

Functional Group Dependent Adsorption Study in RSA Autosampler Vials - AppNote

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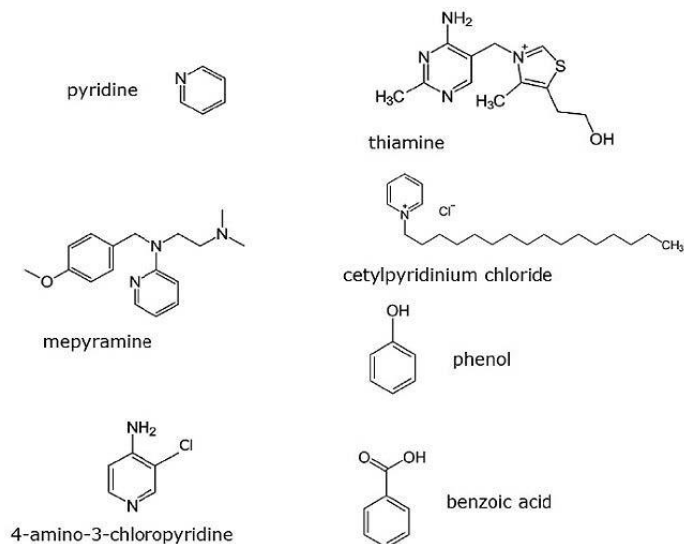
Adsorption study comparing RSA™ to conventional glass autosampler vials.

Various test solutes were investigated in this study in order to determine the role that compound specific functional groups play in analyte loss to a vial. Percent loss increased in order of increasing number of amine groups and was greatest with permanently cationic species (thiamine and cetylpyridinium chloride).

Furthermore, percent loss was significantly lower using RSA™ glass vials, which show how the surface chemistry has real end user advantages for the analytical laboratory. This is due to the fact that RSA glass vials do not have the many surface hydroxyl groups (aKa silanols) that are found in both standard glass vials and market leading certified glass vials.

Percent Loss of Each Analyte in Both Vials

analyte	Regular Glass	RSA Glass
phenol	0.0	0.0
benzoic acid	0.0	0.0
pyridine	3.5	0.2
4-amino-3-chloropyridine	9.1	0.6
mepyramine	13.1	0.7
thiamine	32.6	3.1
cetylpyridinium chloride	52.7	9.8



Method Conditions

Tested Items : RSA™, Glass Vials and AQR™ Screw Caps v. Market Leading Vials.

Specifications: Reduced Surface Activity Glass, Clear, 2ml, Write-On, Screw Top Vials and AQR Caps

Catalog No.: [9509S-1WCP-RS](#)

Columns:

Diamond Hydride™, 4µm, 100Å

Bidentate C18™, 4µm, 100Å

Catalog Nos.:

[70000-10P](#)

[40018-10P](#)

Mobile Phase: Various Isocratic settings were used

Flow rate: 1.0mL / minute

Sample Preparation: 5.0ppm reference standards in DI water diluent. Portions of the same samples were transferred to the two vial types and injected into an HPLC initially and again after four hours. Peak areas were recorded and compared to initial injections to calculate percent recovery.



Attachment

Basic compound functional group dependent adsorption study in autosampler vials pdf

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