

Phenols

PERFORMANCE

A wide variety of phenolic compounds can be determined by employing reversed-phase separations and either UV or amperometric detection. Amperometric methods are generally more sensitive while UV detection is commonly employed as the workhorse detector of HPLC and is preferable to amperometry when phenol concentrations are above 1 ppm.

APPLICATION AREA

- Wastewater Monitoring
- Ground/Surface Water
- Drinking Water

COMMENTS

Phenols originate in a variety of chemical, petrochemical, and pulp and paper processes. Many are highly toxic and 11 common phenols (Figure 1) appear on the U.S. EPA priority pollutants list. Phenols have commonly been determined by gas chromatography, but liquid/ion chromatographic methods are finding increased application, particularly when a large amount of nonvolatiles are in the sample matrix and can poison the GC column.

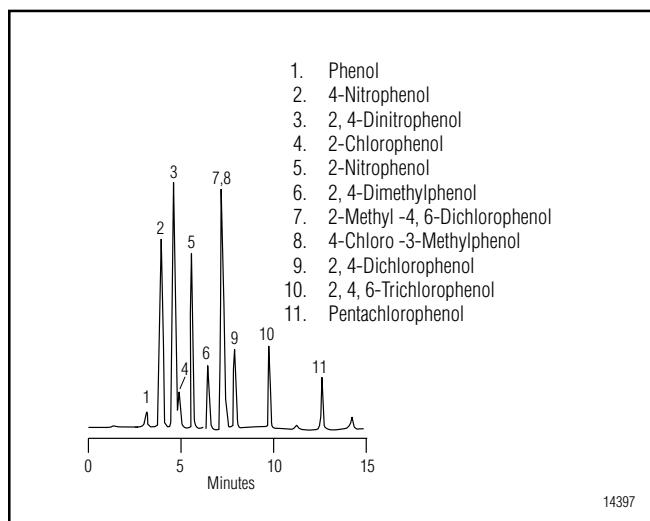


Figure 1 Gradient Ion Suppression/UV Detection

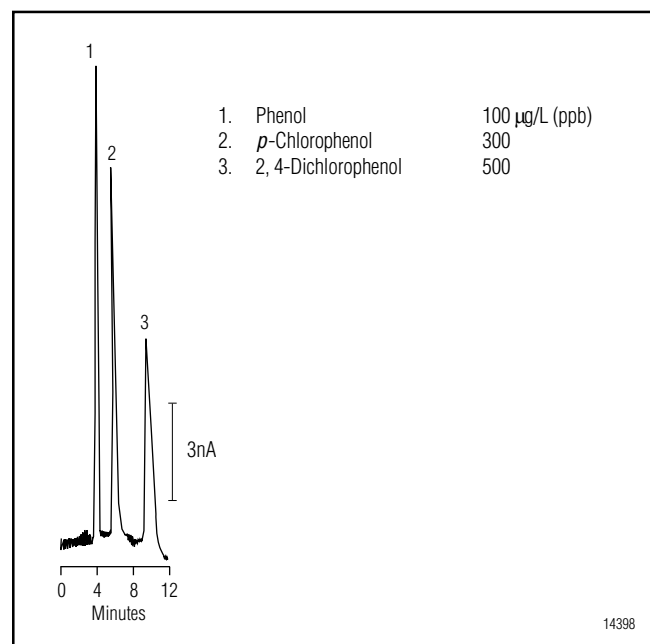


Figure 2 Polymer Reversed-Phase/Amperometric Detection

CONDITIONS

Figure 1

Column: C18-10 μm
Eluent 1: 1% Acetic acid in 40% Methanol,
60% water
Eluent 2: 1% Acetic acid in Methanol
Program: Gradient of 0% to 100% Eluent 2 in
15 minutes, then hold for 10 minutes
Detector: UV, 285 nm

Figure 2

Column: IonPac[®] NG1 Guard and NS1
Separator
Eluent: 0.02 M NaH_2PO_4 in 40% Acetonitrile,
60% water
Detector: Pulsed Amperometric (PAD),
Glassy Carbon Electrode, 1.1 V

RECOMENDED EQUIPMENT

Dionex DX-500 chromatography system

consisting of:

ED40 Electrochemical Detector

AD20 Absorbance Detector



IonPac is a registered trademark of Dionex Corporation.



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