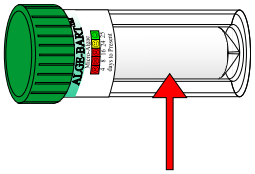
BART™ TEST FOR ALGE
MICRO-ALGAE

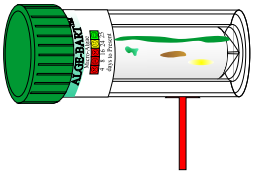
Present/Absent - observe a minimum 3 times a week.

ABSENT
(Negative - Non-aggressive)



Textile remains White.

PRESENT
(Positive - Aggressive)



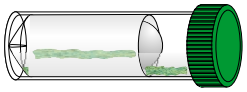
Growth on textile.

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

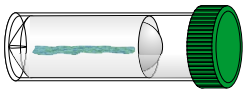
*Note: Refer to page bottom for approximate population

Advanced test information.

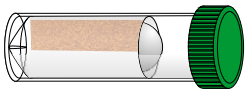
Determination of Dominant Bacteria



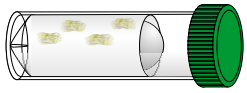
GREEN**(GG)** growth at or below water line - *Chlamydomonas*.



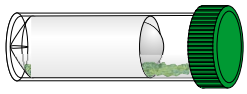
BRIGHT GREEN FUZZY**(FG)** patches of growth on textile - *Chlorophyceae*.



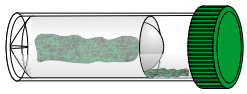
RED, ORANGE, or BROWN**(OB)** patches of growth on textile - *Diatoms & Desmids*.



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

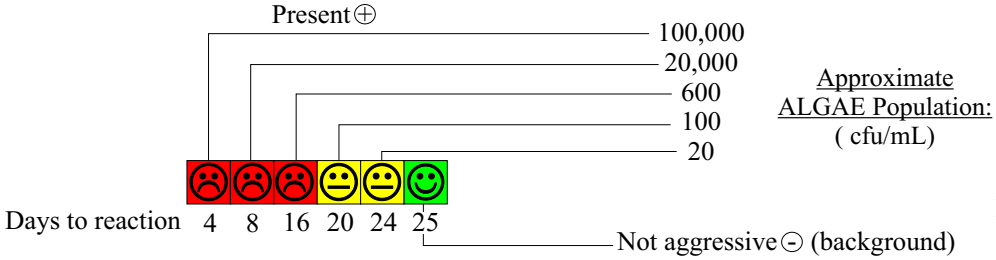


GREEN**(GF)** deposits floating in water and on floor of test - *Chlorella*.



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

Determination of Potential ALGAE Population - observe daily for reaction.

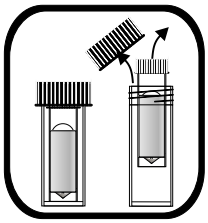


ALGE-BART™

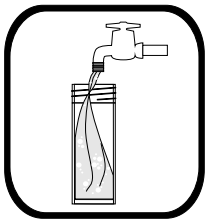
For water and soils

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.

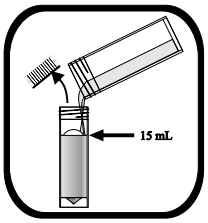
Algae include various plant-like microorganisms, which can photosynthesize using light as the energy source for growth. Several types of algae can grow in the ALGE-BARTs, including: Grass-Green Algae (*Chlorophyceae*), Blue-Green Algae (*Cyanobacteria*), Desmids, Diatoms, and Euglenoids. The ALGE-BART 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.



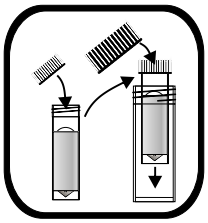
1. Remove the inner tube from the outer tube.



