



INSTRUCTIONS FOR USE

ANAEROBIC CATALASE REAGENT – 15% HYDROGEN PEROXIDE

PRODUCTS

AS-708 Anaerobic Catalase Reagent – 15% Hydrogen Peroxide

1 bottle / pkg

INTENDED PURPOSE

Spot biochemical reagents are intended for in vitro diagnostic use by trained laboratory personnel for the identification and differentiation of microorganisms based on specific biochemical characteristic, such as enzymatic activity or metabolic reactions.

INTENDED USERS

Scientists, laboratory, and healthcare professionals trained in anaerobic microbiology techniques working in areas such as clinical, research, industrial, pharmaceutical and veterinary applications.

FORMULATION*

Anaerobic Catalase Reagent is used to determine whether an organism produces catalase and/or peroxidase enzymes. The test involves the application of hydrogen peroxide (H_2O_2), which is broken down by catalase into water and oxygen. The release of oxygen gas is observed as bubble formation, indicating a positive catalase reaction. A 15% hydrogen peroxide solution is more sensitive than a 3% solution and is preferred when testing anaerobic organisms for catalase production. Catalase (hydrogen peroxide oxidoreductase) plays a crucial role in protecting organisms from oxidative damage by breaking down hydrogen peroxide, a toxic byproduct of metabolic processes. If hydrogen peroxide accumulates, it can be lethal to bacteria.

30% Hydrogen peroxide	15.00	mL
DI Water	15.00	mL

*Approximate formula. Adjusted and/or supplemented as required to meet performance criteria.

Final volume: 30.0 mL \pm 3.0 mL

PRECAUTIONS

For IN VITRO DIAGNOSTIC USE only. Utilize approved biohazard precautions and aseptic technique when using this product. This product is for use by properly trained and qualified personnel only. Sterilize all biohazard waste prior to disposal.

Hydrogen peroxide is a strong oxidizing agent. Avoid contact with skin, as it may cause irritation or painful blisters. In case of skin contact, immediately remove contaminated clothing and rinse the affected area thoroughly with water. Always wear appropriate personal protective equipment (PPE), including gloves, lab coat, and eye protection, when handling Anaerobic Catalase Reagent.

As hydrogen peroxide decomposes over time, oxygen gas may accumulate within the bottle, leading to increased internal pressure. Use caution when opening the container to avoid sudden release of pressure or splashing of the reagent.



Report serious incidents that occur in direct relation to this product to tech@biolog.com. As necessary, report serious incidents to the regulatory authority in which the user is established.

When working with anaerobic culture media, the potential for ergonomic hazards may exist due to repetitive motions, awkward postures, improper bench/chair heights or poor lighting. Although it is beyond the scope and provision of products by Anaerobe Systems, it should be recognized and mitigated by the end user in the laboratory environment.

STORAGE AND SHELF LIFE

Storage: Upon receipt, store refrigerated at 2 – 8°C until used. Avoid overheating or freezing. Avoid any unnecessary 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 the date of manufacture.

PROCEDURE

Specimen Collection: Protect specimens for anaerobic culture from oxygen during collection, transportation, and processing. Consult appropriate references for detailed instructions concerning collection and transportation of anaerobes. The selection of specimens for culture is made by physicians or scientists collecting the sample.

Methods for Use: Use bacterial growth that is 24 to 72 hours old, obtained from primary or subculture plates. A medium that does not contain blood is preferred, as red blood cells contain catalase and may lead to false-positive results. If no other medium is available, care should be taken to avoid touching the agar surface when collecting the sample.

Using a sterile wooden applicator or plastic loop, touch the center of a well-isolated pure colony and transfer it to the surface of a clean glass slide or petri dish. Metal loops should not be used, as they may cause false-positive reactions.

Place one drop of Anaerobic Catalase Reagent directly onto the smear. Observe immediately for the formation of bubbles, which indicates a positive catalase reaction.

If no bubbling occurs within 20 seconds, the result should be considered negative. Occasional bubbling after 20 seconds is also considered negative, as it may be due to the presence of other enzymes capable of decomposing hydrogen peroxide.

As an alternative method, the reagent may be applied directly to the surface of a colony growing on a non-blood-containing medium. The formation of bubbles should be observed immediately to determine a positive reaction.

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 upon application of the reagent indicates a positive catalase reaction. No bubbling observed within 20 seconds is considered negative for catalase production. Occasional or delayed bubbling after 20 seconds should also be interpreted as negative, as it may result from the activity of non-catalase enzymes that can slowly decompose hydrogen peroxide.



