

CATACHEM Inc.

QUALITATIVE
Ethylene Glycol
Test

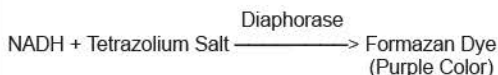
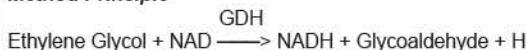
Intended Use

For in vitro diagnostic use in the manual, QUALITATIVE determination of ethylene glycol in serum or plasma in the veterinary laboratory.

Clinical Significance

When ingested in the form of antifreeze or other automotive products, ethylene glycol results in central nervous system depression, cardiopulmonary compromise and renal insufficiency.

Method Principle



Reagent Storage and Stability

Store the Catachem Ethylene Glycol Reagent at 2-8°C. When stored as directed, Catachem Ethylene Glycol Reagents are stable until expiration date stated on the label.

Specimen Collection and Stability

Plasma specimens should be collected in tubes with heparin, sodium fluoride, EDTA, citrate or oxalate as anticoagulants. Separate plasma immediately from the cells and analyze promptly or store at 2-8°C if not assayed immediately.

Procedure

These instructions are for manually performing the Catachem Ethylene Glycol qualitative assay.

Materials Provided

Catachem Vetspec™ Ethylene Glycol Kit-B	C504-0B
Kit Includes:	
Catachem Ethylene Glycol Reagent	C504-30
6 vials – (3 Red Cap, 3 Blue Cap)	
Catachem Ethylene Glycol Reagent Diluent	C504-31
1x7mL vial (Black Cap)	
Qualitative Ethylene Glycol control "Threshold"	C504-32
in a serum base. 20mg/dl	
U-100 Syringe, 1mL (100 Units) (3 Syringes per Kit)	

Materials Required, But Not Provided

Timer

Interfering Substances

The following substances have no significant effect on the accuracy of this Ethylene Glycol procedure at the concentrations stated.

• Fomepizole	≤ 50 mg/L
• Hemoglobin	≤ 200 mg/dl
• Triglycerides	≤ 1000 mg/dl
• Bilirubin	≤ 2.2 mg/dl
• Ethanol	≤ 200 mg/dl

The following substances if present in the plasma sample may produce false positive results:

- Propylene glycol
- Propanediol
- Glycerol
- Sorbitol
- Thimerosal

Procedure:

1.) For each sample to be tested, use one Reference Vial (blue cap), one Test Vial (red cap) and one dispensing 1mL (100 Units) U-100 syringe from the reagent kit. Also take out the larger Ethylene Glycol Reagent Diluent Vial (black cap). Allow vials to reach room temperature before proceeding with the assay (about 10-15 minutes).

2.) Carefully open the Ethylene Glycol Reagent Diluent Vial (black cap). Using the dispensing 100 Units (1mL) syringe (remove protective shields from needle and plunger) slowly draw exactly 100 Units (1mL) of Catachem Ethylene Glycol Diluent (see Fig. 1) on front page. With the syringe needle, carefully pierce rubber septum of Catachem Ethylene Glycol Reagent Test Vial (red cap) and gradually inject Diluent into the Reagent Vial until syringe is completely empty.

Carefully withdraw needle from Reagent Vial. Mix Reagent Vial by gently inverting 2-3 times, until Working Reagent is completely in solution (about 60 seconds).

3.) Repeat the same process to reconstitute the Reference Reagent Vial (blue cap).

4.) Using the same syringe as in Step 2, slowly draw exactly 10 units (0.1ml) of ethylene glycol "threshold" control from the control vial (C504-32-small black top vial) and inject this into the Reference vial (blue cap) containing the now liquid Ethylene Glycol Working Reagent. Withdraw needle from Reference vial and using the same needle immediately draw exactly 10 units (0.1ml) of patient sample from serum/plasma container and inject this into the Test Vial (red cap) containing the now liquid Ethylene Glycol Working Reagent. Replace the protective shield on the needle. Quickly mix vial contents by inverting 2-3 times. Immediately set timer for 5 minutes. Carefully watch and note the color development in both the test and reference control vials. Compare color development in the Test Vial (red cap) to that of the Reference Vial (blue cap – after control sample added) which will develop a metered amount of color. Read results after 5 minutes.

Interpretation of results

If after 5 minutes the color in the test Vial is a darker purple than the color in the threshold control vial then the animal has probably ingested ethylene glycol. NOTE:- As a normal serum vial, free of ethylene glycol, can initially darken before the positive threshold vial as the reaction progresses (See Photo 4) it is important to wait the full 5 minutes before interpretation. Note also the difference in the color pigment between the threshold control and the negative sample.

Toxicity and Reference Values

No trace of ethylene glycol in a living organism is normal.

Toxic Levels (mg/dl)^①

Ethylene glycol levels in dogs peak 2 hours after ingestion. The half-life in the blood is 3 - 4 hours.

Cats	20 mg/dl
Dogs	50mg/dl

These levels are, however, approximate and dependent on the size and weight of the animal.

Bibliography

① Hewlett TP, Jacobsen D, Collins TD, et al. Ethylene glycol and glycolate kinetics in rats and dogs. Vet Hum Toxicol 1989; 31:116-120

Ethylene Glycol QUICK START Guide

Two reagent vials are used per test.

- One blue for the Threshold E.G. Control
- One red for the test sample.

Procedure:

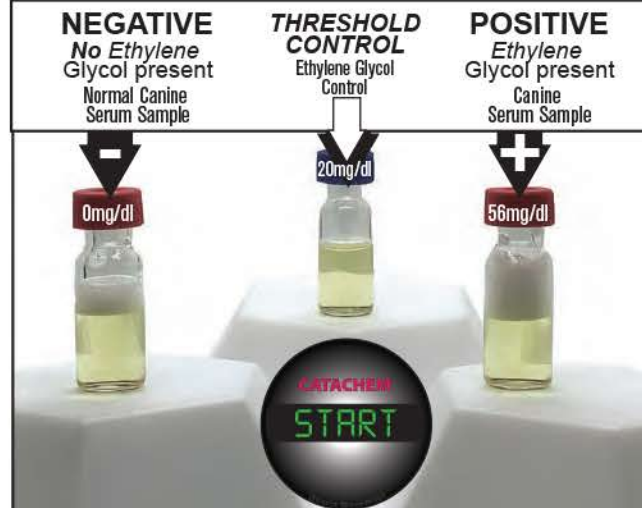
- 1.) Using a syringe add 100 units (1000µl) of **C504-31 Reagent Diluent** to one each of the **RED** and **BLUE** vials.

Mix gently.
- 2.) Using the same syringe, take 10 units (100µl) of **Animal Sample** and inject into the **RED** vial.

Mix gently.
- 3.) Using the same syringe, take 10 units (100µl) of **C504-32 Threshold Control** and inject into the **BLUE** vial.

Mix gently.
- 4.) Interpret the color difference between the two vials after 5 minutes.

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A Time Line sequence of color development in Catachem's Qualitative Ethylene Glycol Test.

Note the importance of waiting the full 5 minutes before interpretation when comparing the color in the patient sample vial to the color in the "threshold control."