



KACEY™
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ETHYLENE GLYCOL (New 8 Minute Test)
A.K.A. ANTI-FREEZE POISON TEST

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 Glycoaldehyde. 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. Glycoaldehyde 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 A MINIMUM 300 – 750 µL OF A WHOLE BLOOD SAMPLE INTO A EDTA TUBE , OR IN A GREEN TOP LITHIUM HEPARIN TUBE. PLACE THE TUBE IN A CENTRIFUGE AND SPIN THE TUBE AT BLOOD SPEED FOR 3-5 MINUTES TO SEPARATE PLASMA FROM THE RED BLOOD CELLS.
2. PLACE THE TEST 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 D TUBE (APPROXIMATELY 20 µL) ONTO THE "INDENTED CIRCLE " OF THE TEST STRIP. THE 20 µL PIPETTOR AND PIPET TIPS ARE AVAILABLE FROM KACEY®
4. 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 BLUE GREEN (TEAL) COLOR DOT will appear in the "ENTIRE" 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 BLUE GREEN COLOR DOT appears THROUGHOUT THE CIRCLE the test is negative (FRAGMENTS -SEE TEST RESULT SECTION) 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. A FRAGMENTED BROWNISH-YELLOWISH COLOR OR ANY FRAGMENTED PARTS IN THE CIRCLE IS CONSIDERED NEGATIVE. A GREEN RING MAY APPEAR AROUND THE OUTER EDGES ALSO BUT THIS IS ALSO NEGATIVE. A TRUE TOTAL BLUE /GREEN COLOR MUST ENCOMPASS THE ENTIRE CIRCLE FOR A POSITIVE

LIMITATION OF THE PROCEDURE

Ethanol interferes with the test, and will give false positive ethylene glycol test results. Toxiban will interfere and cause False Positives unless test is performed before Toxiban is administered. All alcohol or compounds that can be converted into alcohol within the body will result in False positives. This also can include but limited to artificial sugars used in baking or cooking.

EXPECTED VALUES - LOD = Level of Detection LD=LETHAL DOSAGE LD FOR A CAT IS 20 mg/dL LD FOR A DOG IS 50 mg/dL

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 then 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.

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 animal plays a major role on the assimilation and toxic response to the amount anti-freeze ingested.

Estimated detection @20mg/dL is approximately 30 minutes after ingestion with a window of opportunity up to 14 hours

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 (ANTI-FREEZE) 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 Pipet 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.