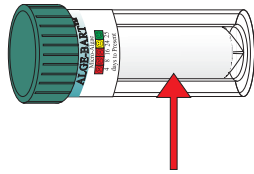


BART™ TEST FOR ALGAE MICRO-ALGAE

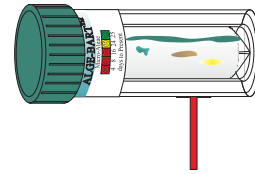
Present/Absent - observe a minimum 3 times a week.

ABSENT
(Negative - Non-aggressive)



Textile remains
White.

PRESENT
(Positive - Aggressive)



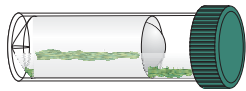
Growth on
textile.

1. View test a minimum 3 times a week for 24 days.
2. Observe any growths/color changes.
3. Compare with descriptions below.

*Note: Refer to page bottom for approximate population

Advanced test information.

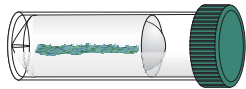
Determination of Dominant Bacteria



GREEN(GG) growth at or below water line - *Chlamydomonas*.



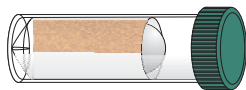
LIGHT YELLOW to BEIGE(YB) patches of growth on textile - *Scenedesmus*.



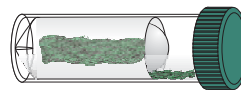
BRIGHT GREEN FUZZY(FG) patches of growth on textile - *Chlorophyceae*.



GREEN(GF) deposits floating in water and on floor of test - *Chlorella*.



RED, ORANGE, or BROWN(OB) patches of growth on textile - *Diatoms & Desmids*.



DARK-GREEN, BLUE-GREEN, or BLACK(DG) growths at water line - Blue-green Algae (*Cyanobacter*).

Determination of Potential ALGAE Population - observe daily for reaction.

Days to reaction - Approximate ALGAE Population (cfu/mL)



2 - 155,000
3 - 105,000
4 - 72,000
5 - 50,000
6 - 34,000
7 - 23,000



9 - 11,000
11 - 5000
13 - 2400
15 - 1100
17 - 540
19 - 250

Aggressive



20 - 175
21 - 120
22 - 80
23 - 55
24 - 40

Moderate



25 - 25
26 - <20

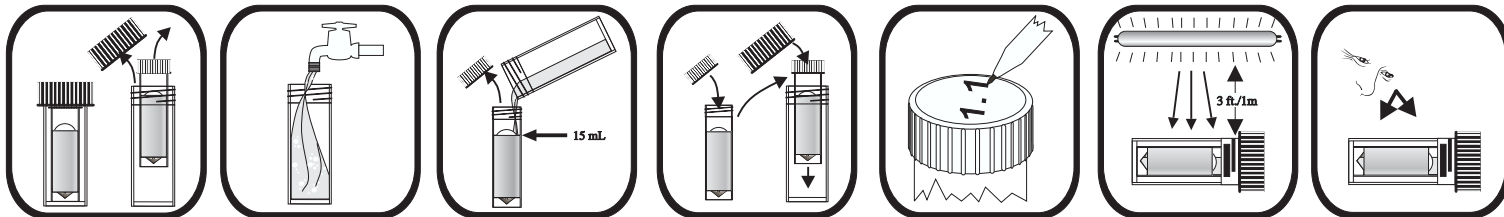
Not Aggressive

ALGE-BART™

For water and soils

The ALGE-BARTs contain a ball, dehydrated medium, and geo-textile. Add water sample until the water reaches the top of the textile. Below the ball, there is a layer of textile into which the algae can grow. Nutrients to support algal growth diffuse into the water sample from dehydrated medium deposits in the base of the tube.

Algae include various plant-like microorganisms, which can photosynthesize using light as the energy source for growth. Several types of algae can grow in the ALGE-BARTs, including: Grass-Green Algae (*Chlorophyceae*), Blue-Green Algae (*Cyanobacteria*), Desmids, Diatoms, and Euglenoids. The ALGE-BART can be used as a simple presence/absence (P/A) test capable of indicating, to some extent, the population size and the types of algae present in the sample.



1. Remove the inner tube from the outer tube.

2. Using the outer tube with the BART, or a different sterile container, collect at least 20 mL of sample. **Note:** Do not touch or contaminate the inside of the tube or lid. Use aseptic technique.

3. Fill the inner tube with sample until the level reaches the fill line. **Note:** After removing the cap from the inner tube, set it down directly on a clean surface. To avoid contamination, do not invert the cap.

4. Tightly screw the cap back on the inner tube. Return the inner tube to the outer tube and screw the outer cap on tightly. DO NOT SHAKE OR SWIRL THE TUBE.

5. Label the outer tube with the date and sample origin.

6. Illuminate the BART tube using fluorescent lighting (1-40 watt bulb at 3 feet or 1 meter) and allow to incubate at room temperature.

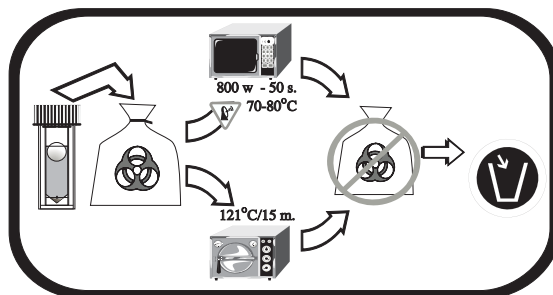
7. Check the BART visually for reaction daily.



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Telephone: +49(0)211.52.88.0 • Fax: +49(0)211.52.88.231



8. Safely dispose using a dedicated microwave oven or by autoclave.

Certificate of Analysis

This certificate confirms that the BART™ product listed by name, lot number, and batch number has been subjected to the full range of Quality Control procedures as outlined in "User Quality Control Manual in support of the BART Biodetection Technologies" published in 2002 by Droycon Bioconcepts Inc.

BART™ Type: ALGE-BART

Batch #:

Release date*:

Lot#:

Shipment date:

Expiry date:

* Approval for release includes the following criteria: 1. confirmation of sterility for the vials and caps, 2. approval of the medium as being appropriately formed and acceptable, 3. is sterile, and 4. responds in a typical way to inoculation and incubation using selected defined microbial cultures. Details of these criteria are included in our Web Site.

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Certificate Number:

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ISO 9001:2000
Compliant

For more information, visit our web-site at:

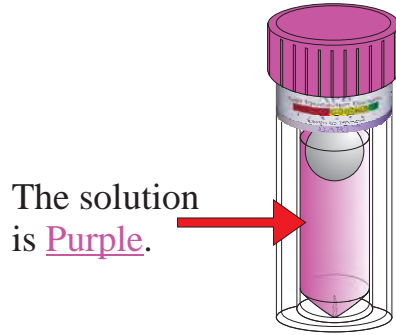
<http://www.DBI.ca>

LIT8436 Rev.1

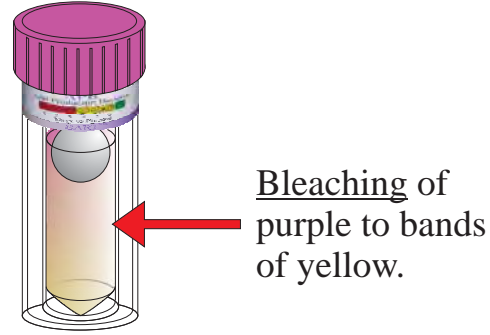
BART™ TEST FOR APB ACID PRODUCING BACTERIA

Present/Absent - observe daily for 8 days.