LIMITATIONS

Hydrogen peroxide is inherently unstable and should undergo quality control testing daily or immediately before use. Positive and negative controls should be included with each test to ensure reliability of results.

Blood-containing media should be avoided for the slide test method, as red blood cells contain catalase and may cause false-positive reactions. If blood agar is the only option available, care must be taken to avoid contacting the agar surface when collecting the organism.

The test requires a heavy inoculum from viable, well-isolated colonies for accurate results. Media containing carbohydrates may suppress catalase activity and could lead to false-negative results.

Metal inoculating loops or needles should be avoided, as they may cause false-positive reactions due to catalytic activity. Results must be observed immediately after the reagent is applied, as delayed reactions may lead to misinterpretation.

QUALITY CONTROL

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

Organism Tested	ATCC® #	Expected Results
Bacteroides fragilis	25285	Positive; bubbling
Peptostreptococcus anaerobius	27337	Negative; no bubbling
Fusobacterium necrophorum	25286	Negative; no bubbling
Cutibacterium acnes	6919	Positive; bubbling

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

To evaluate the reactivity and performance of this reagent, it is recommended to test the following ATCC® strains grown on AS-111 Brucella Blood Agar plates. Take care to avoid contact with the blood agar when selecting colonies, as red blood cells contain catalase and may interfere with test results.

Organism	ATCC® #	Expected Results
Bacteroides fragilis	25285	Positive; bubbling
Fusobacterium necrophorum	25286	Negative; no bubbling

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

ATCC® is a registered trademark of American Type Culture Collection.

REFERENCES

1. MacFaddin JF. *Biochemical Tests for Identification of Medical Bacteria*. 3rd ed. Philadelphia, PA: Lippincott Williams & Wilkins; 2000.
2. Leber AL, Burnham CA, eds. *Clinical Microbiology Procedures Handbook*. 5th ed. 4 vols. Washington, DC: ASM Press; 2023.
3. Carroll KC, Pfaller MA, eds. *Manual of Clinical Microbiology*. 13th ed. 4 vols. Hoboken, NJ: Wiley-Blackwell; 2023.



4. Jousimies-Somer HR, Sutter VL, eds. *Wadsworth-KTL Anaerobic Bacteriology Manual*. 6th ed. Belmont, CA: Star Publishing Company; 2002.

GLOSSARY OF SYMBOLS

SYMBOL	TITLE	DESCRIPTION	STANDARD	REF #
	Catalog number	Indicates the manufacturer's catalog number so that the medical device can be identified.	ISO 15223-1 Medical devices – Symbols to be used with medical device labels, labelling, and information to be supplied	5.1.1
	Lot number/ Batch code	Indicates the manufacturer's batch code so that the batch or lot can be identified.	ISO 15223-1 Medical devices – Symbols to be used with medical device labels, labelling, and information to be supplied	5.1.5
	Use-by date	Indicates the date after which the medical device is not to be used.	ISO 15223-1 Medical devices – Symbols to be used with medical device labels, labelling, and information to be supplied	5.1.4
	Authorized Representative	Indicates the Authorized Representative in the identified country or jurisdiction.	ISO 15223-1 Medical devices – Symbols to be used with medical device labels, labelling, and information to be supplied	5.1.2
	Do not re-use/ Single use only	Indicates a medical device that is intended for one single use only.	ISO 15223-1 Medical devices – Symbols to be used with medical device labels, labelling, and information to be supplied	5.4.2
	Consult instructions for use or consult electronic instructions for use	Indicates the need for the user to consult the instructions for use.	ISO 15223-1 Medical devices – Symbols to be used with medical device labels, labelling, and information to be supplied	5.4.3
	Temperature limit	Indicates the temperature limits to which the medical device can be safely exposed.	ISO 15223-1 Medical devices – Symbols to be used with medical device labels, labelling, and information to be supplied	5.3.7
	In vitro diagnostic medical device	Indicates that a medical device is intended to be used as an in vitro diagnostic medical device	ISO 15223-1 Medical devices – Symbols to be used with medical device labels, labelling, and information to be supplied	5.5.1
	CE Mark European Conformity	Designates that the product labeled is authorized for sale in European countries.	EU IVDR (EU) 2017/746	

AUTHORIZED REPRESENTATIVE INFORMATION



REVISION 3

Additions: Intended Use, Intended Users, Ergonomics Precautions, Serious Incident Report Contact Information, Glossary of Symbols

Changes: Title change from Product Insert to Instructions for Use. References updated. Contact information.

Deletions: None