Agilent Technologies

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SERVICE How To

Model Number:	Originator:	Topic
440LC Fraction Collector	**Petro van Poppel**	**Determining the Delay Volume and Time**

Determining the Delay Volume and Delay Time for a 440LC Fraction Collector, by measurement.

You will need one of the following:

1. 3710059100 – PTFE tube, 1/16" OD x 0.020" ID (0.508mm ID)(**A**)
2. 3710062800 – PTFE tube, 1/16" OD x 0.010" ID (0.254mm ID)(**A**)
3. 2418003300 – PTFE tube, 1/8" OD x 1/16" ID (1.588mm ID)(**A**)

4. 110841000 – Assy Probe 2.03 mm ID (**B**)
5. 110827400 – Assy Probe 0.508 mm ID (**B**)

Determine the tube volume:

1. Determine which tubing has been used to plumb the fraction collector into the system (#1, 2 or 3 above) (**ID=A**) and determine which probe is used on the fraction collector (#4 or 5 above) (**ID=B**).

2. Determine, in cm, the length of the tubing between the flow cell outlet and the diverter valve inlet (**L=C**).

3. Determine, in cm, the length of the tubing between the diverter valve outlet and the probe (include the length of the probe) (**L=D**)

4. Calculate the delay volume (**V**) of the tubing in mL, according to

$$V(mL) = (\pi \times (0.05 \times A)^2 \times C(cm)) + (\pi \times (0.05 \times B)^2 \times D(cm))$$

5. Calculate the delay time (**T**) of the tubing in minutes, according to

$$T(min) = V(mL) \,/\, \text{flow rate(mL/min)}$$