ABSENT
(Negative - Non-aggressive)



PRESENT
(Positive - Aggressive)



1. View test each day for 8 days.
2. Observe for a discolored yellow color in the lower section of test vial.
3. Aggressivity can be determined using the chart below.

*Note: Refer to page bottom for approximate population

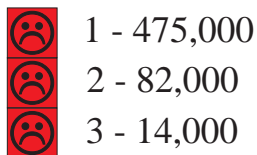
Advanced test information.

Dominant Bacteria - gRAM negative fermenting bacteria.



Determination of Potential APB Population - observe daily for reaction.

Days to reaction - Approximate APB Population (cfu/mL)



1 - 475,000
2 - 82,000
3 - 14,000

Aggressive



4 - 4500
5 - 450
6 - 75

Moderate



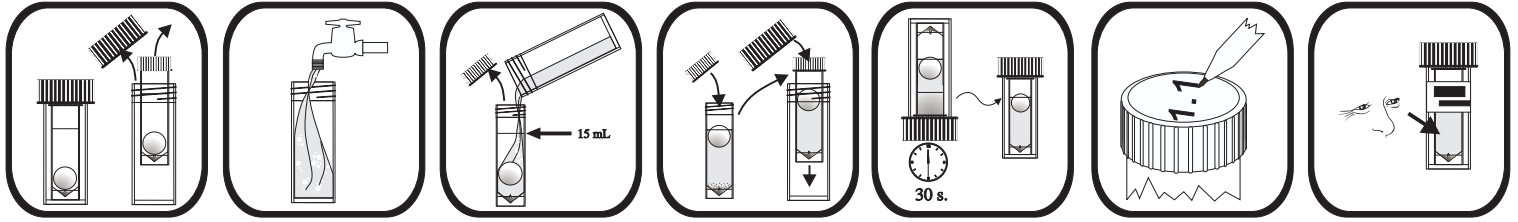
7 - 10
8 - <2

Not Aggressive

APB-BART™

For water and wastewater

Acid producing bacteria (APB) are formed by a variety of heterotrophic bacteria that share the common ability to produce organic acidic products when growing under reductive conditions. These APB cause the pH to drop significantly from neutral to acidic conditions ranging from terminal pH levels from 3.5 to 5.5. These mildly acidic conditions are sufficiently corrosive to be significant to the integrity of any metallic structure. Because of these acid-producing activities occur in the absence of oxygen, it has been found that the APB are very likely to be significant partners in corrosion associated with the sulfate reducing bacteria (SRB) particularly in the oil and gas industry. As a result the management and control of corrosion frequently involves assessing the aggressivity of both the APB as well as the well-recognized SRB.



1. Remove the inner tube from the outer tube.

2. Using the outer tube from the BART, or a different sterile container, collect at least 20 mL of sample.
Note: Do not touch or contaminate the inside of the tube or lid. Use aseptic technique.

3. Fill the inner tube with sample until the level reaches the fill line.
Note: After removing the cap from the inner tube, set it down directly on a clean surface. To avoid contamination, do not invert the cap.

4. Tightly screw the cap back on the BART. Return the inner tube to the outer tube and screw the outer cap on tightly. Allow the medium to dissolve slowly, and the ball to rise at its own speed. DO NOT SHAKE OR SWIRL THE TUBE.

5. Invert tube for 30 seconds to dissolve the dye under the cap. Set tube upright for media to dissolve slowly.

6. Label the outer tube with the date and sample origin.

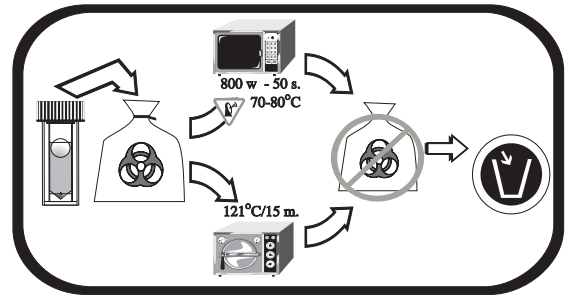
7. Place the BART tube away from direct sunlight and allow to incubate at room temperature. Check the BART visually for reaction daily.



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8. Safely dispose using a dedicated microwave oven or by autoclave.

Certificate of Analysis

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BART™ Type: APB-BART

Batch #:

Release date*:

Lot#:

Shipment date:

Expiry date:

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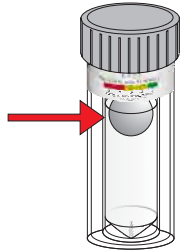
LIT8436 Rev.1

BART™ TEST FOR DN DENITRIFYING BACTERIA

Present/Absent - observe daily for 4 days.

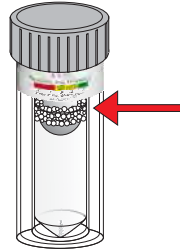
ABSENT
(Negative - Non-aggressive)

NO Foam
around ball.



PRESENT
(Positive - Aggressive)

Foam around
ball.



1. View test each day for 4 days.
2. Observe any growths.
3. Compare with description.

*Note: Refer to page bottom for approximate population

Advanced test information.

Determination of Dominant Bacteria



FOAM around ball (FO) - Denitrifying Bacteria.

Determination of Potential DN Population - observe daily for reaction.

Days to reaction - Approximate DN Population (cfu/mL)



1 - 1,800,000

2 - 215,000

Aggressive



3 - 25,000

4 - 3000

Moderate



5 - 350

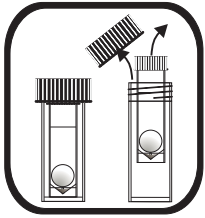
6 - <50

Not Aggressive

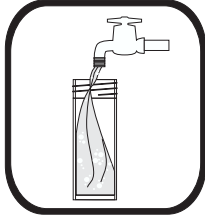
DN-BART™

For water and wastewater

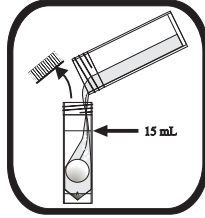
Denitrifying bacteria indicate the decomposition of waste organic nitrogenous materials. These bacteria reduce nitrate to nitrite and some continue nitrification to gaseous nitrogen (complete denitrification). In water, aggressive denitrifiers can indicate high concentrations of nitrates, and that the sample is probably anaerobic and relatively rich in organic matter. The presence of denitrifying bacteria can indicate that the water has been polluted by nitrogen-rich organics from sources such as compromised septic tanks, sewage systems, industrial and hazardous waste sites. If highly aggressive bacteria are detected, the water should be tested for the presence of coliform bacteria.



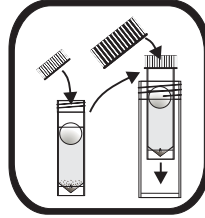
1. Remove the inner tube from the outer tube.



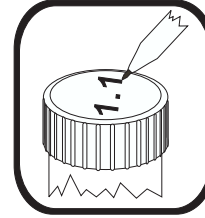
2. Using the outer tube from the BART, or a different sterile container, collect at least 20 mL of sample.
Note: Do not touch or contaminate the inside of the tube or lid. Use aseptic technique.



