



KACEY®
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KACEY®
ETHYLENE GLYCOL (8 Minute Test)
a.k.a. ANTI-FREEZE POISON TEST

09 / 06 / 06

SUMMARY & INTENDED USE

The KACEY® Anti-Freeze Test Strips are intended to provide a quantitative measurement of Ethylene glycol in "PLASMA". The KACEY® Anti-Freeze Test Strips measurements are used in the diagnosis and treatment of Ethylene Glycol Poisoning (A.K.A. ANTI-FREEZE POISON). Ethylene glycol is a toxic alcohol that can be found in many commonly used household and automotive products such as ANTI-FREEZE, DETERGENTS, DEICERS and LACQUERS. Ethylene glycol is odorless, colorless and has a relative sweet like taste. It is absorbed very rapidly from the gastrointestinal tract and can reach peak serum concentration levels within hours after ingested. Hepatic metabolism of the Ethylene glycol converts the parent compound to Oxalic Acid in a series of steps. Alcohol dehydrogenase converts most of the Ethylene glycol to Glycolaldehyde. This first step is rate limiting and can be blocked through the competitive inhibition of alcohol-dehydrogenase with an agent such as Ethanol or Fomepizole. Glycolaldehyde is metabolized to glycolic acid which in turn is then converted to glyoxylic acid and finally to Oxalic acid. Unmetabolized Ethylene glycol (ANTI-FREEZE) and its metabolites are eliminated renally.

The KACEY® Anti-Freeze Test Strips measures the presence of Ethylene glycol in a PLASMA sample. A drop of plasma is placed in the circle in the strip. After waiting the required 8 minutes the color that forms in the circle of the strip is compared to a color chart to determine both the presence and concentration of the Ethylene glycol in mg/dl Level of Detection (LOD) starts at 20 mg / dl -see Expected Value Section Below and is Excellent in determining Ethylene Glycol Poisoning in both CATS & DOGS

CHEMICAL COMPOSITION

KACEY™ Anti-Freeze Test Strips do not contain any harmful chemicals and is non-hazardous and non caustic

STORAGE & HANDLING (Room Temperature)

Store in a cool dry place

Keep away from heat & direct sunlight

Always replace vial caps immediately after removing a test strip from the bottle.

A PLASMA SAMPLE IS REQUIRED – DO NOT USE SERUM FOR THIS TEST

PROCEDURE

1. PLACE APPROXIMATELY 60 – 75 µL OF A WHOLE BLOOD SAMPLE CONTAINING EDTA, LITHIUM HEPARIN IN A SMALL CENTRIFUGE TUBE AND SPIN THE TUBE AT BLOOD SPEED FOR 3-5 MINUTES TO SEPARATE PLASMA FROM THE RED BLOOD CELLS.
2. PLACE THE STRIP HANDLE ON A CLIFF PLATFORM. DO NOT TOUCH THE REAGENT PAD OF THE STRIP ON A SURFACE.
3. PLACE ONE DROP OF PLASMA FROM THE ABOVE CENTRIFUGE TUBE (APPROXIMATELY 20 µL) ONTO THE CIRCLE OF THE TEST STRIP.
THE 20 µL PIPETTOR IS AVAILABLE FROM KACEY®
3. WAIT FOR 8 MINUTES AND COMPARE THE COLOR IN THE CIRCLE OF THE TEST STRIP TO THE COLOR CHART PROVIDED ON THE BOTTLE.
DO NOT READ THE COLOR STRIP AFTER 10 MINUTES AS THE COLOR WILL START TO DETERIORATE AND YIELD ERRONIOUS RESULTS

PRINCIPLE OF THE TEST

If ethylene glycol is present a GREEN - BLUE COLOR DOT will appear in the circle of the test strip. Match that color in the test strip to one of the color blocks on the color chart provided in the kit. If NO DISTINCT GREEN-BLUE COLOR DOT appears the test is negative. The intensity of the color is directly proportional to the concentration of the ethylene glycol. Propylene glycol, glycerol and ethanol will give false positive results.

