Catalase 3%

REF CK9830

Intended Use
This test detects the catalase enzyme present in most cytochrome-containing aerobic and facultative anaerobic bacteria.

Background
A Catalase test is useful for the identification of many different bacteria. Since *Streptococcus* and *Enterococcus* spp. lack the enzyme to catalyse hydrogen peroxide, and all Staphylococci possess it, 3% Catalase is used to separate these genera Also, *Listeria monocytogenes*, which is catalase positive can be differentiated from beta-haemolytic Streptococci. Most *Neisseria* spp. are catalase positive. Yeast such as *Cryptococcus neoformans* is catalase positive and can be presumptively identified using the catalase test.

Precautions
This product is for in-vitro diagnostic use and should be used by properly trained laboratory professionals. Universal precautions should be taken in the handling, processing and discarding of all materials used to perform the test. Do not use reagents after the expiration date shown on the product label has expired.

Methods
Use a fresh 18-24 hour culture as the enzyme, catalase is only present in viable cultures. Older cultures may lose their catalase activity and give false negative reactions. False positive results may also be produced by dirty glassware.

Slide:
Touch the centre of a single colony with a plastic loop or sterile wooden stick and transfer on to the surface of a clean glass slide or Petri dish.
Add one drop of 3% Hydrogen peroxide onto the smear.
Observe for immediate bubbling
Tube or bottle:
Place 4 or 5 drops of hydrogen peroxide in a test tube or bijou.
Touch the centre of a single colony with a plastic loop or sterile wooden stick and smear on the inside wall of the tube just above the surface of the hydrogen peroxide.
Cap the tube or bottle and tilt so that the smear is covered by the hydrogen peroxide.
Observe for immediate bubbling.
Agar slant:
Add 1.0ml of hydrogen peroxide directly onto an 18 to 24 hour heavily inoculated pure culture on a nutrient agar slope and replace the cap.
Observe for immediate bubbling.

Results
Positive Reaction - immediate and sustained bubbling.
Negative Reaction – No bubbling, the formation of occasional bubbles after 20-30 seconds is considered negative.

Limitations
This test should not be performed on colonies taken from media containing whole blood cells as they contain catalase and may give a false result. Colonies from chocolate

agar may be tested as the blood cells have been destroyed.
Carbohydrate containing media may suppress catalase activity.
Metal loops and wires (nichrome) are to be avoided as they may give false positive reaction.

Quality Control
Hydrogen peroxide is unstable and should undergo a quality control check daily or immediately prior to use.
Bacteria
Positive control-
Staphylococcus aureus ATCC 25923
Negative control-
Streptococcus mitis NCTC 10712
Fungi
Positive control-
Crypyococcus neoformans NCPF 3168
Negative control-
Candida albicans ATCC 90028

Shelf Life & Storage
The expiry date, storage temperature (2-8^{0}C) and storage conditions are indicated on the outer package label.

Materials provided
Each pack contains 5 dropper bottles, each dropper bottle contains 3ml of 3% hydrogen peroxide.

Materials required but not provided
Media and other equipment for subculture.
Sterile loops or needles.
Glass slide, petri dish, test tube, bijou or nutrient agar slope depending on test method.

References
Standards Unit, National Infection Service, PHE. UK SMI, TP8-Catalase Test, Issue 4, 02.04.19.
Barrow, G.I. & Feltham, R.K.A. Cowan and Steel's Manual for the Identification of Medical Bacteria. Third edition.

REF	Catalogue number
LOT	Batch number
	Use by date
IVD	In-Vitro Diagnostic device
Σ	Contains sufficient for <n> tests
	Temperature storage limitations
	Consult instructions for use
	Manufacturer

Issue	Date	Comments
5	16/07/2020	IFU format revision. Slide, tube, bottle and agar slant methods updated

CE

Catalase 3%

REF CK9830

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Methods
Use a fresh 18-24 hour culture as the enzyme, catalase is only present in viable cultures. Older cultures may lose their catalase activity and give false negative reactions. False positive results may also be produced by dirty glassware.

Slide:
Touch the centre of a single colony with a plastic loop or sterile wooden stick and transfer on to the surface of a clean glass slide or Petri dish.
Add one drop of 3% Hydrogen peroxide onto the smear.
Observe for immediate bubbling
Tube or bottle:
Place 4 or 5 drops of hydrogen peroxide in a test tube or bijou.
Touch the centre of a single colony with a plastic loop or sterile wooden stick and smear on the inside wall of the tube just above the surface of the hydrogen peroxide.
Cap the tube or bottle and tilt so that the smear is covered by the hydrogen peroxide.
Observe for immediate bubbling.
Agar slant:
Add 1.0ml of hydrogen peroxide directly onto an 18 to 24 hour heavily inoculated pure culture on a nutrient agar slope and replace the cap.
Observe for immediate bubbling.

Results
Positive Reaction - immediate and sustained bubbling.
Negative Reaction – No bubbling, the formation of occasional bubbles after 20-30 seconds is considered negative.

Limitations
This test should not be performed on colonies taken from media containing whole blood cells as they contain catalase and may give a false result. Colonies from chocolate

agar may be tested as the blood cells have been destroyed.
Carbohydrate containing media may suppress catalase activity.
Metal loops and wires (nichrome) are to be avoided as they may give false positive reaction.