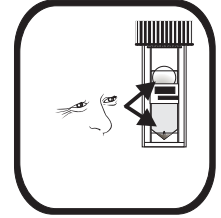
3. Fill the inner tube with sample until the level reaches the fill line.
Note: After removing the cap from the inner tube, set it down directly on a clean surface. To avoid contamination, do not invert the cap.



4. Tightly screw the cap back on the inner tube. Return the inner tube to the outer tube and screw the outer cap on tightly. Allow the ball to rise at its own speed.
DO NOT SHAKE OR SWIRL THE TUBE.



5. Label the outer tube with the date and sample origin.



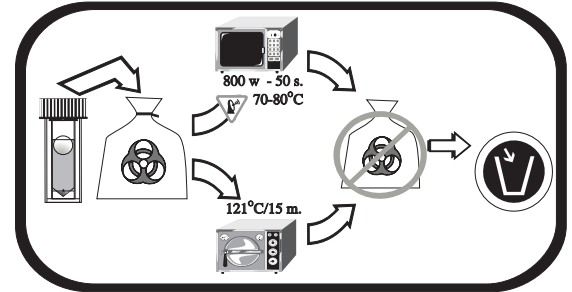
6. Place the BART tube away from direct sunlight and allow to incubate at room temperature. Check the BART visually for reaction daily.



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BART™ Type: DN-BART

Batch #:

Release date*:

Lot#:

Shipment date:

Expiry date:

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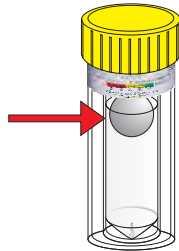
LIT8436 Rev.1

BART™ TEST FOR FLOR Fluorescent Pseudomonads

Present/Absent - observe daily for 8 days.

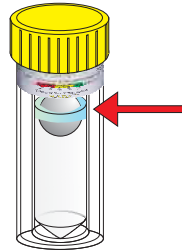
ABSENT
(Negative - Non-aggressive)

The solution has NO glow around ball under U.V. light.



PRESENT
(Positive - Aggressive)

Glowing around ball under U.V. light.

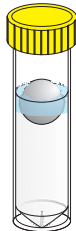


1. View test each day for 8 days.
2. Observe any growths/color changes.
3. Compare with descriptions.

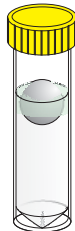
*Note: Refer to page bottom for approximate population

Advanced test information.

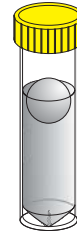
Determination of Dominant Bacteria



Pale Blue(PB)
Glowing
- *Pseudomonas aeruginosa*.



Greenish-Yellow(GY)
glowing -
Pseudomonas fluorescens.



Cloudiness(CL)
- No glowing -
Non-fluorescing
pseudomonas.

*Note: A stamp collectors U.V. Light is adequate to view glowing.

Determination of Potential FLOR Population - observe daily for reaction.

Days to reaction - Approximate FLOR Population (cfu/mL)



1 - 2,000,000
2 - 425,000
3 - 90,000
4 - 19,000
5 - 4000

Aggressive



6 - 800
7 - 170
8 - 35
Moderate



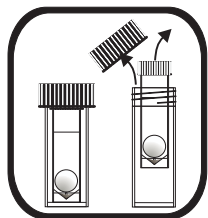
9 - 7
10 - <1
Not Aggressive

FLOR-BART™

For water and wastewater

Pseudomonad bacteria are often present in waters that contain oxygen and are rich in organic pollutants (e.g., gasoline, jet fuel, solvents). The presence of pseudomonad bacteria may indicate that aerobic biodegradation is occurring and biofouling may also be happening within the system being tested. Some pseudomonad bacteria that produce the fluorescent pigments (pigments that glow in ultraviolet light) may be a hygiene risk. The faster that clouding and fluorescence happens, the more aggressive are the pseudomonad bacteria.

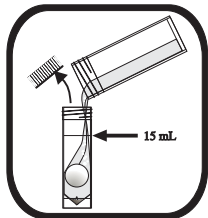
Pseudomonad bacteria can cause a range of problems in water, including slime formations, turbidity, taste and odor, corrosion, biodegradation, and hygiene risks. Pseudomonad bacteria produce distinctive odors such as “fishy” or “kerosene-like” odors. In recreational waters (such as swimming pools, hot tubs, restricted natural bathing sites), the presence of aggressive fluorescent pseudomonads can cause skin, eye, ear, and urinary tract infections.



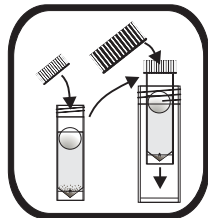
1. Remove the inner tube from the outer tube.



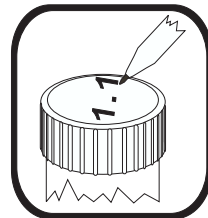
2. Using the outer tube from the BART, or a different sterile container, collect at least 20 mL of sample.
Note: Do not touch or contaminate the inside of the tube or lid. Use aseptic technique.



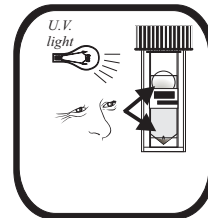
3. Fill the inner tube with sample until the level reaches the fill line.
Note: After removing the cap from the inner tube, set it down directly on a clean surface. To avoid contamination, do not invert the cap.



4. Tightly screw the cap back on the inner tube. Return the inner tube to the outer tube and screw the outer cap on tightly. Allow the ball to rise at its own speed.
DO NOT SHAKE OR SWIRL THE TUBE.



5. Label the outer tube with the date and sample origin.



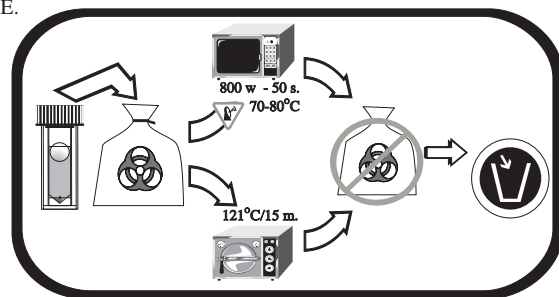
6. Place the BART tube away from direct sunlight and allow to incubate at room temperature. Check the BART daily visually for reaction and/or glowing under U.V. light.



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7. Safely dispose using a dedicated microwave oven or by autoclave.

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BART™ Type: FLOR-BART

Batch #:

Release date*:

Lot#:

Shipment date:

Expiry date:

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ISO 9001:2000
Compliant

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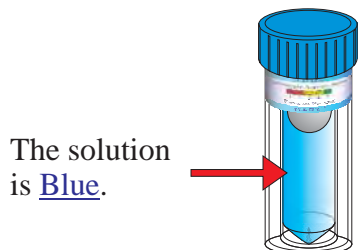
<http://www.DBI.ca>

LIT8436 Rev.1

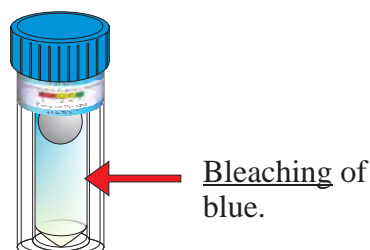
BART™ TEST FOR HAB HETEROTROPHIC AEROBIC BACTERIA

Present/Absent - observe daily for 4 days.

