



Freiburg Medical Laboratory ME LLC, P.O.Box 3068, Dubai

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Methanol

General:

Methanol is toxic if ingested, as little as 10 ml can cause permanent blindness by destruction of the optic nerve. The usual fatal dose is 100–125 ml. Methanol is toxic by two mechanisms. First, methanol (whether it enters the body by ingestion, inhalation, or absorption through the skin) can be fatal due to its CNS depressant properties in the same manner as ethanol poisoning. Second, in a process of toxication, it is metabolized to formic acid (which is present as the formate ion) via formaldehyde in a process initiated by the enzyme alcohol dehydrogenase in the liver.

Formate is toxic because it inhibits mitochondrial cytochrome c oxidase, causing the symptoms of hypoxia at the cellular level, and also causing metabolic acidosis among a variety of other metabolic disturbances. Fetal tissue will not tolerate methanol.

The initial symptoms of methanol intoxication are those of central nervous system depression: headache, dizziness, nausea, lack of coordination, confusion, drowsiness, and with sufficiently large doses, unconsciousness and death. Once the initial symptoms have passed, a second set of symptoms arises, 10 to as many as 30 hours after the initial exposure to methanol, in-cluding blurring or complete loss of vision and acidosis. These symptoms re-sult from the accumulation of toxic levels of formate in the bloodstream, and may progress to death by respiratory failure.

The following tests are available:

Methanol in EDTA blood

Indication: Intoxication, exposure to formaldehyde

Material: EDTA blood in head space vial

- Pre-analytics: EDTA blood in Headspace vial: blood collection by vein puncture in 2.7 ml EDTA-blood monovette (red seal). If possible no desinfection. Where this is imperative, indicate desinfectant. Fill up completely and mix monovette thoroughly. Inject EDTA blood from blood monovette through the white membrane completely into the Headspace vessel. Indicate volumes in any case if partial quantities are used. Mark Headspace vessel, do not use etiquettes! Headspace vials can be requested in the laboratory.
 - TAT: 7-10 days*
 - Method: GCH
 - Units: mg/l
 - Ref.- range: see report

Page 1 of 2



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• Methanol in urine

Indication: Intoxication, exposure to formaldehyde

Material: 10 ml urine

TAT: 7-10 days*

Method: Gas chromatography

Units: mg/l

Ref.- range: see report

Note: Formic acid (methanol reduction product) should be tested as well.

For complete list of laboratory test offered at Freiburg Medical Laboratory, please visit http://www.fml-dubai.com/parameter-listings/

Page 2 of 2



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