Quality Control
Hydrogen peroxide is unstable and should undergo a quality control check daily or immediately prior to use.
Bacteria
Positive control-
Staphylococcus aureus ATCC 25923
Negative control-
Streptococcus mitis NCTC 10712
Fungi
Positive control-
Crypyococcus neoformans NCPF 3168
Negative control-
Candida albicans ATCC 90028

Shelf Life & Storage
The expiry date, storage temperature (2-8^{0}C) and storage conditions are indicated on the outer package label.

Materials provided
Each pack contains 5 dropper bottles, each dropper bottle contains 3ml of 3% hydrogen peroxide.

Materials required but not provided
Media and other equipment for subculture.
Sterile loops or needles.
Glass slide, petri dish, test tube, bijou or nutrient agar slope depending on test method.

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Slide:
Touch the centre of a single colony with a plastic loop or sterile wooden stick and transfer on to the surface of a clean glass slide or Petri dish.
Add one drop of 3% Hydrogen peroxide onto the smear.
Observe for immediate bubbling
Tube or bottle:
Place 4 or 5 drops of hydrogen peroxide in a test tube or bijou.
Touch the centre of a single colony with a plastic loop or sterile wooden stick and smear on the inside wall of the tube just above the surface of the hydrogen peroxide.
Cap the tube or bottle and tilt so that the smear is covered by the hydrogen peroxide.
Observe for immediate bubbling.
Agar slant:
Add 1.0ml of hydrogen peroxide directly onto an 18 to 24 hour heavily inoculated pure culture on a nutrient agar slope and replace the cap.
Observe for immediate bubbling.

Results
Positive Reaction - immediate and sustained bubbling.
Negative Reaction – No bubbling, the formation of occasional bubbles after 20-30 seconds is considered negative.

Limitations
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agar may be tested as the blood cells have been destroyed.
Carbohydrate containing media may suppress catalase activity.
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Quality Control
Hydrogen peroxide is unstable and should undergo a quality control check daily or immediately prior to use.
Bacteria
Positive control-
Staphylococcus aureus ATCC 25923
Negative control-
Streptococcus mitis NCTC 10712
Fungi
Positive control-
Crypyococcus neoformans NCPF 3168
Negative control-
Candida albicans ATCC 90028

Shelf Life & Storage
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Materials provided
Each pack contains 5 dropper bottles, each dropper bottle contains 3ml of 3% hydrogen peroxide.

Materials required but not provided
Media and other equipment for subculture.
Sterile loops or needles.
Glass slide, petri dish, test tube, bijou or nutrient agar slope depending on test method.

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Issue	Date	Comments
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CE

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Methods
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Slide:
Touch the centre of a single colony with a plastic loop or sterile wooden stick and transfer on to the surface of a clean glass slide or Petri dish.
Add one drop of 3% Hydrogen peroxide onto the smear.
Observe for immediate bubbling
Tube or bottle:
Place 4 or 5 drops of hydrogen peroxide in a test tube or bijou.
Touch the centre of a single colony with a plastic loop or sterile wooden stick and smear on the inside wall of the tube just above the surface of the hydrogen peroxide.
Cap the tube or bottle and tilt so that the smear is covered by the hydrogen peroxide.
Observe for immediate bubbling.
Agar slant:
Add 1.0ml of hydrogen peroxide directly onto an 18 to 24 hour heavily inoculated pure culture on a nutrient agar slope and replace the cap.
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Results
Positive Reaction - immediate and sustained bubbling.
Negative Reaction – No bubbling, the formation of occasional bubbles after 20-30 seconds is considered negative.

Limitations
This test should not be performed on colonies taken from media containing whole blood cells as they contain catalase and may give a false result. Colonies from chocolate

agar may be tested as the blood cells have been destroyed.
Carbohydrate containing media may suppress catalase activity.
Metal loops and wires (nichrome) are to be avoided as they may give false positive reaction.

Quality Control
Hydrogen peroxide is unstable and should undergo a quality control check daily or immediately prior to use.
Bacteria
Positive control-
Staphylococcus aureus ATCC 25923
Negative control-
Streptococcus mitis NCTC 10712
Fungi
Positive control-
Crypyococcus neoformans NCPF 3168
Negative control-
Candida albicans ATCC 90028

Shelf Life & Storage
The expiry date, storage temperature (2-8^{0}C) and storage conditions are indicated on the outer package label.

Materials provided
Each pack contains 5 dropper bottles, each dropper bottle contains 3ml of 3% hydrogen peroxide.

Materials required but not provided
Media and other equipment for subculture.
Sterile loops or needles.
Glass slide, petri dish, test tube, bijou or nutrient agar slope depending on test method.

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REF	Catalogue number
LOT	Batch number
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Issue	Date	Comments
5	16/07/2020	IFU format revision. Slide, tube, bottle and agar slant methods updated

CE

Catalase 3%

REF CK9830

Intended Use
This test detects the catalase enzyme present in most cytochrome-containing aerobic and facultative anaerobic bacteria.

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Methods
Use a fresh 18-24 hour culture as the enzyme, catalase is only present in viable cultures. Older cultures may lose their catalase activity and give false negative reactions. False positive results may also be produced by dirty glassware.