ABSENT
(Negative - Non-aggressive)



PRESENT
(Positive - Aggressive)

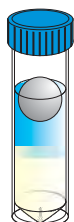


1. View test each day for 4 days.
2. Observe any color changes.
3. Compare with descriptions.

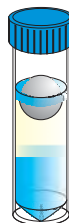
*Note: Refer to page bottom for approximate population

Advanced test information.

Determination of Dominant Bacteria



Blue Bleaching Up
from Bottom (**UP**) -
Aerobic Bacteria.



Blue Bleaching
Down from Top
(**DO**) - Anaerobic.

Determination of Potential HAB Population - observe daily for reaction.

Days to reaction - Approximate HAB Population (cfu/mL)



1 - 5,400,000

2 - 575,000

Aggressive



3 - 61,000

4 - 6500

Moderate



5 - 700

6 - <75

Not Aggressive

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*SAMPLING NOTE - For samples of 4% saline or greater (40,000 ppm) may cause blue effect to not occur when tube is inverted. For these higher salinity levels add only 14 mL of sample to the tube followed by adding 1 mL of sterile distilled water to the inner cap to dissolve the blue die. Pour cap volume to the inner tube. For detail instructions, visit:

http://www.dbi.ca/BARTs/PDF/DBHSSOPO5_HAB-BART_tests_In_Brackish_and_Saline_waters.pdf

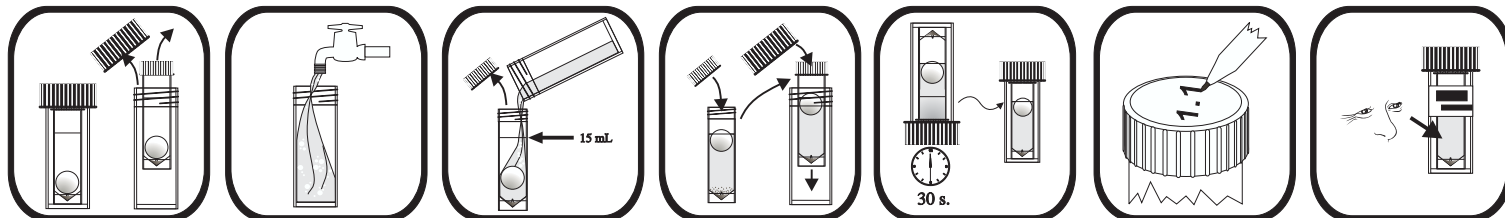
HAB-BART™

For water and wastewater

Often you need to test water for the presence of bacteria without trying to determine the particular groups of bacteria that may be present. When total aerobic bacteria are present and active, the blue dye in the BART bleaches either from the bottom up or the top down.

The test measures the ability of the total aerobic bacteria to respire while degrading the selected combination of chemicals in the tester. Methylene blue, the dye, acts as an alternative to oxygen for microbial respiration. When the microbes respire, the methylene blue changes to a colorless form. The faster the dye is bleached, the greater the level of respiration and the larger or more aggressive the total aerobic bacteria population.

Aerobic bacteria can cause several problems in water, including slime formations, turbidity, taste and odor, corrosion, health risks, and hygiene risks. When a problem is detected, you may want to conduct more testing to determine precisely the nature of the microbial problem. You can use other BARTs to detect several types of bacteria.



1. Remove the inner tube from the outer tube.

2. Using the outer tube from the BART, or a different sterile container, collect at least 20 mL of sample.
Note: Do not touch or contaminate the inside of the tube or lid. Use aseptic technique.

3. Fill the inner tube with sample until the level reaches the fill line.
Note: After removing the cap from the inner tube, set it down directly on a clean surface. To avoid contamination, do not invert the cap.

4. Tightly screw the cap back on the inner tube. Return the inner tube to the outer tube and screw the outer cap on tightly. Allow the ball to rise at its own speed.
DO NOT SHAKE OR SWIRL THE TUBE.

5. Invert tube for 30 seconds to dissolve the dye under the cap. Set tube upright to allow dissolving.

6. Label the outer tube with the date and sample origin.

7. Place the BART tube away from direct sunlight and allow to incubate at room temperature. Check the BART visually for reaction daily.

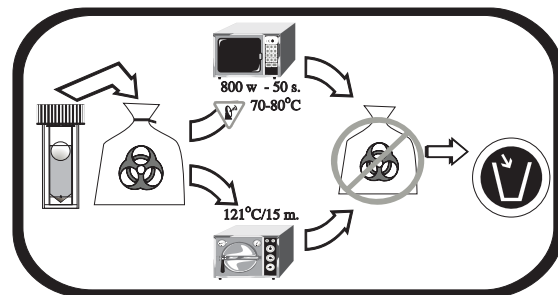
***SAMPLING NOTE - For samples of 4% saline or greater (40,000 ppm) may cause blue effect to not occur when tube is inverted. For these higher salinity levels add only 14 mL of sample to the tube followed by adding 1 mL of sterile distilled water to the inner cap to dissolve the blue die. Pour cap volume to the inner tube.**



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8. Safely dispose using a dedicated microwave oven or by autoclave.

Certificate of Analysis

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BART™ Type: HAB-BART

Batch #:

Release date*:

Lot#:

Shipment date:

Expiry date:

* Approval for release includes the following criteria: 1. confirmation of sterility for the vials and caps, 2. approval of the medium as being appropriately formed and acceptable, 3. is sterile, and 4. responds in a typical way to inoculation and incubation using selected defined microbial cultures. Details of these criteria are included in our Web Site.

This certificate confirms that the batch of the BART™ biodetectors listed have satisfactorily passed the QC screening procedures and were approved for release on the date given above

Certificate Number:

This certificate was issued by Droycon Bioconcepts Inc., 315 Dewdney Ave., Regina, SK., Canada, S4N 0E7 as an assurance that the product listed above has passed through the quality control procedures considered essential to the successful use of the testing device.



For more information, visit our web-site at:

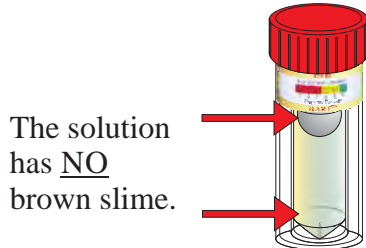
<http://www.DBI.ca>

LIT8436 Rev.1

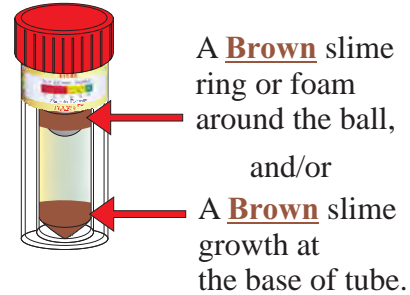
BART™ TEST FOR IRB IRON RELATED BACTERIA

Present/Absent - observe daily for 8 days.

ABSENT
(Negative - Non-aggressive)



PRESENT
(Positive - Aggressive)

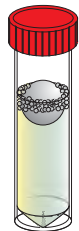


1. View test each day for 8 days.
2. Observe any growths/color changes.
3. Compare with descriptions.

*Note: Refer to page bottom for approximate population

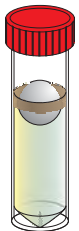
Advanced test information.

