with ordinary glass, quartz glass is several tens of times more resistant to rapid heating and rapid cooling. Nevertheless, since quartz glass also has an extremely low coefficient of thermal conductivity, in the case of rapid heating of a local portion of the quartz glass, or in the case of an extreme change in temperature, a crack or cracking may occur. Further, remember that the thicker the product, the lower the product's heat- and impact-resistance characteristics.
- 4) Precautions when using the product in a state where another material is attached, or when the product comes into direct contact with another material, or when the product is used in the vicinity of another material
- When a temperature change occurs when quartz glass is firmly attached to another material, respective differences in the heat expansion characteristics of the attached material and the quartz glass could be a cause of breakage.
- 5) Storage Precautions
- When storing the product, please be sure to store it in a clean and stable state and environment.

■ Product inquiries

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