Notes

CHROM. 3572

A simple method for the determination of chlorohydrins

It has been found that the fumigation of both foodstuffs and instruments by ethylene and/or propylene oxide gives rise to the formation of toxic compounds. Several workers have isolated and identified the compounds formed during such treatment[1,2], and shown them to be chlorohydrins. These methods however require a time-consuming clean up stage, before analysis can be carried out, and are not very suitable for routine use.

A gas chromatographic apparatus for the detection and estimation of halogenated compounds has been constructed in our laboratories[3]. This apparatus has been used to determine chlorohydrins.

The instrument incorporates an ozatron type J detector element from an A.E.I. leak detector type H.A.[4]. When used as a chromatographic detector it is only sensitive to halogenated compounds. This removes the necessity to clean up samples, and allows extracts to be injected directly onto the column.

A 2.2 m × 1/4 in. O.D., U-shaped column packed with 80–100 mesh Porapak was used. This was run at 175° with a nitrogen flow of 50 ml/min^{-1} and dilution flow of 100 ml/min^{-1}. The rest of the apparatus has been described elsewhere[3].

Using samples of up to 25 μl it was found possible to determine chlorohydrins at a level of 0.2 ppm in aqueous solution. Organic solvents may also be used providing they are free from any halogenated impurities.

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