



## S13. POSTMORTEM ALCOHOL DETECTION

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Ethyl alcohol is the most commonly used and abused drug in the world. It has such numerous points of contact with medico-legal pathology that it has to be considered separately from all other substances. Body fluid ethyl alcohol levels can be reliably quantities in blood, vitreous humor, urine, breath, cerebrospinal fluid, saliva, and bile. The chronic abuse of alcohol leads not only to definite pathological changes in a number of target organs, but also contributes to deaths from neglect, hypothermia and burns.

Almost all alcohol is detoxified by the liver, only 2—10 per cent being excreted unchanged. The elimination mechanism is an oxidation of alcohol by liver enzymes, through acetaldehyde to acetate. The first stage is performed by the enzyme alcohol dehydro-genase but, as the second stage is much more rapid, little acetaldehyde has time to accumulate. The acetic acid is rapidly oxidized further to carbon dioxide and water. Death from alcoholic poisoning is not uncommon and can occur at blood levels in excess of about 300 mg/100 ml. Death can be caused either by the direct depressive effects upon die brainstem, mediated via the respiratory centres - or through secondary events such as aspiration of vomit. The absence of significant natural disease, injury or other toxicity, a high blood-alcohol level may reasonably be incriminated as the probable cause.

The basic standard in testing postmortem fluid ethyl alcohol levels for medicolegal purposes is whole blood (from femoral or subclavian veins) by headspace gas chromatography.