FILTER APPARATUS

POROSITIES

The porosity for the pore diameter of the filter determined by the method specified in ASTM E-128 “MAXIMUM PORE DIAMETER AND PERMEABILITY OF RIGID POROUS FILTERS FOR LABORATORY USE.”

Porosity	Designation	Pore Size Microns	Principal Uses
Fine	F	4-5.5	Filtration of fine precipitates. Extraction
Medium	M	10-15	Extraction. Filtration of crystalline precipitates.
Coarse	C	40-60	Gas Dispersion. Gas Washing. Extraction. Mercury Filtration.
Extra Coarse	XC	170-220	Used as a support for other filter material. Gas dispersion. Gas Washing.

PRESSURE

Fritted glassware is designed for low pressure vacuum filtration or gas flow. The MAXIMUM differential pressure should not exceed 15lbs. per square inch.

THERMAL LIMITS

Fritted ware should not be exposed to excessive temperature change or direct exposure to flame due to the fact that it has less resistance to thermal shock than standard borosilicate glassware.

Dry ware may be put in a furnace at the setting of 150°C. However, most drying to constant weight is done at 110°C. Fritted ware can be heated safely to 500°C provided that the cycle of heating and cooling is gradual.

CLEANING

New filters should be cleaned by suction with hot hydrochloric acid followed by a water rinse.

Used filters can usually be cleaned by rinsing with water, passed thru the underside of the filter disc at pressure not exceeding 15lbs. per square inch. There are some precipitates that tend to clog the pores of a fritted filter. Following are some suggestions for dealing with these precipitates that have to be removed by chemical means.

MATERIAL	CLEANING AGENT
Albumen	**Hot ammonia or hydrochloric acid**
Aluminous and siliceous residues	**2% hydrofloric acid followed by concentrated sulfuric acid. Rinse immediately with water until no trace of acid can be detected.**
Copper or Iron Oxides	**Hot hydrochloric acid plus potassium chlorate**
Glucose	**Hot mixed acid (H_2SO_4 + HNO_3)**
Fatty Materials	**Carbon Tetrachloride**
Mercuric Sulfide	**Hot aqua regia**
Mercury	**Hot Nitric Acid**
Organic Matter	**Hot concentrated cleaning solution, or hot concentrated sulfuric acid with a few drops of sodium nitrate.**
Silver Chloride	**Ammonium or sodium hyposulfide**