Slide:
Touch the centre of a single colony with a plastic loop or sterile wooden stick and transfer on to the surface of a clean glass slide or Petri dish.
Add one drop of 3% Hydrogen peroxide onto the smear.
Observe for immediate bubbling
Tube or bottle:
Place 4 or 5 drops of hydrogen peroxide in a test tube or bijou.
Touch the centre of a single colony with a plastic loop or sterile wooden stick and smear on the inside wall of the tube just above the surface of the hydrogen peroxide.
Cap the tube or bottle and tilt so that the smear is covered by the hydrogen peroxide.
Observe for immediate bubbling.
Agar slant:
Add 1.0ml of hydrogen peroxide directly onto an 18 to 24 hour heavily inoculated pure culture on a nutrient agar slope and replace the cap.
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Positive Reaction - immediate and sustained bubbling.
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Limitations
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Hydrogen peroxide is unstable and should undergo a quality control check daily or immediately prior to use.
Bacteria
Positive control-
Staphylococcus aureus ATCC 25923
Negative control-
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Fungi
Positive control-
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Negative control-
Candida albicans ATCC 90028

Shelf Life & Storage
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Materials provided
Each pack contains 5 dropper bottles, each dropper bottle contains 3ml of 3% hydrogen peroxide.

Materials required but not provided
Media and other equipment for subculture.
Sterile loops or needles.
Glass slide, petri dish, test tube, bijou or nutrient agar slope depending on test method.

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CE

Catalase 3%

REF CK9830

Intended Use
This test detects the catalase enzyme present in most cytochrome-containing aerobic and facultative anaerobic bacteria.

Background
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Fungi
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Negative control-
Candida albicans ATCC 90028

Shelf Life & Storage
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Materials provided
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Materials required but not provided
Media and other equipment for subculture.
Sterile loops or needles.
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Issue	Date	Comments
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CE

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Materials provided
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Methods
Use a fresh 18-24 hour culture as the enzyme, catalase is only present in viable cultures. Older cultures may lose their catalase activity and give false negative reactions. False positive results may also be produced by dirty glassware.

Slide:
Touch the centre of a single colony with a plastic loop or sterile wooden stick and transfer on to the surface of a clean glass slide or Petri dish.
Add one drop of 3% Hydrogen peroxide onto the smear.
Observe for immediate bubbling
Tube or bottle:
Place 4 or 5 drops of hydrogen peroxide in a test tube or bijou.
Touch the centre of a single colony with a plastic loop or sterile wooden stick and smear on the inside wall of the tube just above the surface of the hydrogen peroxide.
Cap the tube or bottle and tilt so that the smear is covered by the hydrogen peroxide.
Observe for immediate bubbling.
Agar slant:
Add 1.0ml of hydrogen peroxide directly onto an 18 to 24 hour heavily inoculated pure culture on a nutrient agar slope and replace the cap.
Observe for immediate bubbling.

Results
Positive Reaction - immediate and sustained bubbling.
Negative Reaction – No bubbling, the formation of occasional bubbles after 20-30 seconds is considered negative.

Limitations
This test should not be performed on colonies taken from media containing whole blood cells as they contain catalase and may give a false result. Colonies from chocolate

agar may be tested as the blood cells have been destroyed.
Carbohydrate containing media may suppress catalase activity.
Metal loops and wires (nichrome) are to be avoided as they may give false positive reaction.

Quality Control
Hydrogen peroxide is unstable and should undergo a quality control check daily or immediately prior to use.
Bacteria
Positive control-
Staphylococcus aureus ATCC 25923
Negative control-
Streptococcus mitis NCTC 10712
Fungi
Positive control-
Crypyococcus neoformans NCPF 3168
Negative control-
Candida albicans ATCC 90028

Shelf Life & Storage
The expiry date, storage temperature (2-8^{0}C) and storage conditions are indicated on the outer package label.

Materials provided
Each pack contains 5 dropper bottles, each dropper bottle contains 3ml of 3% hydrogen peroxide.

Materials required but not provided
Media and other equipment for subculture.
Sterile loops or needles.
Glass slide, petri dish, test tube, bijou or nutrient agar slope depending on test method.

References
Standards Unit, National Infection Service, PHE. UK SMI, TP8-Catalase Test, Issue 4, 02.04.19.
Barrow, G.I. & Feltham, R.K.A. Cowan and Steel's Manual for the Identification of Medical Bacteria. Third edition.

REF	Catalogue number
LOT	Batch number
	Use by date
IVD	In-Vitro Diagnostic device
Σ	Contains sufficient for <n> tests
	Temperature storage limitations
	Consult instructions for use
	Manufacturer

Issue	Date	Comments
5	16/07/2020	IFU format revision. Slide, tube, bottle and agar slant methods updated

CE

Catalase 3%

REF CK9830

Intended Use
This test detects the catalase enzyme present in most cytochrome-containing aerobic and facultative anaerobic bacteria.

Background
A Catalase test is useful for the identification of many different bacteria. Since *Streptococcus* and *Enterococcus* spp. lack the enzyme to catalyse hydrogen peroxide, and all Staphylococci possess it, 3% Catalase is used to separate these genera Also, *Listeria monocytogenes*, which is catalase positive can be differentiated from beta-haemolytic Streptococci. Most *Neisseria* spp. are catalase positive. Yeast such as *Cryptococcus neoformans* is catalase positive and can be presumptively identified using the catalase test.

