

AN EVALUATION OF THE GERSTEL BASIC FILTRATION OPTION FOR THE MPS ROBOTIC PRO

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INTRODUCTION

At Anatune, we try to automate all aspects of sample preparation. One of the simplest of these is filtration. This may be used as part of a more complex sample preparation procedure, or just on its own prior to LC analysis for more 'dilute and shoot' approaches. It is particularly important for ultra high performance liquid chromatography (UHPLC/UPLC).

Traditional ways of filtering include the manual use of syringe filters, which is often time consuming and error prone.

The GERSTEL Robotic Pro is capable of automating filtration and can be used with a variety of filter sizes and types. This automation enables the system to dictate the speed of filtration, depending on the sample type, so will adjust the times accordingly. With the filtration option, you have the ability to either dispose of the filter or put it back in the tray for re-use.

Filter materials available include; Cellulose Acetate (CA), Mixed Cellulose Esters (MCE), Nylon (PA), PVDF, PTFE, Polyether Sulphone (PES) and Polypropylene (PP). These come in a 0.2 or 0.45 μm particle sizes and a range of Filter sizes (4 mm, 17 mm, 25 mm and 30 mm as shown in Figure 2) .

For the evaluation experiments at Anatune, 4 mm Filters (both 0.2 μm and 0.45 μm PTFE) were used as illustrated in Figure 1.

INTRUMENTATION

MPS Robotic Pro, PSM tool equipped with 2500 μL syringe and 9 mm gripper (for plastic transport adapters). Basic Filtration Option and 40 position filter tray. Rack for 10 ml and 2 ml vials.

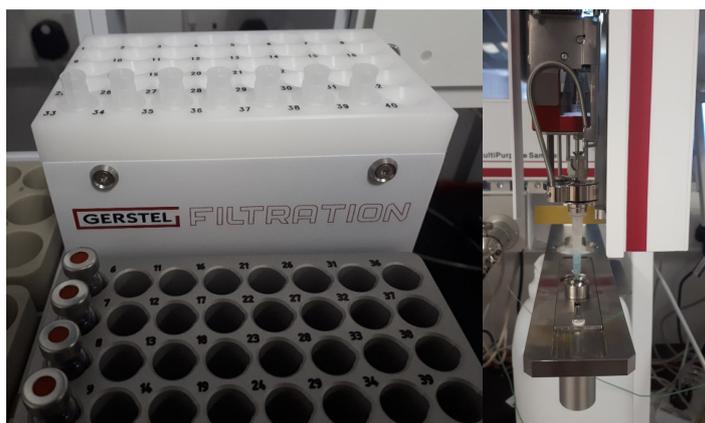


Figure 1: Basic filtration module and 40 position filter tray

RESULTS

120 cartridges (3 racks of 40) were tested sequentially without issue. 80 filters with DI water, 40 filters with a customer's water matrix. This testing was performed using 0.2 μm PTFE filters.

Following the initial evaluation, a variety of customer samples were also prepared using either 0.2 μm or 0.45 μm filters. These included a variety of QuEChERS extracts, paint and latex samples. For all of the samples, filtration was performed successfully.

Images of before and after for selected samples are shown in Figure 3.

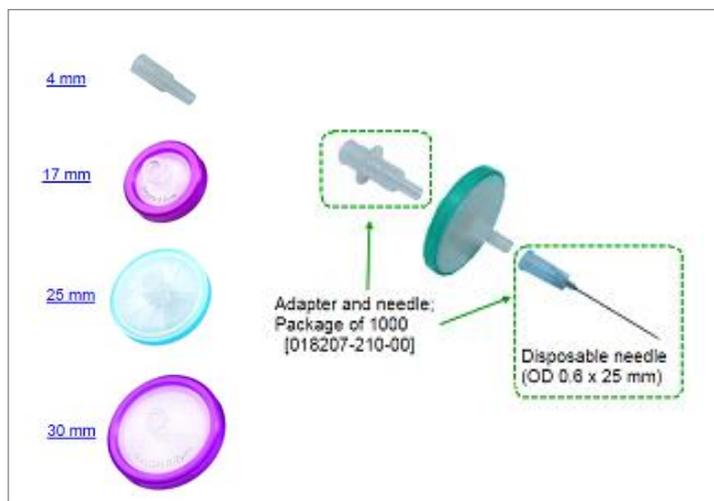


Figure 2 : Filter sizes for MPS Robotic Pro



Figure 3: Samples before and after filtration

CONCLUSION

The ability to automate filtration, particularly alongside other sample preparation steps, such as dilution and centrifugation enables routine methods to be fully automated. This solution can be used as a standalone prepstation for subsequent analysis using a range of instrumentation (GC or LC including GPC), or fully integrated with Agilent GC or LC systems.

You can watch a video of the technique [here](#).

If you have questions or want to try out the filtration module on some of your samples, please contact Anatune on enquiries@anatune.co.uk