Determination of Dominant Bacteria



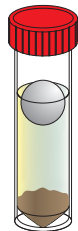
FO

FOAM(FO)
around ball
- Anaerobic
Bacteria.

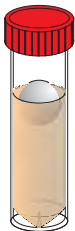


BR

BROWN RINGS(BR), GEL(BG), and/or CLOUDS(BC)
- IRB.

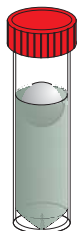


BG

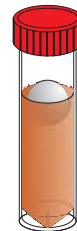


BC

Solution **GREEN-CLOUDY(GC)**
- Pseudomonads.

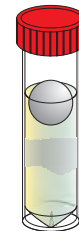


GC



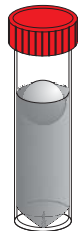
RC

Solution **RED-CLOUDY(RC)**
- Enteric Bacteria.



CL

Solution **CLOUDY(CL)**
- Heterotrophic
Bacteria.



BL

Solution **BLACK(BL)**
- Pseudomonads
and Enterics.

Determination of Potential IRB Population - observe daily for reaction.

Days to reaction - Approximate IRB Population (cfu/mL)



1 - 570,000
2 - 140,000
3 - 35,000
4 - 9000

Aggressive



5 - 2200
6 - 500
7 - 150
8 - 25

Moderate



9 - 8
10 - <1

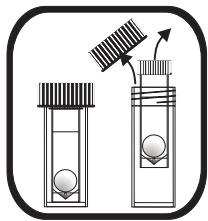
Not Aggressive

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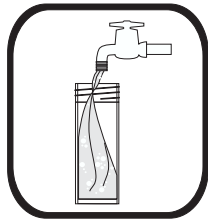
IRB-BART™

For water and wastewater

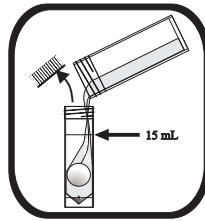
Iron-Related bacteria are difficult to enumerate because they are subdivided into several groupings (e.g., iron-oxidizing and iron-reducing bacteria). Iron-related bacteria can use iron in their metabolism. Taste and odor problems and “red water” are common symptoms of problems due to iron-related bacteria. These bacteria function under different reduction-oxidation (redox) conditions and use a variety of substrates for growth. The IRB-BARTs can detect both iron-oxidizing and iron-reducing bacteria. Common iron-related bacteria include *Gallionella*, *Crenothrix*, *Sphaerotilus*, *Siderocapsa*, and *Thiobacillus ferrooxidans*.



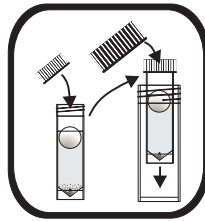
1. Remove the inner tube from the outer tube.



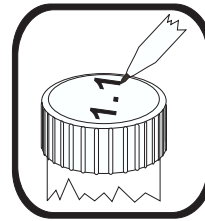
2. Using the outer tube from the BART, or a different sterile container, collect at least 20 mL of sample.
Note: Do not touch or contaminate the inside of the tube or lid. Use aseptic technique.



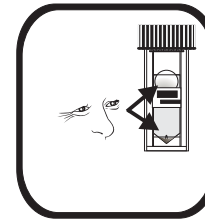
3. Fill the inner tube with sample until the level reaches the fill line.
Note: After removing the cap from the inner tube, set it down directly on a clean surface. To avoid contamination, do not invert the cap.



4. Tightly screw the cap back on the inner tube. Return the inner tube to the outer tube and screw the outer cap on tightly. Allow the ball to rise at its own speed. DO NOT SHAKE OR SWIRL THE TUBE.



5. Label the outer tube with the date and sample origin.



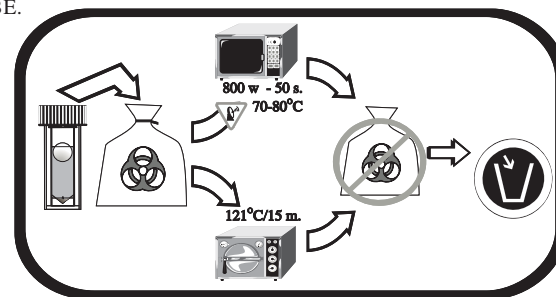
6. Place the BART tube away from direct sunlight and allow to incubate at room temperature. Check the BART visually for reaction daily.



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7. Safely dispose using a dedicated microwave oven or by autoclave.

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BART™ Type: IRB-BART

Batch #:

Release date*:

Lot#:

Shipment date:

Expiry date:

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Compliant

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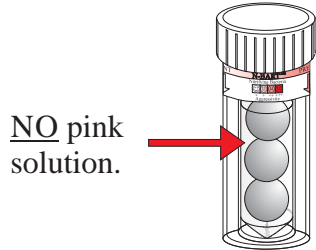
<http://www.DBI.ca>

LIT8436 Rev.1

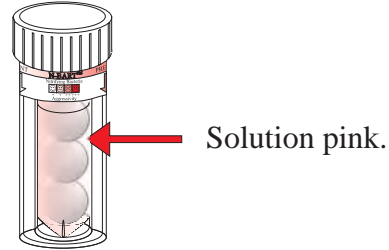
BART™ TEST FOR N NITRIFYING BACTERIA

Present/Absent - observe at day 5.

ABSENT
(Negative - Non-aggressive)

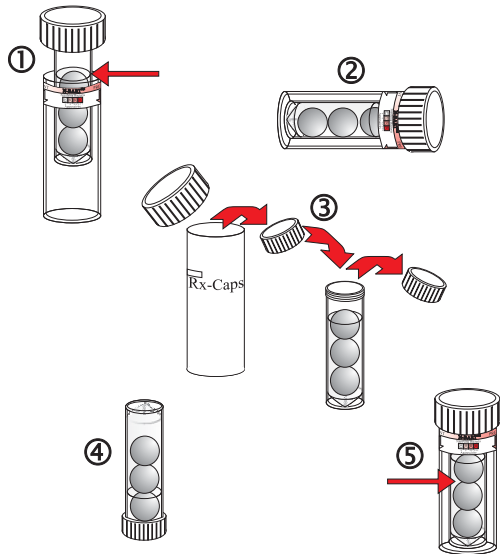


PRESENT
(Positive - Aggressive)



*Note: Refer to page bottom for approximate population

N-BART Instructions.



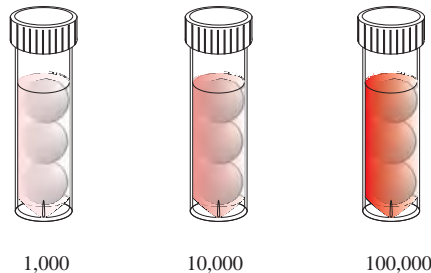
1. Remove inner vial and add water sample to fill line.

2. Replace inner vial and place on side for 5 days.

3. On day 5 of test remove the inner test vial from the outer and replace cap with cap from Rx tube.

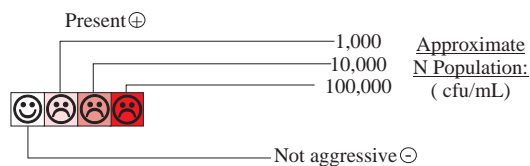
4. Invert tube for 3 minutes and return upright to outer tube.