Precautions
This product is for in-vitro diagnostic use and should be used by properly trained laboratory professionals. Universal precautions should be taken in the handling, processing and discarding of all materials used to perform the test. Do not use reagents after the expiration date shown on the product label has expired.

Methods
Use a fresh 18-24 hour culture as the enzyme, catalase is only present in viable cultures. Older cultures may lose their catalase activity and give false negative reactions. False positive results may also be produced by dirty glassware.

Slide:
Touch the centre of a single colony with a plastic loop or sterile wooden stick and transfer on to the surface of a clean glass slide or Petri dish.
Add one drop of 3% Hydrogen peroxide onto the smear.
Observe for immediate bubbling
Tube or bottle:
Place 4 or 5 drops of hydrogen peroxide in a test tube or bijou.
Touch the centre of a single colony with a plastic loop or sterile wooden stick and smear on the inside wall of the tube just above the surface of the hydrogen peroxide.
Cap the tube or bottle and tilt so that the smear is covered by the hydrogen peroxide.
Observe for immediate bubbling.
Agar slant:
Add 1.0ml of hydrogen peroxide directly onto an 18 to 24 hour heavily inoculated pure culture on a nutrient agar slope and replace the cap.
Observe for immediate bubbling.

Results
Positive Reaction - immediate and sustained bubbling.
Negative Reaction – No bubbling, the formation of occasional bubbles after 20-30 seconds is considered negative.

Limitations
This test should not be performed on colonies taken from media containing whole blood cells as they contain catalase and may give a false result. Colonies from chocolate

agar may be tested as the blood cells have been destroyed.
Carbohydrate containing media may suppress catalase activity.
Metal loops and wires (nichrome) are to be avoided as they may give false positive reaction.

Quality Control
Hydrogen peroxide is unstable and should undergo a quality control check daily or immediately prior to use.
Bacteria
Positive control-
Staphylococcus aureus ATCC 25923
Negative control-
Streptococcus mitis NCTC 10712
Fungi
Positive control-
Crypyococcus neoformans NCPF 3168
Negative control-
Candida albicans ATCC 90028

Shelf Life & Storage
The expiry date, storage temperature (2-8^{0}C) and storage conditions are indicated on the outer package label.

Materials provided
Each pack contains 5 dropper bottles, each dropper bottle contains 3ml of 3% hydrogen peroxide.

Materials required but not provided
Media and other equipment for subculture.
Sterile loops or needles.
Glass slide, petri dish, test tube, bijou or nutrient agar slope depending on test method.

References
Standards Unit, National Infection Service, PHE. UK SMI, TP8-Catalase Test, Issue 4, 02.04.19.
Barrow, G.I. & Feltham, R.K.A. Cowan and Steel's Manual for the Identification of Medical Bacteria. Third edition.

REF	Catalogue number
LOT	Batch number
	Use by date
IVD	In-Vitro Diagnostic device
Σ	Contains sufficient for <n> tests
	Temperature storage limitations
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	Manufacturer

Issue	Date	Comments
5	16/07/2020	IFU format revision. Slide, tube, bottle and agar slant methods updated

CE

Catalase 3%

REF CK9830

Intended Use
This test detects the catalase enzyme present in most cytochrome-containing aerobic and facultative anaerobic bacteria.

Background
A Catalase test is useful for the identification of many different bacteria. Since *Streptococcus* and *Enterococcus* spp. lack the enzyme to catalyse hydrogen peroxide, and all Staphylococci possess it, 3% Catalase is used to separate these genera Also, *Listeria monocytogenes*, which is catalase positive can be differentiated from beta-haemolytic Streptococci. Most *Neisseria* spp. are catalase positive. Yeast such as *Cryptococcus neoformans* is catalase positive and can be presumptively identified using the catalase test.

Precautions
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Methods
Use a fresh 18-24 hour culture as the enzyme, catalase is only present in viable cultures. Older cultures may lose their catalase activity and give false negative reactions. False positive results may also be produced by dirty glassware.

Slide:
Touch the centre of a single colony with a plastic loop or sterile wooden stick and transfer on to the surface of a clean glass slide or Petri dish.
Add one drop of 3% Hydrogen peroxide onto the smear.
Observe for immediate bubbling
Tube or bottle:
Place 4 or 5 drops of hydrogen peroxide in a test tube or bijou.
Touch the centre of a single colony with a plastic loop or sterile wooden stick and smear on the inside wall of the tube just above the surface of the hydrogen peroxide.
Cap the tube or bottle and tilt so that the smear is covered by the hydrogen peroxide.
Observe for immediate bubbling.
Agar slant:
Add 1.0ml of hydrogen peroxide directly onto an 18 to 24 hour heavily inoculated pure culture on a nutrient agar slope and replace the cap.
Observe for immediate bubbling.

Results
Positive Reaction - immediate and sustained bubbling.
Negative Reaction – No bubbling, the formation of occasional bubbles after 20-30 seconds is considered negative.

Limitations
This test should not be performed on colonies taken from media containing whole blood cells as they contain catalase and may give a false result. Colonies from chocolate

agar may be tested as the blood cells have been destroyed.
Carbohydrate containing media may suppress catalase activity.
Metal loops and wires (nichrome) are to be avoided as they may give false positive reaction.

