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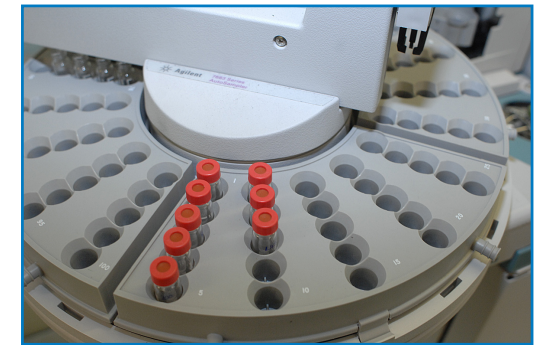
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## Ethylene Glycol Assay

West Midlands Toxicology Laboratory



City Hospital

Version No. 1.00



## Introduction

Ethylene glycol is an alcohol with two -OH groups (a diol), a chemical compound widely used. In its pure form, it is an odourless, colourless, syrupy liquid with a sweet taste.

The major use of ethylene glycol is as an antifreeze and windscreen wash in cars. The major danger from ethylene glycol is following ingestion. Due to its sweet taste, children and animals will sometimes consume large quantities of it if given access to antifreeze.

## Suspected Poisoning

Ethylene glycol is highly toxic, as little as 30 ml (2 tablespoons) can be lethal to adults. Ethylene glycol poisoning should be suspected in an intoxicated patient with a high anion gap.

A high osmolar gap may also be present. Other laboratory features include hypocalcemia, urinary crystals, and non-toxic blood alcohol concentration.

## Sending Specimens for Analysis

**Sample requirement:** *minimum of 1 ml of serum or plasma.*

- Samples should be sent to laboratory as soon as possible for analysis.

- Optimum management requires urgent measurement of plasma ethylene glycol

## Ethylene glycol Assay

Ethylene glycol reacts with phenyl-boronic acid to form a cyclic phenylboronate ester.

Treatment of the sample with an acetonitrile solution of internal standard followed with derivatising reagent in 2,2-dimethoxypropane, gives a resulting supernatant suitable for direct GC FID analysis.

The limit of quantification for the assay is 25 mg/L

## Turnaround Time

Results will typically be available within 3 hours. This service can be accessed 24 hours a day.

## References

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