5. After 3 hours observe for pink color change.



Approximate N Population:(cfu/mL)

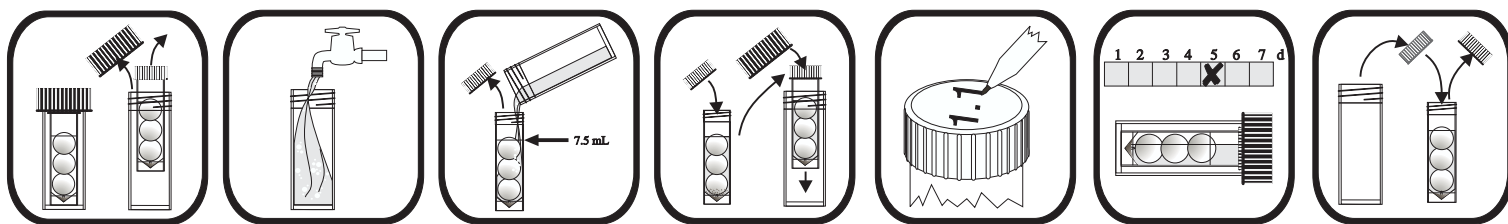
Determination of Potential N Population - observe daily for reaction.



N-BART™

Nitrifying bacteria recycle organic nitrogenous materials from ammonium (the endpoint for the decomposition of proteins) to nitrates. In water, aggressive nitrifiers can produce high concentrations of nitrates.

Nitrates in water can be a potential health risk, particularly to infants who have not yet developed a tolerance to nitrates. Aggressive nitrifying bacteria in waters may indicate the latter stages of aerobic degradation of nitrogen-rich organic matter. This can indicate that the water may have been polluted by nitrogen-rich organics from sources such as compromised septic tanks, sewage systems, industrial and hazardous waste sites and is undergoing an aerobic form of degradation.



1. Remove the inner tube from the outer tube.

2. Using the outer tube from the BART, or a different sterile container, collect at least 20 mL of sample.

Note: Do not touch or contaminate the inside of the tube or lid. Use aseptic technique.

3. Fill the inner tube with sample until the level reaches the fill line.

Note: After removing the cap from the inner tube, set it down directly on a clean surface. To avoid contamination, do not invert the cap.

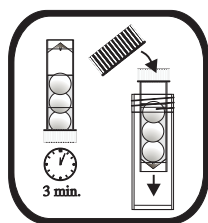
4. Tightly screw the cap back on the inner tube. Return the inner tube to the outer tube and screw the outer cap on tightly. Allow the ball to rise at its own speed.

DO NOT SHAKE OR SWIRL THE TUBE.

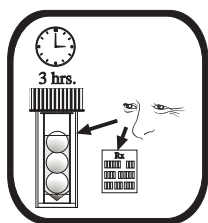
5. Label the outer tube with the date and sample origin.

6. Place the BART tube on its side away from direct sunlight for five days at room temperature (21 to 25°C).

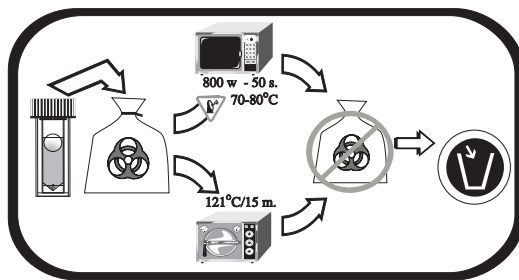
7. After five days, return the tube to a vertical position. Remove the white cap from the inner tube and replace with a Reactor Cap from the white supply tube. Screw the Reactor Cap on tightly.



8. Invert tube for three minutes to allow the reagents in the Reactor Cap to mix with the solution. Return tube to a vertical position and replace to outer tube.



9. Let tube rest for 3 hours. Read the reaction. Compare the observed reactions on the Reaction Comparator Chart.



10. Safely dispose using a dedicated microwave oven or by autoclave.



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BART™ Type: N-BART

Batch #:

Release date*:

Lot#:

Shipment date:

Expiry date:

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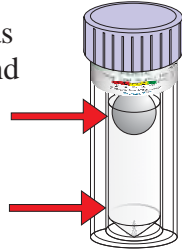
LIT8436 Rev.1

BART™ TEST FOR POOL Pool, Spa, and Hot Tub

Present/Absent - observe daily for 8 days.

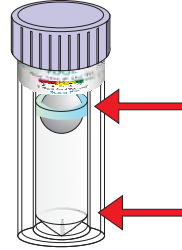
ABSENT
(Negative - Non-aggressive)

The solution has
NO glow around
ball under U.V.
Light
and
NO Cloudy
solution.



PRESENT
(Positive - Aggressive)

Glowing around
ball under U.V.
Light
and/or
Cloudy solution.

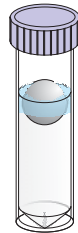


1. View test each day for 8 days.
2. Observe any growths/color changes.
3. Compare with descriptions.

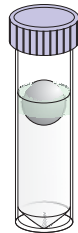
*Note: Refer to page bottom for approximate population

Advanced test information.

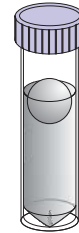
Determination of Dominant Bacteria



Pale Blue(PB)
Glowing
- *Pseudomonas*
aeruginosa.



**Greenish-
Yellow(GY)**
glowing -
Pseudomonas
fluorescens.



Cloudiness(CL)
- Non-fluorescing
pseudomonas.

*Note: A stamp collectors U.V. Light is adequate to view glowing.

Determination of Potential FLOR Population - observe daily for reaction.

Days to reaction - Approximate FLOR Population (cfu/mL)



1 - 2,000,000
2 - 425,000
3 - 90,000
4 - 19,000
5 - 4000

Aggressive



6 - 800
7 - 170
8 - 35
Moderate

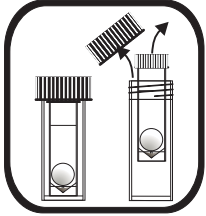


9 - 7
10 - <1
Not Aggressive

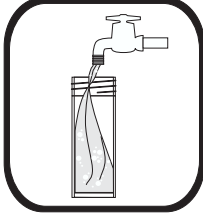
POOL-BART™

For Pools, Hot Tubs, and Spas

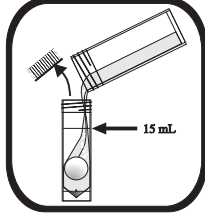
Recreational waters such as are found in swimming pools, hot tubs and beaches can often harbor a range of bacteria. These bacteria can affect the water quality and also present a hygiene risk. Water quality is normally affected by losses in clarity due to cloudiness, taste and odor problems when nuisance bacteria are aggressive in the waters. This tester has been designed to detect even low numbers of these nuisance bacteria so that suitable disinfection treatments can be applied to the water and the pumping / filtration equipment. The tester detects these bacteria through a general cloudiness occurring in the water under test. One particular species of nuisance bacteria that does present a significant hygiene risk to the bathers is *Pseudomonas aeruginosa* which causes a variety of health problems including skin infections. This species is detectable by this tester through a pale blue glow developing generally after the test has gone cloudy. The glow is most readily seen in ultra violet light. Where detection occurs, treatment of the recreational water with a suitable disinfectant is strongly recommended. It is also recommended that follow up testing using the POOL-BART™ test be conducted to ensure that this species has been eradicated from the water.



