

APPLICATION NOTE

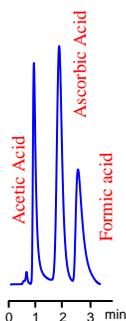
Separation of Small Molecules on **STYROS™ Q/XH**.

Hard gel polymeric stationary phases with large throughpores can also be used to separate small molecules at considerably higher flow rates than the traditional soft gel.

As a result of additional surface generated by the convective inner pores, the fully pervious **STYROS™** stationary phase provides higher capacities than the non-porous or obstructed porous media.

It is however important to consider the separation mode and choose the appropriate capacity for a specific separation.

The following separations of small molecules were performed on a **STYROS™ Q** with half the protein capacity of its **HQ** version.



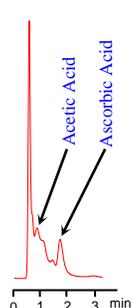
STYROS™ Q/XH.
4.6 x 100 mm Column
900 cm/hr linear velocity.

The structure of the bead forming the stationary phase's bed, as well as their mechanical stability, allows the separation to be run at linear flow rates of 900 cm/hr and still get baseline separations.

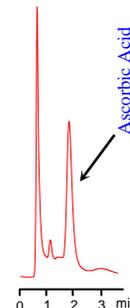
The optimum capacity of the media and the uniformity of the coating are also important factors in reducing the elution path as well as the elution time.

The same method can be used to run real samples and measure targeted ingredients

In the following examples, two separate samples were assessed for their Ascorbic acid contents.



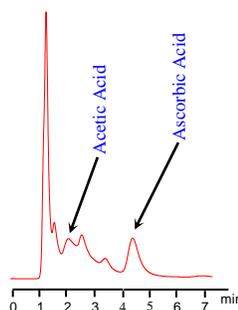
Sample of orange juice.
900 cm/hr linear velocity.



Sample of apple juice.
900 cm/hr linear velocity.

The runs can be carried out in less than 4 minutes at linear flow rates of 900 cm/hr.

It is also possible to reduce the flow rate and still maintain the same high resolution.



Sample of orange juice.
360 cm/hr linear velocity.

The chromatographic conditions are summarized in the following table.

HPLC System.	HP 1100
Columns	STYROS™ Q/XH. 4.6 x 100 mm
Mobile Phase	20 mM Phosphate, pH = 3.5
Flow rates	2.5 ml/min (900 cm/hr) and 1 ml/min (360 cm/hr)..
Gradient	Isocratic
Temperature	30°C
Detection	220 nm

Small molecules can be separated on gigaporous stationary phases with convective throughpores. Optimum capacity should be chosen in order to minimize the run time and therefore get the best use of the appropriate instruments.