Efficient Evaporation and Concentration of Chromatography Samples

In chromatography, a large number of samples are pooled in bigger flasks or evaporated individually. Either way, sequential evaporation with a rotary evaporator is the rate determining step of the process. We present a parallel evaporator, Syncore®, which significantly increases the sample throughput in evaporation and concentration. Due to its range of exchangeable racks, all compatible with the Fraction Collector, 4 to 96 samples ranging in volume from 0.5 to 500 ml can be evaporated simultaneously.

Advantages of the Syncore® parallel evaporator:

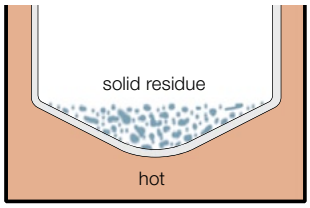
- **fast:** simultaneous evaporation of up to 96 samples; with its heatable vacuum cover high-boiling solvents can be processed
- **safe:** no risk of cross-contamination from adjacent samples or from the instrument itself
- **soft:** evaporation of temperature-sensitive compounds using unique vessels having a locally cooled appendix
- **automatic:** no manual vacuum settings required with the sophisticated Vacuum Controller V-855
- **efficient:** no sample handling due to sample rack compatibility with the Fraction Collector
- **modular:** different racks for different demands

Pooling of chromatography samples in 6 x 250 ml vessels.

Evaporation to dryness: Syncore® Polyvap

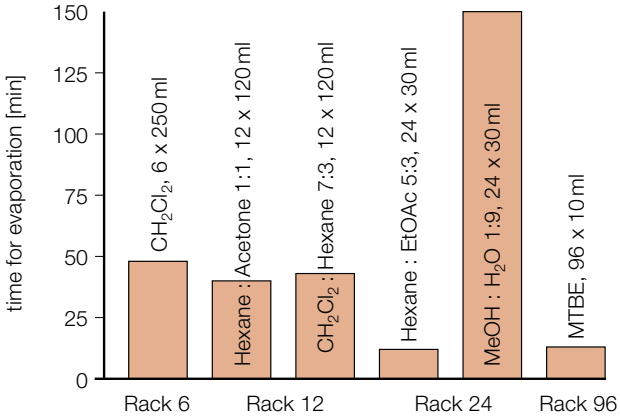
- Quick and safe: Each position of the Polyvap rack is uniformly heated. Individual sample connection eliminates the possibility of cross-contamination.

Individual sample connection.



Schematic depiction of one Polyvap rack position.

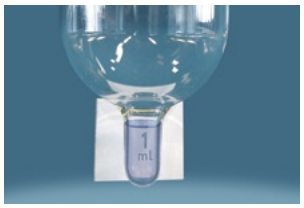
- Evaporation rates: Selected performance data for different racks and solvents.



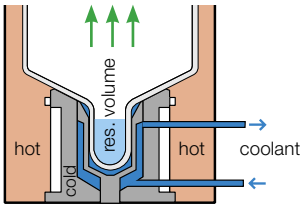
Conditions: Parallel evaporation using temperature settings of 42°C (rack) and 50°C (vacuum cover). Optimized vacuum gradient for each solvent controlled by the Vacuum Controller V-855. The condenser is cooled with the Chiller B-740/14.

Concentration to residual volumes: Syncore® Analyst

- Defined residual volumes: The Analyst racks consist of a locally cooled part which allows sample concentration in a small appendix. Thus, temperature-sensitive compounds can also be evaporated smoothly.

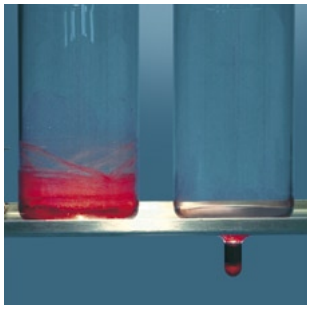


Analyst tubes with appendix.

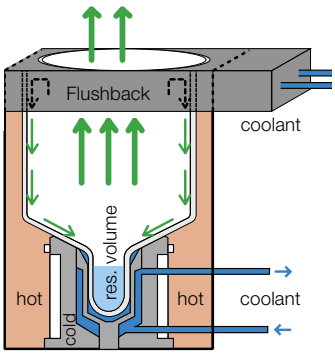


Schematic depiction of the Analyst rack with a cooling zone.

- Flushback effect: With the optional Flushback Module the vapor is partially condensed at the top of the vessels. Hence the glass is continuously rinsed resulting in higher recovery rates of the sample.



Concentration to dryness (left, Polyvap) and to a residual volume with Flushback Module (right, Analyst).



Schematic depiction of the Analyst rack with the Flushback Module.

Modularity

The Syncore® Analyst and Polyvap accommodate different exchangeable racks varying in sample numbers, working volume and design principle.

sample format	volume range	order-no. Polyvap rack	order-no. Analyst rack	oder-no. Vacuum Cover
4	50–500 ml	47790	47794	38245
6	25–250 ml	47770	47777	38246
12	5–120 ml	40900	46000	40910
24	2–30 ml	38188	*	40920
48	1–20 ml	42855	*	42850
96	0.5–10 ml	38277	*	40930

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