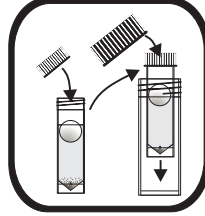
1. Remove the inner tube from the outer tube.



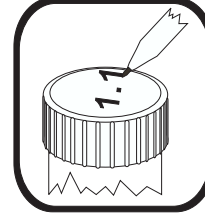
2. Using the outer tube from the BART, or a different sterile container, collect at least 20 mL of sample.
Note: Do not touch or contaminate the inside of the tube or lid. Use aseptic technique.



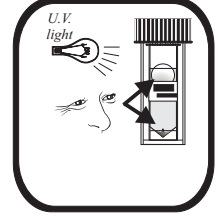
3. Fill the inner tube with sample until the level reaches the fill line.
Note: After removing the cap from the inner tube, set it down directly on a clean surface. To avoid contamination, do not invert the cap.



4. Tightly screw the cap back on the inner tube. Return the inner tube to the outer tube and screw the outer cap on tightly. Allow the medium to dissolve slowly, and the ball to rise at its own speed. **DO NOT SHAKE OR SWIRL THE TUBE.**



5. Label the outer tube with the date and sample origin.



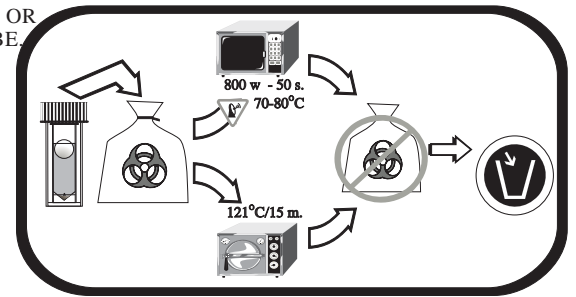
6. Place the BART tube away from direct sunlight and allow to incubate at room temperature. Check the BART daily visually for reaction and/or glowing under U.V. light.



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7. Safely dispose using a dedicated microwave oven or by autoclave.

Certificate of Analysis

This certificate confirms that the BART™ product listed by name, lot number, and batch number has been subjected to the full range of Quality Control procedures as outlined in "User Quality Control Manual in support of the BART Biodetection Technologies" published in 2002 by Droycon Bioconcepts Inc.

BART™ Type: POOL-BART

Batch #:

Release date*:

Lot#:

Shipment date:

Expiry date:

* Approval for release includes the following criteria: 1. confirmation of sterility for the vials and caps, 2. approval of the medium pellet as being appropriately formed and acceptable, 3. is sterile, and 4. responds in a typical way to inoculation and incubation using selected defined microbial cultures. Details of these criteria are included in our Web Site.

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Certificate Number:

This certificate was issued by Droycon Bioconcepts Inc., 315 Dewdney Ave., Regina, SK., Canada, S4N 0E7 as an assurance that the product listed above has passed through the quality control procedures considered essential to the successful use of the testing device.



ISO 9001:2000
Registered

For more information, visit our web-site at:

<http://www.DBI.ca>

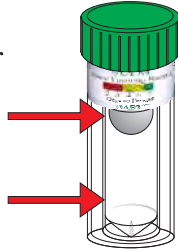
LIT8436 Rev.1

BART™ TEST FOR SLYM SLIME FORMING BACTERIA

Present/Absent - observe daily for 8 days.

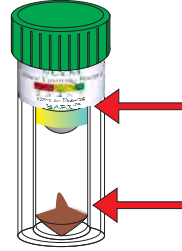
ABSENT
(Negative - Non-aggressive)

The solution remains clear (not cloudy) with NO slime or glowing under U.V.



PRESENT
(Positive - Aggressive)

Cloudy solution,
Glowing ring around ball under U.V. Light,
and/or
Slime growth at base of tube.

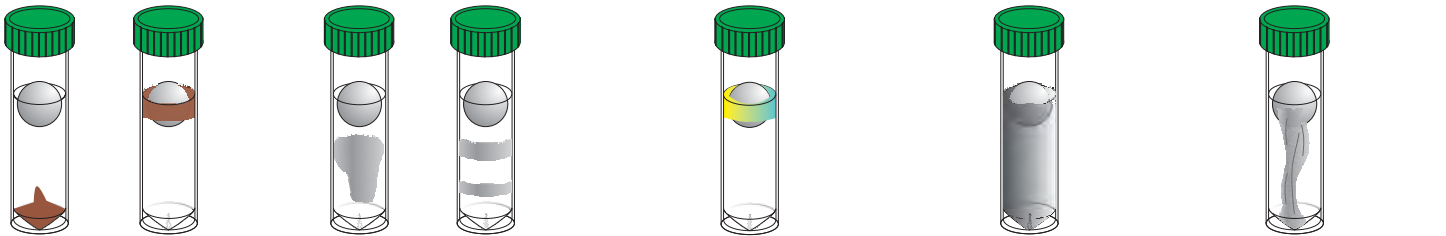


1. View test each day for 8 days.
2. Observe any growths/color changes.
3. Compare with description(s).

*Note: Refer to page bottom for approximate population

Advanced test information.

Determination of Dominant Bacteria



DENSE SLIME(DS)
in base or
SLIME RING(SR)
around ball-
Dense Slime
Bacteria.

CLOUDY(CL)
growth or **LAYERED
PLATES(CP)**- Slime
Forming Bacteria.

**PALE BLUE
GLOWING(PB)**
around ball(U.V.
light) - Fluorescing
Pseudomonads.

**BLACKENED
LIQUID(BL)** -
Pseudomonads
and Enterics.

**THREAD-LIKE
STRANDS(TH)**
- Tight Slime
Bacteria.

Determination of Potential SLYM Population - observe daily for reaction.

Days to reaction - Approximate SLYM Population (cfu/mL)



1 - 1,750,000
2 - 440,000
3 - 67,000

Aggressive



4 - 13,000
5 - 2500
6 - 500

Moderate



7 - 100
8 - <20

Not Aggressive

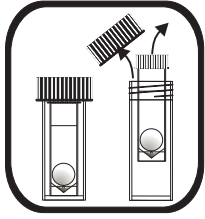
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SLYM-BART™

For water and wastewater

The SLYM-BARTs can be used as a P/A test capable of indicating to some extent the possible population size and the types of slime-forming organisms present in the water sample. Slime-forming bacteria are able to produce copious amounts of slime without necessarily having to use any iron. Iron bacteria also produce slime but usually it is thinner and involves the accumulation of various forms of iron.

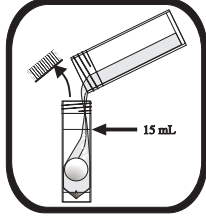
Slime-forming bacteria generally produce the thickest slime formations under aerobic (oxidative) conditions, which develop around the floating ball. Growth may be recognized as a cloudy or gel-like growth, which can be localized or occur throughout the sample. These growths are usually white, grey, yellow, or beige in color and can darken over time.



