

AL-220

Technical Bulletin

Guide to Selecting and Using Fritted Glassware

Frit Selection

Up to five different porosities of fritted ware are available so that precipitates varying in size can be filtered at maximum speed with no sacrifice of retention.

Porosity	Pore Size (µm)	Filtration Applications
Extra Coarse	145-175	Very coarse materials. gas dispersion, gas washing, extractor beds, supports
Extra Coarse	70-100	Very coarse materials. gas dispersion, gas washing, extractor beds
Coarse	25-50	Coarse materials. gas dispersion, washing, and absorption, mercury extraction
Medium	10-20	Crystalline precipitates and extraction
Fine	4-8	Fine precipitates, mercury extraction



Care of Fritted Glassware

Cleaning:

A new fritted filter should be washed, using vacuum, with hot hydrochloric acid and then rinsed with distilled water before use. This treatment will remove loose foreign matter such as dust. Clean fritted filters as soon as possible after use to extend their life.

Precipitates can be removed from the filter surface simply by rinsing from the reverse side with water under pressure not exceeding 15 psi. Rinsing water through the filter from the reverse side with vacuum is also effective. Some precipitates will clog the pores of a fritted filter and must be by chemical treatment. Here are some suggested cleaning agents for various precipitates.

Material	Cleaning Solution
Fatty materials	Carbon tetrachloride
Organic matter	Hot concentrated cleaning solution, or hot concentrated sulfuric acid plus a few drops of sodium or potassium nitrite
Albumen	Hot ammonia or hot hydrochloric acid
Glucose	Hot mixed acid; $H_2SO_4 + HNO_3$
Copper, or iron oxides	Hot hydrochloric acid plus potassium chlorate
Mercury residue	Hot nitric acid
Silver chloride	Ammonia or sodium hyposulfite
Viscose	5-10% NaOH, followed by cleaning solution
Aluminous and siliceous residues	2% hydrofluoric acid followed by concentrated sulfuric acid; rinse immediately with distilled water followed by a few mL of acetone; repeat rinsing until all traces of acid are removed

Operating Pressures:

Fritted glassware is designed for vacuum filtration or for gas flow at low pressures. If used for pressure work, the MAXIMUM differential on the frit should not exceed 15 psi. Care should be taken when preparing sample solutions to avoid trapping air. If dissolved air is present, the flow rate may be reduced by up to 50%.

Thermal Limitations:

The resistance to thermal shock of fritted ware is less than that of non-porous labware. Fritted ware should not be subjected to excessive temperature changes or to direct flame. Dry fritted crucibles at room temperature may be placed into a drying oven operating at 150°C. Fritted ware may be safely heated in a furnace to 500°C without damage, provided that the cycle of heating and cooling is gradual.