Product Insert

ANAEROBIC CATALASE REAGENT – HYDROGEN PEROXIDE 15%

Products

AS-708	Anaerobic Catalase Reagent – Hydrogen Peroxide 15%	1 bottle / pkg

Intended Use

Anaerobic Catalase Reagent is used to determine if an organism is producing catalase and/or peroxidase.

Summary

Hydrogen peroxide (H_2O_2) is used to determine if an organism is producing the enzyme catalase. A 15% concentration is more sensitive than a 3% solution when testing anaerobes for catalase production. Catalase (hydrogen peroxide oxidoreductase) is essential to the biologic defense against oxygen toxicity. Hydrogen peroxide is toxic to bacteria and results in death if allowed to accumulate. When catalase and hydrogen peroxide interact, the product is water and oxygen. The production of oxygen can be observed by the formation of bubbles during the test.

Formulation

Hydrogen Peroxide – 30%	15.00	mL
DI Water	15.00	mL

Final volume: 30.0 mL ± 3.0 mL

Precautions

Strong oxidizing agent. Avoid exposure to skin as painful blisters may occur. If hydrogen peroxide contacts skin, immediately remove any contaminated clothing and rinse the area with water.

For *IN VITRO DIAGNOSTIC USE* only. Approved biohazard precautions and aseptic techniques should be observed when using this product. This product is for use only by properly-trained and qualified personnel. Sterilize all biohazard waste prior to disposal.

Storage and Shelf Life

Storage: Upon receipt, store at 2 – 8°C. Avoid any undue exposure to light. The expiration date applies to the product in its original packaging and stored as directed. Do not use product past the expiration date shown on the label.

Shelf Life: 90 days from date of manufacture.

Procedure

Slide Method: Use a 24 – 72 hour growth on primary plates, or on subculture plates, preferably from a medium that does not contain blood. Red blood cells contain catalase and may produce false-positive results. If no other media is available, avoid touching the agar as much as possible. Touch the center of a pure colony with a loop or sterile wood applicator and transfer onto the surface of a clean glass slide or petri dish. Metal loops should not be used as they often cause false-positive reactions. Add one drop of Anaerobic Catalase Reagent on to the smear. Observe for an immediate bubbling reaction. If no reaction occurs after 20 seconds, the reaction should be considered as negative. Rare formation of bubbles after 20 seconds is considered negative, as some bacteria may have enzymes other than catalase that may decompose hydrogen peroxide.

An alternative method is to apply the reagent directly on growth on a medium that does not contain blood and observe for the formation of bubbles.

Materials Required, But Not Provided

Standard microbiological supplies and equipment such as loops, saline blanks, slides, staining supplies, microscope, incinerator / autoclave, incubators, anaerobic chamber / anaerobic jars, disinfectant, other culture media, and serological / biochemical reagents.

Interpretation of Results

Immediate and sustained bubbling of the hydrogen peroxide is considered positive for catalase. No bubbling observed after 20 seconds is considered negative for catalase. Rare formation of bubbles after 20 seconds is considered negative, as some bacteria may have enzymes other than catalase that may decompose hydrogen peroxide over time.

Limitations

Hydrogen peroxide is very unstable and should undergo a quality control check daily or immediately prior to its use. Positive and negative controls should be run simultaneously. Blood based media should be avoided when using the slide test method, unless no other option is available. Avoid contact with the blood agar when retrieving the organism. The catalase test must be performed with a heavy inoculum from viable colonies. Carbohydrate-containing media may suppress catalase activity. Metal inoculating loop or needles should be avoided as they may lead to false-positive reactions. Observations of the results must be made immediately.

Quality Control

The following organisms are routinely used for quality control testing at Anaerobe Systems.

Organism Tested	ATCC #	Expected Reaction
Bacteroides fragilis	25285	Positive
Peptostreptococcus anaerobius	27337	Negative
Fusobacterium necrophorum	25286	Negative
Propionibacterium acnes	6919	Positive

User Quality Control: The final determination to the extent and quantity of user laboratory quality control must be determined by the end user.

If the reactivity capacity of this media is to be tested for performance, it is recommended that the following ATCC organisms be evaluated, growing on Brucella Blood Agar plates, for reactivity. Take care not to contact the blood agar when selecting organisms.

Organism	ATCC#	Expected Reaction
B. fragilis	25285	Positive
F. necrophorum	25286	Negative

Physical Appearance: Anaerobic Catalase Reagent – Hydrogen Peroxide 15% should appear as a clear liquid within an opaque clear plastic bottle.

References

1. MacFaddin, J.F. 2000. *Biochemical Tests for Identification of Medical Bacteria*. Lippincott Williams & Wilkins, Philadelphia, PA 19106.
2. Jousimies-Somer, H. R., Summanen, P., Citron, D. M., Baron, E. J., Wexler, H. M. and S. M. Finegold. 2002. *Wadsworth – KTL Anaerobic Bacteriology Manual*. Star Publishing Co., Belmont, CA 94002.
3. Isenberg, H. D. 1992. *Clinical Microbiology Procedures Handbook*. American Society for Microbiology Publishing, Washington, D.C. 20005.
4. Holdeman, L. V., F. P. Cato and W. E. C. Moore. 1977. *Anaerobe Laboratory Manual*. Virginia Polytechnic Institute and State University. Blacksburg, VA 24061

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