ZINC PVA FIXATIVE

INTENDED USE
Remel Zinc PVA Fixative is a medium recommended for use in qualitative procedures for the transportation, preservation, and examination of intestinal parasites in stool specimens. Permanent stained smears, such as trichrome stain or iron-hematoxylin stain, can be prepared from PVA Fixative.

SUMMARY AND EXPLANATION
The diagnosis of intestinal parasitic infections is confirmed by the recovery and identification of helminth larvae and eggs, and protozoan trophozoites and cysts. Feces and other body materials suspected of containing parasites should be examined soon after passage for visualization of cysts and trophozoites. When immediate examination is not possible, a preservation method is required to maintain the structural integrity of organisms during transport. In 1949, Brooke and Goldman described a fixative containing mercuric chloride and polyvinyl alcohol (PVA) for preserving intestinal protozoa. In 1993, Garcia, et al. reported zinc sulfate based PVA is an acceptable alternative for mercuric chloride in light of disposal problems associated with the use of mercury compounds.

PRINCIPLE
Polyvinyl alcohol is a plastic resin that serves as an adhesive to adhere the sample to the slide during the staining process. Zinc sulfate is used, in place of mercuric chloride, to preserve organism morphology.

REAGENTS (CLASSICAL FORMULA)*
Polyvinyl Alcohol (CAS 9002-89-5)------------------------------------------ 50.0 g
Zinc Sulfate (CAS 7733-02-0)----------------------------------------------- 12.5 g
Ethyl Alcohol 95% (CAS 64-17-5)-------------------------------------------- 310.0 ml
Glacial Acetic Acid (CAS 64-19-7)-------------------------------------------- 50.0 ml
Glycerol (CAS 56-81-5)----------------------------------------------- 15.0 ml
Demineralized Water (CAS 7732-18-5)------------------------------------------ 625.0 ml

*Adjusted as required to meet performance standards.

PRECAUTIONS
WARNING! Flammable liquid and vapor. Harmful to aquatic organisms; may cause long-term adverse effects in the aquatic environment. Causes respiratory tract irritation. Causes eye irritation. This substance has caused adverse reproductive and fetal effects in humans. May cause central nervous system depression. May cause liver, kidney, and heart damage. Causes moderate skin irritation. Refer to Material Safety Data Sheet for additional information.

This product is for In Vitro diagnostic use and should be used by properly trained individuals. Precautions should be taken against the dangers of microbiological hazards by properly sterilizing specimens, containers, and media after use. Directions should be read and followed carefully.

STORAGE
This product is ready for use and no further preparation is necessary. Store product in its original container at room temperature until used. Do not freeze or overheat.

PRODUCT DETERIORATION
This product should not be used if (1) the color has changed, (2) the expiration date has passed, or (3) there are other signs of deterioration.

SPECIMEN COLLECTION, STORAGE, AND TRANSPORT
Refer to collection instruction sheet included with this product. Consult appropriate references when necessary.

1. Substances and medications, such as mineral oil, barium, bismuth, antibiotics, antimalarials, and nonabsorbable anti-diarrheal preparations, interfere with the detection of intestinal protozoa. Intestinal protozoa may be undetectable for one to several weeks after administration of any of these substances. Specimen collection should be performed after seven days in the case of antibiotics or barium.

2. Specimens should not be contaminated with water or urine. Water may contain free-living organisms that can be mistaken for human parasites and urine may destroy motile organisms.

3. A series of three specimens is considered a minimum for an adequate examination. Stool specimens should be collected every other day or within a time frame of no more than 10 days. If a series of 6 specimens is ordered, they should be submitted within a 14-day period.

4. Adequate mixing of the specimen and preservative is mandatory. The fixative should be mixed with the specimen in a 3 to 1 ratio. Generally, fixation time should be no less than 30 minutes.

MATERIALS REQUIRED BUT NOT SUPPLIED
(1) Paper towels or other absorbent material, (2) Applicator sticks, plain and cotton-tipped, (3) Disposable glass or plastic pipettes, (4) Incubator, slide warmer, (5) Trichrome Stain (REF R40217) or iron-hematoxylin stain reagents, (6) Coplin jars, staining rack, forceps, (7) Glass microscope slides, coverslips, mounting medium (8) Microscope with a calibrated ocular micrometer, immersion oil.

PROCEDURE
Specimens should be considered potentially infectious and handled accordingly.

1. Use an applicator stick to smear material on a microscope slide in such a way to provide areas of both thin and thick density. Excess PVA can be removed from the sample if necessary by placing the sample on a paper towel or other absorbent material for three to five minutes.

2. Allow slides to air dry for several hours or overnight at room temperature. Alternatively, slides may be dried for one hour at 35-37°C.

3. Proceed with iron-hematoxylin or trichrome stain procedures.

INTERPRETATION OF THE TEST
This transport medium serves as a vehicle for preserving intestinal parasites while transporting the specimen to the laboratory.

QUALITY CONTROL
All lot numbers of Zinc PVA Fixative have been tested using the following quality control organism and have been found to be acceptable. Testing of control organisms should be performed in accordance with established laboratory quality control procedures. Alternatively, quality control may be accomplished by using a preserved negative stool specimen to which buffy coat cells have been added. If aberrant quality control results are noted, patient results should not be reported.

CONTROL
Giardia intestinalis ATCC® 30888
INCUBATION
Ambient, 24 h @ RT
RESULTS
Well-fixed smear, typical morphology observed

LIMITATIONS
1. Results obtained will largely depend on proper and adequate specimen collection and fixation. Improperly fixed specimens will result in protozoan forms that are nonstaining or predominantly red.

2. Smears that are inadequately dried on the slide may flake off or peel. Slides used for staining should be free of grease.

3. Oily materials, such as mineral oil, create refractile droplets that make examination difficult.
4. *Entamoeba coli* cysts are difficult to fix properly and may be difficult to identify on the stained slide. For this reason, it is possible to have fixatives that meet quality control criteria and yet, do not always yield good morphology for this particular organism. Use of a longer fixation time (60 minutes) sometimes produces better morphology after staining.

5. When organisms are present in rare numbers, they may be missed using Zinc PVA Fixative as compared with mercuric chloride based PVA. 

BIBLIOGRAPHY


PACKAGING

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Symbol Legend

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