SPECIMEN COLLECTION AND PREPARATION

Collect enough whole blood (with EDTA or heparin as anticoagulant) to perform the test. Blood can be collected from the animal by a direct blood draw using a needle. Plasma can be obtained by centrifugation to separate the red blood cells from the plasma. THE TEST MUST BE PERFORMED ONLY ON A PLASMA SAMPLE

QUALITY CONTROL

KACEY® provides Ethylene Glycol Controls: 0, 20 and 50 µg/ml. These Optional Controls are available separately and can be ordered directly from Kacey®.

The user can practice the testing with these controls to get familiar with the test procedure. The user can also verify the patient results by comparing the color results with that of the Tri-Level control.

PRECAUTIONS

- *For in vitro diagnostic use only.
- *Out of date or expired strips should never be used to perform a test. Check the vial for the expiration date.
- *If the sample circle is covered with Plasma, sufficient sample has been applied.
- *If an insufficient amount of Plasma is placed on the strip, do not add Plasma to the same strip. Use a new unused test strip.
- *Do not agitate the strip after the plasma sample is added.

TEST RESULTS

Results are displayed in "milli grams per deciliter" of ethylene glycol per milliliter (mg/dl) and can be converted to (µg/ml). Therefore, a 20 mg/dl is equal to 200 µg / ml.

LIMITATION OF THE PROCEDURE

Ethanol interferes with the test, and will give false positive ethylene glycol test results.

EXPECTED VALUES - LOD – Level of Detection

Measuring range: The Kacey® antifreeze test can measure ethylene glycol values starting from 20 mg/dl which is equivalent to 200 µg/ml and above. This LOD is low enough to detect Ethylene Glycol Poisoning in Cats and is excellent in early detection of Ethylene Glycol Poisoning in small, medium and large size dogs. The color chart enclosed provides four (4) color blocks in order to measure the ethylene glycol results. Negative, 20 mg/dl, 50 mg/dl, and 75 mg/dl. Cats showing a color greater than or equal to the 20mg/dl color block is positive, dogs showing a result in which the color is greater than or equal to the 50 mg/dl color block would be considered positive. (Note: it is possible for a dog to have a value greater than 20 mg/dl and less than 50 mg/dl. This would suggest that ethylene glycol had been ingested and should be viewed as an ethylene glycol poisoning even if it is not considered to be at a lethal dosage level above the 50 mg/dl threshold mark. There may be various different color blocks for NEGATIVES as plasma samples might vary due to slightly lipemic, hemolyzed or icteric plasma samples.

Note: It is "Estimated" that the amount of ½ tsp of anti-freeze (Conc. 95%+) per 1 pound of canine would be a lethal dosage of antifreeze for the average healthy canine. It has been reported that the current recommended standard for a lethal dose of antifreeze (Conc. 95%+) is at a threshold level of 50 mg/dl (Equivalent to 500 µg/ml) and above. The size, weight, age, metabolism, and health condition of the canine plays a major role on the assimilation and toxic response by the dog to the amount anti-freeze ingested.

ACCURACY

The ANTI-FREEZE POISON TEST STRIPS were used against a commercially available test kit, Ethylene Glycol Test Kit by Allelic Biosystems, confirmed by spiked PLASMA samples with known ethylene glycol concentrations.

THE KACEY® ETHYLENE GLYCOL (ANTIFREEZE) POISON TEST STRIPS COMPARES WELL TO THE REFERENCE METHOD.

RE-ORDER PART# KCEGT-5 (FIVE TESTS PER KIT) KCEGT-10 (TEN TEST PER KIT) KCEGP-20 µL Pipette KCEGPT-50 (50 -PIPET TIPS)

1. Data on file, Kacey® Asheville, N.C. 28801
2. Clinical Diagnostics and Management by Laboratory Methods, eighteenth Edition, John Bernard Henry Editor. W.B. Saunders Company, Philadelphia 1991
3. Young, D.L. ET. AL, Effects of Drugs on Clinical Laboratory tests, AACC Press Wash., D.C. 1990.

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