

Waters® 2700 Sample Manager Fast, Reliable Automated Serial Dilutions

The Waters 2700 Sample Manager offers many advanced sample handling functions including the ability to perform automated serial dilutions. Operators need to fill only one vial or plate well with stock solution and let the 2700 Sample Manager do the rest. Diluted samples may be injected after dilutions are completed or removed for analysis. Calibration curves produced using this function are linear and reproducible (Figure 1). Low sample carryover (See WPP44) means detection limit studies can be automated through use of the serial dilution function.

Samples can be serial diluted, mixed and be ready for injection very quickly. A series of dilutions, with excellent reproducibility, can be completed in less than 20 seconds per sample.

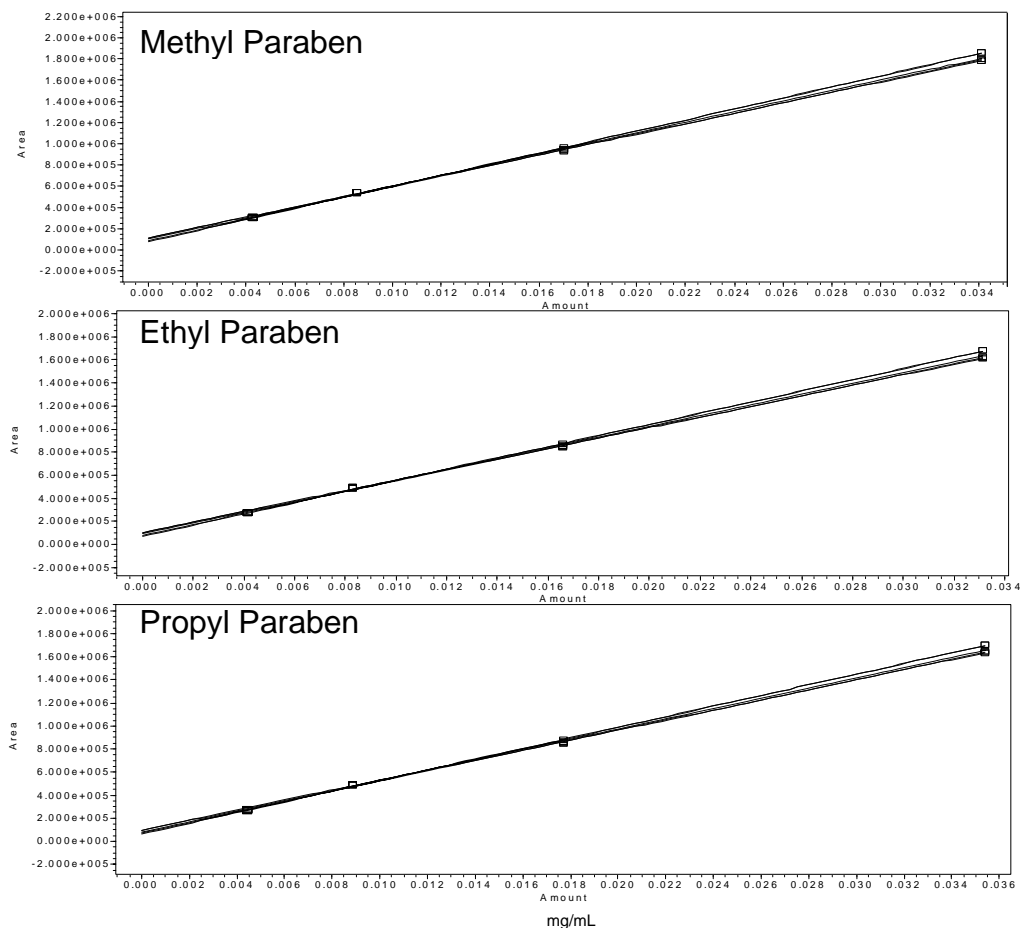
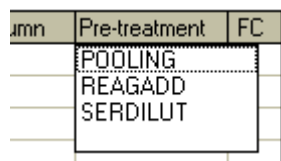


Figure 1. Overlay of 5 calibration curves for each of the 3 compounds

The curves produced by the serial dilution function of the Waters 2700 Sample Manager proved to be linear ($R^2 > 0.999$ for each of the 15 curves) and reproducible.

Performing Serial Dilutions

Step 1 - Select SERDILUT from the Pre-treatment Column menu in the Run window to open the SERDILUT Pre-treatment Routine Dialog Box.



Step 2 - Enter serial dilution parameters in the dialog box.

Pretreatment Routine: SERDILUT.PTM

Parent Group: Transfer Vol. μ L:

Mix Cycles:

Daughter Group: Wash Time sec:

No. Dilutions:

Diluent Vol. μ L:

Mix Vol. μ L:

Pump Speed:

In this example, 500 μ L (Transfer Vol.) of the stock solution (Parent Group) is diluted with 500 μ L of solvent (Diluent Vol.). A total of 4 dilutions are made (No. Dilutions) and each dilution is mixed 4 times (Mix Cycles) using a mixing volume of 500 μ L (Mix Vol.). When finished, the probe washes for 10 seconds (Wash Time). The resultant set of diluted samples is in a group of samples called SD_1 (Daughter Group).

Step 3 - Press start

The Waters 2700 Sample Manager prepares the dilutions and injects each one in turn, freeing the chemist for other tasks.

Waters 2700 Sample Manager -- Run Window

Project: System: Loop Vol. (μ L):

	Sample Group	# of Inj's	μ L Sample	μ L Rinse	Method Set	Runtime, min	HPLC Column	Pre-treatment	FC
1	SD_1	1	20	400	Parabens	3	4.6x75 Sym C18	SERDILUT	
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									

Position: Inj.#:

Operational Status: Idle

Reproducible, linear, automated serial dilution is just one of the many advanced sample handling capabilities of the Waters 2700 Sample Manager which enhance laboratory productivity through automation.