Quality Control
Hydrogen peroxide is unstable and should undergo a quality control check daily or immediately prior to use.
Bacteria
Positive control-
Staphylococcus aureus ATCC 25923
Negative control-
Streptococcus mitis NCTC 10712
Fungi
Positive control-
Crypyococcus neoformans NCPF 3168
Negative control-
Candida albicans ATCC 90028

Shelf Life & Storage
The expiry date, storage temperature (2-8^{0}C) and storage conditions are indicated on the outer package label.

Materials provided
Each pack contains 5 dropper bottles, each dropper bottle contains 3ml of 3% hydrogen peroxide.

Materials required but not provided
Media and other equipment for subculture.
Sterile loops or needles.
Glass slide, petri dish, test tube, bijou or nutrient agar slope depending on test method.

References
Standards Unit, National Infection Service, PHE. UK SMI, TP8-Catalase Test, Issue 4, 02.04.19.
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REF	Catalogue number
LOT	Batch number
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IVD	In-Vitro Diagnostic device
Σ	Contains sufficient for <n> tests
	Temperature storage limitations
	Consult instructions for use
	Manufacturer

Issue	Date	Comments
5	16/07/2020	IFU format revision. Slide, tube, bottle and agar slant methods updated

CE

Catalase 3%

REF CK9830

Intended Use
This test detects the catalase enzyme present in most cytochrome-containing aerobic and facultative anaerobic bacteria.

Background
A Catalase test is useful for the identification of many different bacteria. Since *Streptococcus* and *Enterococcus* spp. lack the enzyme to catalyse hydrogen peroxide, and all Staphylococci possess it, 3% Catalase is used to separate these genera Also, *Listeria monocytogenes*, which is catalase positive can be differentiated from beta-haemolytic Streptococci. Most *Neisseria* spp. are catalase positive. Yeast such as *Cryptococcus neoformans* is catalase positive and can be presumptively identified using the catalase test.

Precautions
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Methods
Use a fresh 18-24 hour culture as the enzyme, catalase is only present in viable cultures. Older cultures may lose their catalase activity and give false negative reactions. False positive results may also be produced by dirty glassware.

Slide:
Touch the centre of a single colony with a plastic loop or sterile wooden stick and transfer on to the surface of a clean glass slide or Petri dish.
Add one drop of 3% Hydrogen peroxide onto the smear.
Observe for immediate bubbling
Tube or bottle:
Place 4 or 5 drops of hydrogen peroxide in a test tube or bijou.
Touch the centre of a single colony with a plastic loop or sterile wooden stick and smear on the inside wall of the tube just above the surface of the hydrogen peroxide.
Cap the tube or bottle and tilt so that the smear is covered by the hydrogen peroxide.
Observe for immediate bubbling.
Agar slant:
Add 1.0ml of hydrogen peroxide directly onto an 18 to 24 hour heavily inoculated pure culture on a nutrient agar slope and replace the cap.
Observe for immediate bubbling.

Results
Positive Reaction - immediate and sustained bubbling.
Negative Reaction – No bubbling, the formation of occasional bubbles after 20-30 seconds is considered negative.

Limitations
This test should not be performed on colonies taken from media containing whole blood cells as they contain catalase and may give a false result. Colonies from chocolate

agar may be tested as the blood cells have been destroyed.
Carbohydrate containing media may suppress catalase activity.
Metal loops and wires (nichrome) are to be avoided as they may give false positive reaction.

Quality Control
Hydrogen peroxide is unstable and should undergo a quality control check daily or immediately prior to use.
Bacteria
Positive control-
Staphylococcus aureus ATCC 25923
Negative control-
Streptococcus mitis NCTC 10712
Fungi
Positive control-
Crypyococcus neoformans NCPF 3168
Negative control-
Candida albicans ATCC 90028

Shelf Life & Storage
The expiry date, storage temperature (2-8^{0}C) and storage conditions are indicated on the outer package label.

Materials provided
Each pack contains 5 dropper bottles, each dropper bottle contains 3ml of 3% hydrogen peroxide.

Materials required but not provided
Media and other equipment for subculture.
Sterile loops or needles.
Glass slide, petri dish, test tube, bijou or nutrient agar slope depending on test method.

References
Standards Unit, National Infection Service, PHE. UK SMI, TP8-Catalase Test, Issue 4, 02.04.19.
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REF	Catalogue number
LOT	Batch number
	Use by date
IVD	In-Vitro Diagnostic device
Σ	Contains sufficient for <n> tests
	Temperature storage limitations
	Consult instructions for use
	Manufacturer

Issue	Date	Comments
5	16/07/2020	IFU format revision. Slide, tube, bottle and agar slant methods updated

CE

Catalase 3%

REF CK9830

Intended Use
This test detects the catalase enzyme present in most cytochrome-containing aerobic and facultative anaerobic bacteria.

Background
A Catalase test is useful for the identification of many different bacteria. Since *Streptococcus* and *Enterococcus* spp. lack the enzyme to catalyse hydrogen peroxide, and all Staphylococci possess it, 3% Catalase is used to separate these genera Also, *Listeria monocytogenes*, which is catalase positive can be differentiated from beta-haemolytic Streptococci. Most *Neisseria* spp. are catalase positive. Yeast such as *Cryptococcus neoformans* is catalase positive and can be presumptively identified using the catalase test.

