

ACCESSORIES PROCEDURE FOR USE Empty Cartridges (1 ml)

INSTRUCTIONS

Some of the current pre-packed cartridges in the market have poor scalability and poor mechanical strength. Due to the wall-support effect and the rigidity of the individual chromatography resin, the particles have to be correctly compressed after settling down under flow packing. It will then form a tightly packed bed with predictable chromatographic performance.




ABT empty cartridges have all the functionalities of a small reusable cartridge but possess many other advantages: resin compressibility, disposable, easy packing of any type of chromatography media (>20µm), identical design to scale-up columns, robust, precise and reproducible packing allowing moderate back pressure, easy storage, long shelf life.

After the chosen resin is packed in the cartridge, the cartridge can be readily stored and reused many times.

The cartridge parts are made of polypropylene which shows excellent chemical resistance to most of the commonly used reagents. It has the standard connections compatible to the common chromatography instruments (such as ÄKTA).

The recommended operational pressure is up to 5 bar, as compared to most of the process chromatography media that allows an operational pressure less than 3 bar.

Description of the Cartridges Parts:

DESCRIPTION	QUANTITY SUPPLIED	PART
Cartridge Body: the internal diameter is 6.2 mm. The graduated volumetric marks are at intervals of 0.1 ml. It contains a locking mechanism in both ends. The cartridge has an end plug housing at each end.	5	
End Plug: it has 10-32 UNF female thread in one end and an O-ring and frit disc in the other end. It produces the minimum void volume in the cartridge.	10	
Stop Plug: it has 10-32 UNF male thread. It is used for the fingertight seal of the packed cartridge.	Order separately	

The following packing procedure works as a general guidance. End – users may develop suitable packing protocols for their own media.

Packing 1 ml cartridge

1. Insert one End Plug into the end plug housing until it snaps into place – this ensures it is fully engaged with the shoulder of the Cartridge Body.
2. Screw a Syringe Connector (Cat# SCEB-1) or a 10/32 male/luer female connector (not supplied) to the End Plug. Use a syringe pre-filled with water to fill the cartridge to a level of 0.5 – 0.6 ml (5-6 graduations) in order to properly wet the frit. A properly wetted frit will allow this water to exit the column. Use a syringe to suction off this wetting solution.
3. Pipette the resin slurry in and draw the bed down with the syringe. Be careful not to dry the bed. If necessary, pipette in more water or slurry or pipette out more slurry until the packed volume (under suction) reaches the desired level of 1 ml (10 graduations).

Note: The packed volume depends on the type of resin. As a guide, the actual packed volume should be 1.2 – 1.4 ml (2.4-2.8 ml of resin slurry) for agarose based spherical particles.

4. Pipette in water to fully fill the internal diameter of the column. Carefully and slowly insert the top End Plug to avoid trapping of air bubbles until it snaps into place as in 1. above. Screw a stop plug to seal the top end plug. Continue to keep the syringe connected to the bottom end plug to catch the water expressed when the top end plug is inserted fully.
5. Remove the 10-32 male/luer female connector and the syringe. Screw another Stop Plug into the bottom End Plug.
6. Depending on the nature of individual resins, the following step may be taken to further settle the particles inside the bed. Pre-fill a syringe with 10 ml liquid (ideally the same liquid as the one in the cartridge). Insert it to a 10 – 32 male /luer female connector and purge out any air in the flow path. Remove the top Stop Plug. Attach the pre-filled syringe to the top End Plug (be sure that no air is trapped in the flow path). Remove the bottom Stop Plug. Push through at least 5 ml of liquid under pressure (e.g. as fast as possible) by hand. Seal the bottom with a Stop Plug. Disconnect the syringe and then seal the top. This step can also be done by connecting the column to a chromatography system (such as ÄKTA) to pump liquid through at high speed (e.g. 3-5 ml /min).