CATALASE TEST REAGENT
BIOCHEMICAL IDENTIFICATION

PRODUCT:
Bottle:[a]

Hydrogen Peroxide, 3%, item no. R6452 (30ml), R6450 (250ml)

[a]see catalog for ordering options

PURPOSE:
The catalase test is useful for the presumptive identification of many bacteria, in particular for the differentiation of *Streptococci* (catalase-negative), *Staphylococci* (catalase-positive), and *Listeria* (catalase-positive) from beta-hemolytic streptococci.

PRINCIPLE:
The enzyme catalase is present in most cytochrome-containing aerobic and facultative anaerobic bacteria. Organisms lacking the cytochrome system also lack the catalase enzyme and are unable to break down hydrogen peroxide, H_2O_2, into CO_2 and water. Organisms which produce the enzyme break down the hydrogen peroxide, and the resulting CO_2 production produces bubbles in the reagent drop, indicating a positive test.

FORMULA:
Approximate ingredients per liter.

Water, Deionized	900.0 ml
Hydrogen Peroxide, 30%, Stable	100.0

PRECAUTIONS:*
For in vitro diagnostic use. Observe all safety precautions consistent with the hazard(s) stated on the product label and/or Material Safety Data Sheet.

Storage: Upon receipt store at 2-8°C away from direct light. Reagents should not be used if there are signs of deterioration or if the expiration date has passed.

Limitations: Hydrogen peroxide is unstable and should undergo a quality control check daily prior to use.

Nichrome wire should be used when testing the organism. Platinum wires may cause a false-positive reaction.

Growth for catalase testing must be taken from an 18- to 24-hour culture. Organisms lose their catalase activity with age, resulting in a false-negative reaction.

Catalase activity is a function of an aerobic process. Organisms incubated anaerobically must be exposed to atmospheric oxygen for a minimum of 30 minutes before a catalase test is performed. Failure to complete this step may produce false-negative results.

A positive catalase reaction with anaerobic organisms may be delayed for up to a minute after addition to the reagent.

PROCEDURE:*
Specimen Collection: Not applicable since this reagent is used on specimens from primary isolation. This reagent is used in characterizing cultures of isolated organisms, and established isolation techniques and tests for purity are necessary. Information on specimen collection may be found in standard reference texts.[1,2]

Method of Use: Place one drop of the reagent on a clean glass slide. Remove a single isolated colony with a nichrome wire and place in the drop, stirring gently. Formation of bubbles indicates a positive test.

Interpretation:
Positive: Formation of bubbles.
Negative: No formation of bubbles.

Materials Required but Not Provided: Standard microbiological supplies and equipment such as loops, needles, pipettes, and glass slides are not provided.

QUALITY CONTROL:*

Microorganisms Used (ATCC #):	**Expected Results:**
Staphylococcus aureus (25923)	(+)
Streptococcus pyogenes (19615)	(-)
	Key: See "Interpretation"

User Quality Control: Check for signs of deterioration. Check the performance of the reagent daily with organisms described above.

BIBLIOGRAPHY:

1. Finegold, S. M., and E. J. Baron, *Bailey and Scott's Diagnostic Microbiology*, 7th ed., C. V. Mosby, St. Louis, 1986.
2. Lennette, E. H., et al., *Manual of Clinical Microbiology*, 4th ed., American Society for Microbiology, Washington, D. C., 1985.
3. MacFaddin, J. F., *Biochemical Tests for Identification of Medical Bacteria*, 2nd ed., Williams and Wilkins, Baltimore, 1980.

*For more detailed information, consult appropriate references and/or details in the preface of the PML Technical Manual.

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