Precautions
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Methods
Use a fresh 18-24 hour culture as the enzyme, catalase is only present in viable cultures. Older cultures may lose their catalase activity and give false negative reactions. False positive results may also be produced by dirty glassware.

Slide:
Touch the centre of a single colony with a plastic loop or sterile wooden stick and transfer on to the surface of a clean glass slide or Petri dish.
Add one drop of 3% Hydrogen peroxide onto the smear.
Observe for immediate bubbling
Tube or bottle:
Place 4 or 5 drops of hydrogen peroxide in a test tube or bijou.
Touch the centre of a single colony with a plastic loop or sterile wooden stick and smear on the inside wall of the tube just above the surface of the hydrogen peroxide.
Cap the tube or bottle and tilt so that the smear is covered by the hydrogen peroxide.
Observe for immediate bubbling.
Agar slant:
Add 1.0ml of hydrogen peroxide directly onto an 18 to 24 hour heavily inoculated pure culture on a nutrient agar slope and replace the cap.
Observe for immediate bubbling.

Results
Positive Reaction - immediate and sustained bubbling.
Negative Reaction – No bubbling, the formation of occasional bubbles after 20-30 seconds is considered negative.

Limitations
This test should not be performed on colonies taken from media containing whole blood cells as they contain catalase and may give a false result. Colonies from chocolate

agar may be tested as the blood cells have been destroyed.
Carbohydrate containing media may suppress catalase activity.
Metal loops and wires (nichrome) are to be avoided as they may give false positive reaction.

Quality Control
Hydrogen peroxide is unstable and should undergo a quality control check daily or immediately prior to use.
Bacteria
Positive control-
Staphylococcus aureus ATCC 25923
Negative control-
Streptococcus mitis NCTC 10712
Fungi
Positive control-
Crypyococcus neoformans NCPF 3168
Negative control-
Candida albicans ATCC 90028

Shelf Life & Storage
The expiry date, storage temperature (2-8^{0}C) and storage conditions are indicated on the outer package label.

Materials provided
Each pack contains 5 dropper bottles, each dropper bottle contains 3ml of 3% hydrogen peroxide.

Materials required but not provided
Media and other equipment for subculture.
Sterile loops or needles.
Glass slide, petri dish, test tube, bijou or nutrient agar slope depending on test method.

References
Standards Unit, National Infection Service, PHE. UK SMI, TP8-Catalase Test, Issue 4, 02.04.19.
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REF	Catalogue number
LOT	Batch number
	Use by date
IVD	In-Vitro Diagnostic device
Σ	Contains sufficient for <n> tests
	Temperature storage limitations
	Consult instructions for use
	Manufacturer

Issue	Date	Comments
5	16/07/2020	IFU format revision. Slide, tube, bottle and agar slant methods updated

CE

Catalase 3%

REF CK9830

Intended Use
This test detects the catalase enzyme present in most cytochrome-containing aerobic and facultative anaerobic bacteria.

Background
A Catalase test is useful for the identification of many different bacteria. Since *Streptococcus* and *Enterococcus* spp. lack the enzyme to catalyse hydrogen peroxide, and all Staphylococci possess it, 3% Catalase is used to separate these genera Also, *Listeria monocytogenes*, which is catalase positive can be differentiated from beta-haemolytic Streptococci. Most *Neisseria* spp. are catalase positive. Yeast such as *Cryptococcus neoformans* is catalase positive and can be presumptively identified using the catalase test.

Precautions
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Methods
Use a fresh 18-24 hour culture as the enzyme, catalase is only present in viable cultures. Older cultures may lose their catalase activity and give false negative reactions. False positive results may also be produced by dirty glassware.

Slide:
Touch the centre of a single colony with a plastic loop or sterile wooden stick and transfer on to the surface of a clean glass slide or Petri dish.
Add one drop of 3% Hydrogen peroxide onto the smear.
Observe for immediate bubbling
Tube or bottle:
Place 4 or 5 drops of hydrogen peroxide in a test tube or bijou.
Touch the centre of a single colony with a plastic loop or sterile wooden stick and smear on the inside wall of the tube just above the surface of the hydrogen peroxide.
Cap the tube or bottle and tilt so that the smear is covered by the hydrogen peroxide.
Observe for immediate bubbling.
Agar slant:
Add 1.0ml of hydrogen peroxide directly onto an 18 to 24 hour heavily inoculated pure culture on a nutrient agar slope and replace the cap.
Observe for immediate bubbling.

Results
Positive Reaction - immediate and sustained bubbling.
Negative Reaction – No bubbling, the formation of occasional bubbles after 20-30 seconds is considered negative.

Limitations
This test should not be performed on colonies taken from media containing whole blood cells as they contain catalase and may give a false result. Colonies from chocolate

agar may be tested as the blood cells have been destroyed.
Carbohydrate containing media may suppress catalase activity.
Metal loops and wires (nichrome) are to be avoided as they may give false positive reaction.

Quality Control
Hydrogen peroxide is unstable and should undergo a quality control check daily or immediately prior to use.
Bacteria
Positive control-
Staphylococcus aureus ATCC 25923
Negative control-
Streptococcus mitis NCTC 10712
Fungi
Positive control-
Crypyococcus neoformans NCPF 3168
Negative control-
Candida albicans ATCC 90028

Shelf Life & Storage
The expiry date, storage temperature (2-8^{0}C) and storage conditions are indicated on the outer package label.

