

Division of Laboratory Medicine

Biochemistry

Ethanol

Pseudonyms: alcohol, ethyl alcohol

Ethanol measurement should be considered in patients with an unexplained metabolic acidosis and/or an elevated anion-gap.

Ethanol should be measured in patients with an osmolar gap.

General information

Collection container: Serum container 4.9mL Serum (Gel preferred) (Sarstedt brown top).

Type and volume of sample:

Serum sample. Minimum volume 1 mL

Specimen transport/special precautions:

Samples should be received by the laboratory within 48 hours.

Laboratory information

Method principle: Enzymatic method using alcohol dehydrogenase.

Ethyl alcohol + NAD⁺

→ Acetaldehyde + NADH + H⁺

The NAD formed during this reaction is measured using UV-vis spectrophotometry. The rate change, measured by absorbance, is directly proportional to the Ethyl alcohol.

Biological reference range or cut off:

Turnaround times:

Urgent 2 hours

Routine 4 hours

Clinical information

Do not use alcohol or other volatile disinfectants at the site of venipuncture. Aqueous Zephiran (benzalkonium chloride), aqueous Merthiolate (thimerosal), or povidone-iodine may be used.

Factors known to significantly affect the results: No significant interferences.

Clinical decision points:

Division of Laboratory Medicine

Biochemistry

Ethanol concentration	Clinical information
800 – 1200 mg/L	Antidote (to methanol poisoning)
800 mg/L	Legal limit for driving
500-1000 mg/L	Flushing, slowing of reflexes, impaired visual acuity
> 1000 mg/L	Depression of CNS
> 4000 mg/L	Fatalities reported

(Last updated April 2017)