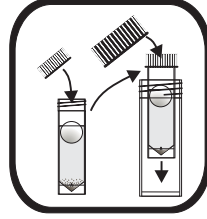
1. Remove the inner tube from the outer tube.



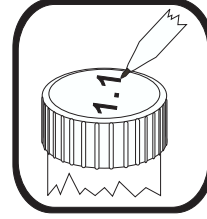
2. Using the outer tube from the BART, or a different sterile container, collect at least 20 mL of sample.
Note: Do not touch or contaminate the inside of the tube or lid. Use aseptic technique.



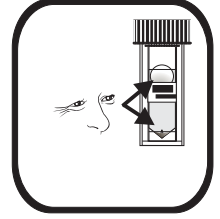
3. Fill the inner tube with sample until the level reaches the fill line.
Note: After removing the cap from the inner tube, set it down directly on a clean surface. To avoid contamination, do not invert the cap.



4. Tightly screw the cap back on the inner tube. Return the inner tube to the outer tube and screw the outer cap on tightly. Allow the ball to rise at its own speed.
DO NOT SHAKE OR SWIRL THE TUBE.



5. Label the outer tube with the date and sample origin.



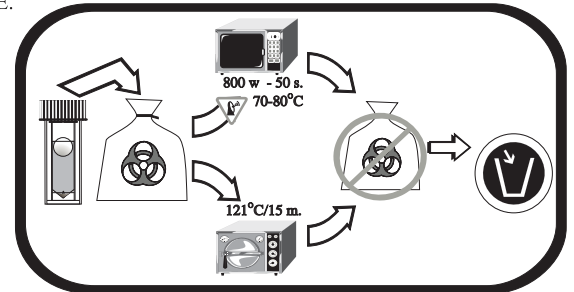
6. Place the BART tube away from direct sunlight and allow to incubate at room temperature. Check the BART visually for reaction daily.



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7. Safely dispose using a dedicated microwave oven or by autoclave.

Certificate of Analysis

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BART™ Type: SLYM-BART

Batch #:

Release date*:

Lot#:

Shipment date:

Expiry date:

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Compliant

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LIT8436 Rev.1

BART™ TEST FOR SRB SULFATE REDUCING BACTERIA

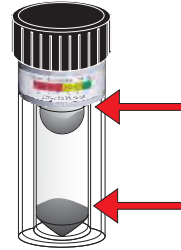
Present/Absent - observe daily for 8 days.

ABSENT
(Negative - Non-aggressive)



The solution has NO black slime.

PRESENT
(Positive - Aggressive)



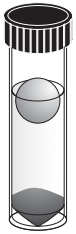
A **Black** slime ring beneath the ball,
and/or
A **Black** slime growth at the base of tube.

1. View test each day for up to 15 days.
2. Observe any growths/color changes.
3. Compare with description(s).

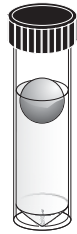
*Note: Refer to page bottom for approximate population

Advanced test information.

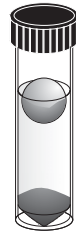
Determination of Dominant Bacteria



BLACK only in **BASE(BB)** - Dense anaerobic SRB consortium.



BLACK only around **BALL/TOP(BT)** - Aerobic SRB consortium.



BLACK in **BASE** and around **BALL** - Combination of aerobic(**BT**) and anaerobic(**BB**) SRB.



Solution **CLOUDY** - Anaerobic bacteria present.

Determination of Potential SRB Population - observe daily for reaction.

Days to reaction - Approximate SRB Population (cfu/mL)



Aggressive

1 - 2,200,000
2 - 500,000
3 - 115,000
4 - 27,000
5 - 6000



Moderate

6 - 1400
7 - 325
8 - 75



Not Aggressive

9 - 20
10 - 5
11 - <1

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SRB-BART™ Technical Advisory

This advisory notifies users of the SRB-BART system for the detection of sulphate reducing bacteria that the standard maximum length for the monitoring of the reaction patterns is commonly ten (10) days. Operators using the SRB-BART tester for the detection of deep-seated SRB infestations in water systems associated with wells and distribution system may find it advantageous to continue observations until the fifteenth (15th) day. This is because some SRB do not exhibit reaction patterns (i.e. BT, or BB) until after other bacterial consortia have already grown within the tester (e.g. anaerobic bacteria). This delays the observation of a positive detection for the SRB. In water pipelines and biofouling water wells the time lags can be delayed until days 11 to 15. It is not possible to project the size of the SRB population but this extension of the testing period can be used to determine the presence / absence of the SRB when they are present in environments either in very low numbers or in a consortial association with other microbial species. It can be expected that where routine monitoring is being undertaken, sudden decreases in the time lags to 10 days or less can be taken to indicate that the SRB are becoming significantly more aggressive and may require corrective action (e.g. disinfection, pigging the lines etc).

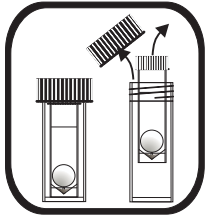
Please submit any comments and concerns to: sales@dbi.ca

SRB-BART™

For water and wastewater

Sulfate-Reducing bacteria are a group of anaerobic bacteria that generate hydrogen sulfide (H₂S). This product can cause a number of significant problems in water. Problems range from “rotten egg” odors to the blackening of equipment, slime formations, and the initiation of corrosive processes. SRB microorganisms are difficult to detect because they are anaerobic and tend to grow deep down within biofilms (slimes) as a part of a microbial community. SRB may not be present in the free-flowing water over the site of the fouling.

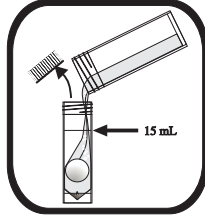
If SRB activity is present in the BART, sulfate is reduced to H₂S, which reacts with the diffusing ferrous iron to form black iron sulfide. This sulfide commonly forms either in the base (as black precipitates) and/or around the ball (as an irregular black ring).



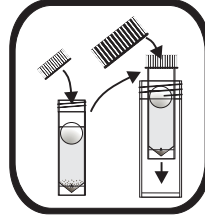
1. Remove the inner tube from the outer tube.



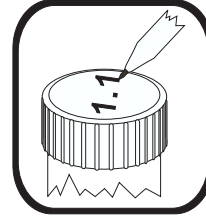
2. Using the outer tube from the BART, or a different sterile container, collect at least 20 mL of sample.
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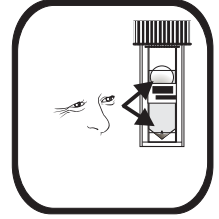
3. Fill the inner tube with sample until the level reaches the fill line.
Note: After removing the cap from the inner tube, set it down directly on a clean surface. To avoid contamination, do not invert the cap.



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5. Label the outer tube with the date and sample origin.



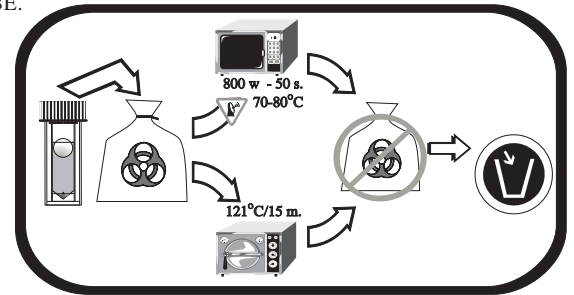
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Lot#:

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Expiry date:

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