Materials provided
Each pack contains 5 dropper bottles, each dropper bottle contains 3ml of 3% hydrogen peroxide.

Materials required but not provided
Media and other equipment for subculture.
Sterile loops or needles.
Glass slide, petri dish, test tube, bijou or nutrient agar slope depending on test method.

References
Standards Unit, National Infection Service, PHE. UK SMI, TP8-Catalase Test, Issue 4, 02.04.19.
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REF	Catalogue number
LOT	Batch number
	Use by date
IVD	In-Vitro Diagnostic device
Σ	Contains sufficient for <n> tests
	Temperature storage limitations
	Consult instructions for use
	Manufacturer

Issue	Date	Comments
5	16/07/2020	IFU format revision. Slide, tube, bottle and agar slant methods updated

CE

Catalase 3%

REF CK9830

Intended Use
This test detects the catalase enzyme present in most cytochrome-containing aerobic and facultative anaerobic bacteria.

Background
A Catalase test is useful for the identification of many different bacteria. Since *Streptococcus* and *Enterococcus* spp. lack the enzyme to catalyse hydrogen peroxide, and all Staphylococci possess it, 3% Catalase is used to separate these genera Also, *Listeria monocytogenes*, which is catalase positive can be differentiated from beta-haemolytic Streptococci. Most *Neisseria* spp. are catalase positive. Yeast such as *Cryptococcus neoformans* is catalase positive and can be presumptively identified using the catalase test.

Precautions
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Methods
Use a fresh 18-24 hour culture as the enzyme, catalase is only present in viable cultures. Older cultures may lose their catalase activity and give false negative reactions. False positive results may also be produced by dirty glassware.

Slide:
Touch the centre of a single colony with a plastic loop or sterile wooden stick and transfer on to the surface of a clean glass slide or Petri dish.
Add one drop of 3% Hydrogen peroxide onto the smear.
Observe for immediate bubbling
Tube or bottle:
Place 4 or 5 drops of hydrogen peroxide in a test tube or bijou.
Touch the centre of a single colony with a plastic loop or sterile wooden stick and smear on the inside wall of the tube just above the surface of the hydrogen peroxide.
Cap the tube or bottle and tilt so that the smear is covered by the hydrogen peroxide.
Observe for immediate bubbling.
Agar slant:
Add 1.0ml of hydrogen peroxide directly onto an 18 to 24 hour heavily inoculated pure culture on a nutrient agar slope and replace the cap.
Observe for immediate bubbling.

Results
Positive Reaction - immediate and sustained bubbling.
Negative Reaction – No bubbling, the formation of occasional bubbles after 20-30 seconds is considered negative.

Limitations
This test should not be performed on colonies taken from media containing whole blood cells as they contain catalase and may give a false result. Colonies from chocolate

agar may be tested as the blood cells have been destroyed.
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Quality Control
Hydrogen peroxide is unstable and should undergo a quality control check daily or immediately prior to use.
Bacteria
Positive control-
Staphylococcus aureus ATCC 25923
Negative control-
Streptococcus mitis NCTC 10712
Fungi
Positive control-
Crypyococcus neoformans NCPF 3168
Negative control-
Candida albicans ATCC 90028

Shelf Life & Storage
The expiry date, storage temperature (2-8^{0}C) and storage conditions are indicated on the outer package label.

Materials provided
Each pack contains 5 dropper bottles, each dropper bottle contains 3ml of 3% hydrogen peroxide.

Materials required but not provided
Media and other equipment for subculture.
Sterile loops or needles.
Glass slide, petri dish, test tube, bijou or nutrient agar slope depending on test method.

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REF	Catalogue number
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	Use by date
IVD	In-Vitro Diagnostic device
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	Manufacturer

Issue	Date	Comments
5	16/07/2020	IFU format revision. Slide, tube, bottle and agar slant methods updated

CE

Catalase 3%

REF CK9830

Intended Use
This test detects the catalase enzyme present in most cytochrome-containing aerobic and facultative anaerobic bacteria.

Background
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Quality Control
Hydrogen peroxide is unstable and should undergo a quality control check daily or immediately prior to use.
Bacteria
Positive control-
Staphylococcus aureus ATCC 25923
Negative control-
Streptococcus mitis NCTC 10712
Fungi
Positive control-
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Negative control-
Candida albicans ATCC 90028

Shelf Life & Storage
The expiry date, storage temperature (2-8^{0}C) and storage conditions are indicated on the outer package label.

Materials provided
Each pack contains 5 dropper bottles, each dropper bottle contains 3ml of 3% hydrogen peroxide.

Materials required but not provided
Media and other equipment for subculture.
Sterile loops or needles.
Glass slide, petri dish, test tube, bijou or nutrient agar slope depending on test method.

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LOT	Batch number
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	Manufacturer

Issue	Date	Comments
5	16/07/2020	IFU format revision. Slide, tube, bottle and agar slant methods updated

CE

Catalase 3%

REF CK9830

Intended Use
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Background
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Observe for immediate bubbling.
Agar slant:
Add 1.0ml of hydrogen peroxide directly onto an 18 to 24 hour heavily inoculated pure culture on a nutrient agar slope and replace the cap.
Observe for immediate bubbling.

