Instructions for using laboratory filtration equipment with sintered glass plates.

1. Selecting the appropriate porosity for each job.

The selection of the porosity of porous plates is fundamental.

One of the rules to follow is that the pore size should be, as far as possible, smaller than the size of the smallest particles to be filtered, avoiding clogging of the plate pores.

The following table shows the porosity classes according to ISO 4793 and the recommended applications for each class.

Porosity		Maximum nominal pore size (µm)	Application
0	P250	160-250	Gas distribution
1	P160	100-160	Dispersion of gas in liquids
2	P100	40-100	Preparative fine filtration
3	P40	16-40	Analytical filtration
4	P16	10-16	Fine analytical filtration
5	P1.6	1.0-1.6	Ultrafine filtration

2. Clean before first use.

Before first use, the filter material should be rinsed with water to remove any small impurities that may be present.

3. Precautions to observe during drying and sterilization.

It is very important that the following precautions be taken when using filtration equipment with sintered glass plates, to avoid breaking the glass and to protect the plates.

- Do not exceed an operating temperature of 450ºC.
- Ensuring uniform heating prevents the buildup of stress, which can lead to parts breaking.
- For filter plates with a diameter greater than 20 mm, heating should always be carried out starting from cold ovens or sterilizers.
- The heating and cooling rates should not exceed 8°C/minute.
- When filtering hot substances, temperature differences greater than 100 °C should be avoided. If necessary, the filter material should be preheated.
- The wet filtration apparatus should be heated slowly to 80°C and dried for one hour before the temperature increases further.

4. Cleaning after use

It is recommended to clean the filtration apparatus immediately after use.

In most cases, if no precipitate has accumulated in the pores of the filter plate, simply spraying the surface is sufficient for cleaning. Rubber brushes or spatulas can also be used to clean the surface of the plate.

To avoid damaging the filter plate, sharp or pointed objects should not be used to remove the filtrate.

If precipitates have deposited in the pores of the plate, it is necessary to backflush the plate.

If the mechanical cleaning recommended above is not sufficiently effective in removing pore obstructions, or if you wish to ensure that there are no residues from previous work on the plates, chemical cleaning is necessary. The choice of solvent depends on the nature of the contaminant to be removed.

The following table provides some examples that can be followed for common waste.

Contaminant	Solvent
Barium Sulfate	Concentrated sulfuric acid
Silver Chloride	Hot ammonia solution
Copper(I) oxide	Hot hydrochloric acid and potassium chlorate
Mercury	Hot nitric acid
Mercury (II) sulfide	Hot aqua regia
Albumen	Hot ammonia solution or hydrochloric acid
Fat, oil	Acetone or isopropanol
Other organic substances	Concentrated sulfuric acid with added nitric acid, sodium nitrate, or potassium dichromate.

After chemical cleaning, thorough rinsing with plenty of water should be carried out.

The use of hydrofluoric acid, hot phosphoric acid, or solutions of alkaline substances that attack the surface of the glass is not recommended.