CAPSULES
preliminary notes and applications from Bioanalytical Systems, Inc.

Detection of Hydrogen Peroxide (H_2O_2) in Water

Purpose

A number of food companies are packaging their products in Brik Pak® containers. These are paper boxes lined with a plastic coated metal film. In order to assure asepsis, what will become the inner surface of the box must be sterilized. One way to accomplish this is to expose this surface to a hydrogen peroxide (H_2O_2) solution prior to closure. This procedure results in some H_2O_2 being trapped within the finished container.

The residual H_2O_2 is determined by packaging distilled water, instead of product, and subjecting the solution to one of several analytical techniques. These methods are titrametric, enzymatic, or colorimetric, and are plagued with fuzzy end points, long analysis times, or poor precision.

Note

LCEC offers a rapid (1-2 min sample throughput), sensitive and accurate (±3%) alternative method.

Conditions

System: LC-304T
Electrode: Platinum (BAS P/N MF-1012)
Potential: +0.5 V vs Ag/AgCl
Column: Biophase ODS, 250 x 4.6 mm, 35°C.
Mobile Phase: 0.1 M Na_2HPO_4, ph 6.3
Detection Limits: Less than 10 ppb. This was the lowest amount tried.
Linear Range: 10 ppb to 150 ppb tested. The range of linearity should extend to at least another two orders of magnitude.

References

This work was carried out in the BAS demonstration lab and has not been verified by the BAS R&D lab.

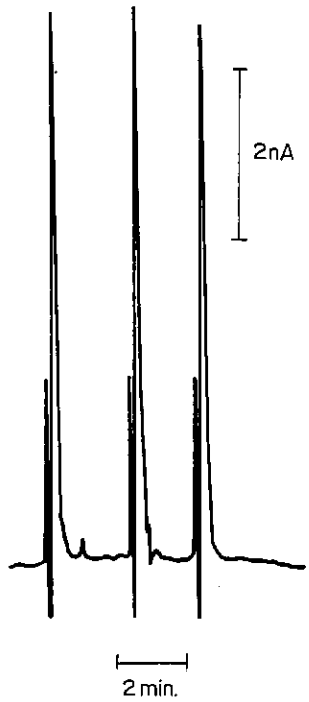

Figure 1. Replicate 50 µL injections of a 37.5 ppb (37.5 ng/ml) solution of H_2O_2 in deionized water. (20 nA full scale, chart speed 0.5 cm/min).

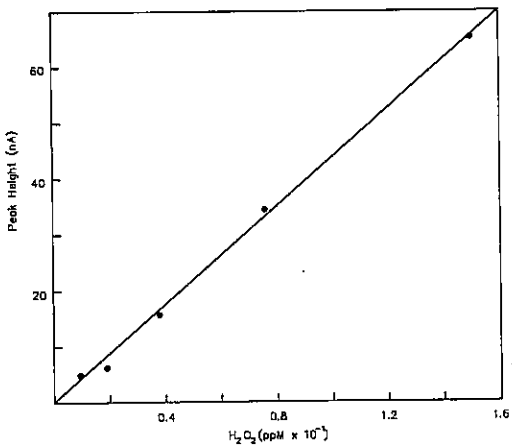

Figure 2. Linearity of H_2O_2 in deionized water (1 ppm = 1 mg/L).