Results
Positive Reaction - immediate and sustained bubbling.
Negative Reaction – No bubbling, the formation of occasional bubbles after 20-30 seconds is considered negative.

Limitations
This test should not be performed on colonies taken from media containing whole blood cells as they contain catalase and may give a false result. Colonies from chocolate

agar may be tested as the blood cells have been destroyed.
Carbohydrate containing media may suppress catalase activity.
Metal loops and wires (nichrome) are to be avoided as they may give false positive reaction.

Quality Control
Hydrogen peroxide is unstable and should undergo a quality control check daily or immediately prior to use.
Bacteria
Positive control-
Staphylococcus aureus ATCC 25923
Negative control-
Streptococcus mitis NCTC 10712
Fungi
Positive control-
Crypyococcus neoformans NCPF 3168
Negative control-
Candida albicans ATCC 90028

Shelf Life & Storage
The expiry date, storage temperature (2-8^{0}C) and storage conditions are indicated on the outer package label.

Materials provided
Each pack contains 5 dropper bottles, each dropper bottle contains 3ml of 3% hydrogen peroxide.

Materials required but not provided
Media and other equipment for subculture.
Sterile loops or needles.
Glass slide, petri dish, test tube, bijou or nutrient agar slope depending on test method.

References
Standards Unit, National Infection Service, PHE. UK SMI, TP8-Catalase Test, Issue 4, 02.04.19.
Barrow, G.I. & Feltham, R.K.A. Cowan and Steel's Manual for the Identification of Medical Bacteria. Third edition.

REF	Catalogue number
LOT	Batch number
	Use by date
IVD	In-Vitro Diagnostic device
Σ	Contains sufficient for <n> tests
	Temperature storage limitations
	Consult instructions for use
	Manufacturer

Issue	Date	Comments
5	16/07/2020	IFU format revision. Slide, tube, bottle and agar slant methods updated

CE

Catalase 3%

REF CK9830

Intended Use
This test detects the catalase enzyme present in most cytochrome-containing aerobic and facultative anaerobic bacteria.

Background
A Catalase test is useful for the identification of many different bacteria. Since *Streptococcus* and *Enterococcus* spp. lack the enzyme to catalyse hydrogen peroxide, and all Staphylococci possess it, 3% Catalase is used to separate these genera Also, *Listeria monocytogenes*, which is catalase positive can be differentiated from beta-haemolytic Streptococci. Most *Neisseria* spp. are catalase positive. Yeast such as *Cryptococcus neoformans* is catalase positive and can be presumptively identified using the catalase test.

Precautions
This product is for in-vitro diagnostic use and should be used by properly trained laboratory professionals. Universal precautions should be taken in the handling, processing and discarding of all materials used to perform the test. Do not use reagents after the expiration date shown on the product label has expired.

Methods
Use a fresh 18-24 hour culture as the enzyme, catalase is only present in viable cultures. Older cultures may lose their catalase activity and give false negative reactions. False positive results may also be produced by dirty glassware.

Slide:
Touch the centre of a single colony with a plastic loop or sterile wooden stick and transfer on to the surface of a clean glass slide or Petri dish.
Add one drop of 3% Hydrogen peroxide onto the smear.
Observe for immediate bubbling
Tube or bottle:
Place 4 or 5 drops of hydrogen peroxide in a test tube or bijou.
Touch the centre of a single colony with a plastic loop or sterile wooden stick and smear on the inside wall of the tube just above the surface of the hydrogen peroxide.
Cap the tube or bottle and tilt so that the smear is covered by the hydrogen peroxide.
Observe for immediate bubbling.
Agar slant:
Add 1.0ml of hydrogen peroxide directly onto an 18 to 24 hour heavily inoculated pure culture on a nutrient agar slope and replace the cap.
Observe for immediate bubbling.

Results
Positive Reaction - immediate and sustained bubbling.
Negative Reaction – No bubbling, the formation of occasional bubbles after 20-30 seconds is considered negative.

Limitations
This test should not be performed on colonies taken from media containing whole blood cells as they contain catalase and may give a false result. Colonies from chocolate

agar may be tested as the blood cells have been destroyed.
Carbohydrate containing media may suppress catalase activity.
Metal loops and wires (nichrome) are to be avoided as they may give false positive reaction.

Quality Control
Hydrogen peroxide is unstable and should undergo a quality control check daily or immediately prior to use.
Bacteria
Positive control-
Staphylococcus aureus ATCC 25923
Negative control-
Streptococcus mitis NCTC 10712
Fungi
Positive control-
Crypyococcus neoformans NCPF 3168
Negative control-
Candida albicans ATCC 90028

Shelf Life & Storage
The expiry date, storage temperature (2-8^{0}C) and storage conditions are indicated on the outer package label.

Materials provided
Each pack contains 5 dropper bottles, each dropper bottle contains 3ml of 3% hydrogen peroxide.

Materials required but not provided
Media and other equipment for subculture.
Sterile loops or needles.
Glass slide, petri dish, test tube, bijou or nutrient agar slope depending on test method.

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Results
Positive Reaction - immediate and sustained bubbling.
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Limitations
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Materials provided
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