

preliminary notes and applications from Bioanalytical Systems, Inc.

# Derivatization Of 1° Amines For LCEC

# **Purpose**

Derivatization of primary amines with o-phthalal-dehyde-sulfite (OPA-sulfite, F1) to render them amenable to analysis by LCEC.

## **Existing Methods**

Derivatization with OPA in the presence of an alkylthiol. The derivatives are unstable and continue to react with excess OPA. Moreover, thiols are malodorous.

## Reference

o-Phthalaldehyde-Sulfite Derivatization of Primary Amines for Liquid Chromatography-Electrochemistry, Wesley A. Jacobs, J. Chromatogr., 392(1987) 435-441.

#### Conditions

Detector: BAS LC-4B/17 Electrode: glassy carbon Potential: +0.85 V vs Ag/AgCl

Column: BAS Phase II ODS 3 µm (100 x 3.1 mm)
Mobile Phase: A: 0.025 M malic acid pH 6.5 with
5% (v:v) acetonitrile. B: 0.025 M malic acid
with 50% (v:v) acetonitrile. Gradient elution from
15% B to 100% B over 15 min. Flow rate was 1
mL/min.

Linear Range: 5-500 µM

#### Sample Preparation

Samples were reacted with OPA for 1-2 min., then injected. Injection amount was 100 pmoles of each compound.

#### **Notes**

The OPA-sulfite derivatives formed rapidly, separated cleanly (F2), and were stable. OPA-sulfite derivatives may undergo hydrolysis at pH values below 5 so may not be suitable for all chromatographic conditions.

The derivatization and determination of primary amines presented here can be duplicated with the BAS 200 Problem Solver.

Figure 1. Derivatization of alkamine.

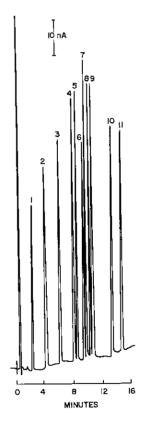


Figure 2. Chromatogram of OPA-sulfite derivatives of alkylamines. Derivatives are (in sequence) methyl, ethyl, isopropyl, n-butyl, isobutyl, n-anyl, neopentyl, heptyl, octyl, benzyl, and phenethyl.

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