FRONTIER LAB

Auto-Rx Disc

for Reactive Pyrolysis

Auto-Rx Disc is a small disc made of high quality extra thin glass fibers. This disc will hold the sample and methylating reagent (e.g. tetramethylammonium hydroxide: TMAH) in close proximity. It eliminates the "wicking" out of the Eco-Cup LF. This, in turn, facilitates the use of the Auto-Shot Sampler when performing RxPy-GC/MS.

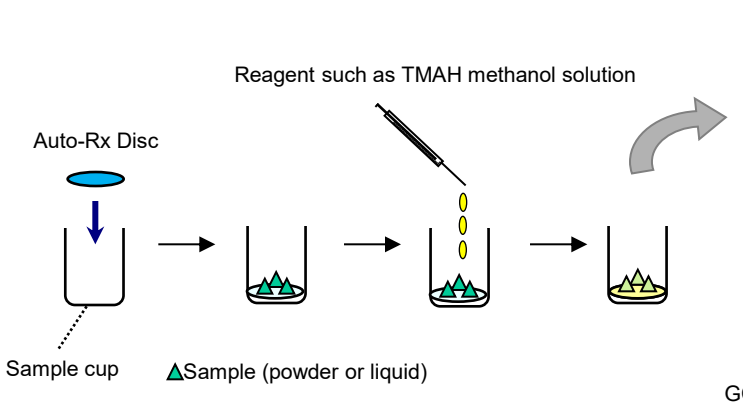
Features

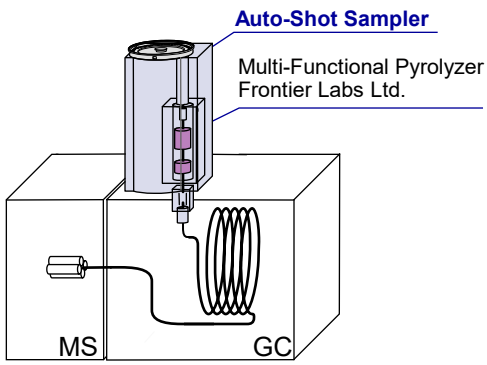
- Auto-Rx Disc allows the use of the Auto-Shot Sampler when using reactive pyrolysis-GC with TMAH
- Enhances analytical precision
- Made of ultra-clean, high-quality, fine glass fibers
- Ready-to-use

Problem: When a few microliters of TMAH are injected into a sample cup, the TMAH often "wicks" up the sample cup wall which can leave a sticky film on the outer surface of the cup. A sticky cup does not 'free fall' properly nor is it ejected smoothly when an Auto-Shot Sampler is used. This flow of TMAH up the surface of the cup also dilutes the concentration of TMAH mixed with the sample. This often reduces the efficiency of the methylation.

Solution: By placing an Auto-Rx Disc at the bottom of the sample cup, the ultra fine glass fibers of the disc adsorbs extra TMAH solution (up to 5 µL), preventing the TMAH from migrating out of the sample cup, and appears to improve methylation as well. This enables the analyst to automate reactive pyrolysis experiments by using the Auto-Shot Sampler with enhanced efficiency and precision.

Using an Auto-Rx Disc





GC/MS system equipped with Multi-Functional Pyrolyzer and Auto-Shot Sampler

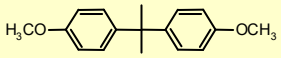
1) Place an Auto-Rx Disc at the bottom of an Eco-Cup LF.
2) Add a powder or liquid sample on the Auto-Rx Disc. If the sample contains a solvent, allow it to evaporate at ambient temperature.
3) Add 4-5 µL of a reagent on the Auto-Rx Disc. If > 5 µL are used, use two discs.
4) As shown above, place the sample cups into the carousel of Auto-Shot Sampler.

Example: Analysis of polycarbonate

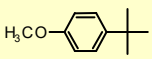
The pyrogram of polycarbonate obtained by reactive pyrolysis using TMAH are shown below: methyl derivatives of bisphenol A (peak A) and tert-butylphenol (peak B) which comes from the end group of the polycarbonate. The peak area ratio of these peaks is unaffected by the Auto-Rx Disc but the analytical precision improves.

1) Without Auto-Rx Disc, 2 µL of reagent used*, Eco-cup LF

Peak A



Peak B



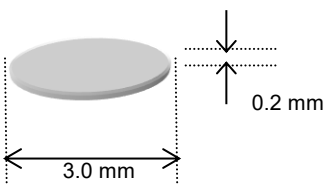
Reproducibility of peak A to peak B: RSD is 2.85 % (*n*=5)

2) With Auto-Rx Disc, 5 µL of reagent used, Eco-cup LF

Reproducibility of peak A to peak B: RSD is 1.99 % (*n*=5)

*Note: If you previously used 1-2 µL of TMAH, we recommend 5 µL with Auto-Rx Disc for best results.

Specifications of the Auto-Rx Disc



Diameter: 3.0 mm
Thickness: 0.2 mm
Weight: 0.2 - 0.3 mg
Material: Glass fibers
Max. load volume: 5 µL
Max. use temperature: 500 ºC

Product name	Part number	Description
Auto-Rx Disc 100	PY1-7787	100 pcs (in one glass vial)
Auto-Rx Disc 300	PY1-7788	300 pcs (in three glass vial)