

**Stanton Territorial Hospital**P.O. Box 10, 550 Byrne Road  
YELLOWKNIFE NT X1A 2N1

Document Number: MIC50400

Version No: 1.0

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**Distribution:**

Microbiology Test Manual

**Effective:**

Date Reviewed:

Next Review:

Document Name: Catalase Test

Approved By:

Status: **DRAFT**

**PURPOSE:** The catalase test is used to detect the presence of the enzymes, catalase and peroxidase, produced by some bacteria.

**SAMPLE INFORMATION:**

Type	One, well isolated colony that is 18 to 24 hours old
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**REAGENTS and/or MEDIA:**

Type	Dalynn Catalase Reagent
Stability and Storage Requirements	<ul style="list-style-type: none"><li>• Store reagent at 4°C to 8°C.</li><li>• Protect from light.</li></ul>

**SUPPLIES:**

- Glass microscope slides
- Wooden sticks
- Disposable loops

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**SPECIAL SAFETY PRECAUTIONS:**

Containment Level 2 facilities, equipment, and operational practices for work involving infectious or potentially infectious materials or cultures.

- Lab gown must be worn when performing activities with potential pathogens.
- Gloves must be worn when direct skin contact with infected materials is unavoidable.
- Eye protection must be used when there is a known or potential risk of exposure to splashes.
- All procedures that may produce aerosols, or involve high concentrations or large volumes should be conducted in a biological safety cabinet (BSC).
- The use of needles, syringes and other sharp objects should be strictly limited.

All patient specimens are assumed to be potentially infectious. Universal precautions must be followed. Since viable micro-organisms are used, all cultures must be handled with appropriate precautions. All equipment in contact with cultures should be decontaminated by appropriate methods.

**QUALITY CONTROL:**

- Quality control is performed daily:
  - Positive: *Staphylococcus aureus* ATCC 25923
  - Negative: *Streptococcus pyogenes* ATCC 19615
- A TQC order is automatically generated daily to record the QC results.

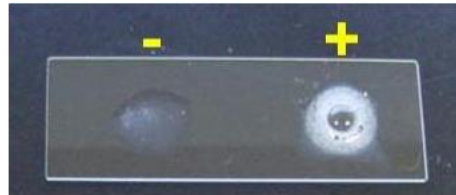
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**PROCEDURE INSTRUCTIONS:**

Step	Action
<b>Performing the catalase test</b>	
<b>1</b>	With a sterile loop or wooden stick, pick the center of a colony from an overnight culture plate and place it on a clean, glass slide.
<b>2</b>	Place a drop of catalase reagent onto the smear.
<b>3</b>	Observe for immediate bubbling. It may be necessary to use a magnifying lens to detect weakly positive reactions.

**INTERPRETATION OF RESULTS:**

IF	THEN
Immediate appearance of bubbles	<b>Catalase = Positive</b>
Absence of bubbles	<b>Catalase = Negative</b>



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**LIMITATIONS/PRECAUTIONS:**

1. If a colony is removed from a blood-containing medium, care must be taken to touch the top of the colony only. The enzyme catalase is produced in red blood cells. The carryover of blood cells with a colony could give a false positive result.
2. The test should not be performed on colonies older than 24 hours, because the enzyme is present in viable cultures only. Older cultures may give false-negative reactions.
3. Catalase is inactivated by sunlight.
4. Do not test from Mueller Hinton agar.
5. Do not reverse the order of adding the reagent to the colony as false positive results could occur.
6. Hydrogen peroxide is caustic - avoid exposure to skin. If H<sub>2</sub>O<sub>2</sub> does get on the skin, immediately flood the area with 70% ethyl alcohol, not water.
7. Aerosols may be released by the bubbling of the O<sub>2</sub>.

**REFERENCES:**

- Dalynn, Catalase Reagent package insert, January 2014
- Clinical Microbiology Procedures Handbook, 4<sup>th</sup> edition, ASM Press, 2016

**REVISION HISTORY:**

REVISION	DATE	Description of Change	REQUESTED BY
1.0	4 APR 19	Initial Release	L. Steven

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