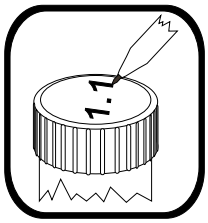
2. Using the outer tube from the BART, or a different sterile container, collect at least 20 mL of sample. ***Note:*** *Do not touch or contaminate the inside of the tube or lid. Use aseptic technique.*



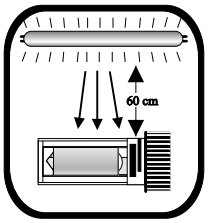
3. Fill the inner tube with sample until the level reaches the fill line. ***Note:*** *After removing the cap from the inner tube, set it down directly on a* ***clean surface****. To avoid contamination, do not invert the cap.*



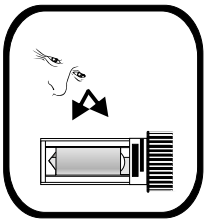
4. Tightly screw the cap back on the inner tube. Return the inner tube to the outer tube and screw the outer cap on tightly. Allow the medium to dissolve slowly, and the ball to rise at its own speed. DO NOT SHAKE OR SWIRL THE TUBE.



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



6. Illuminate the BART tube using fluorescent lighting and allow to incubate at room temperature.

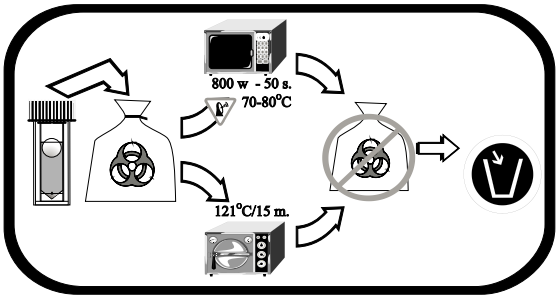


7. Check the BART visually for reaction daily.

HACH Company
P.O. Box 389
Loveland, CO 80539-0389
Telephone: (970) 669-3050
Fax: (970) 669-2932

For Technical Assistance,
Price Information and Ordering:
In the U.S.A.
Call toll-free 800-227-4224

In Europe, the Middle East, and Mediterranean Africa:
HACH Company, c/o Dr. Bruno Lange GmbH • Willstätterstr. 11 • D-40549 Düsseldorf, Germany
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 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.

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.

ISO 9001:2000
Registered

For more information, visit our web-site at:
http://www.DBI.ca

#8436

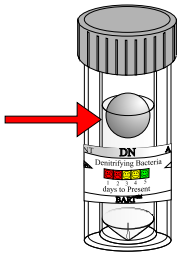
BART™ TEST FOR DN
DENITRIFYING BACTERIA

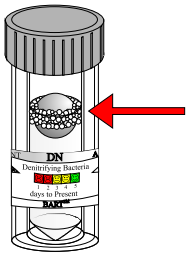
Present/Absent - observe daily for 4 days.

ABSENT
(Negative - Non-aggressive)

PRESENT
(Positive - Aggressive)

NO Foam around ball.





Foam around ball.

1. View test each day for 4 days.

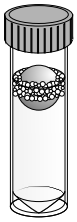
2. Observe any growths.

3. Compare with description.

*Note: Refer to page bottom for approximate population

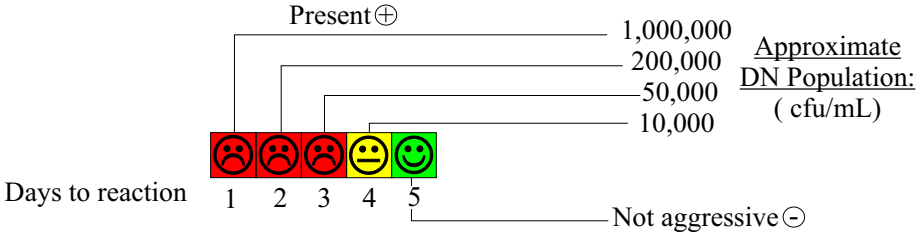
Advanced test information.

Determination of Dominant Bacteria



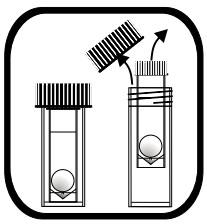
FOAM around ball **(FO)** - Denitrifying Bacteria.

Determination of Potential DN Population - observe daily for reaction.

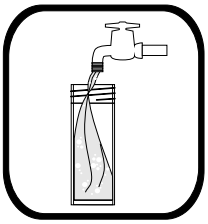


DN-BART™
For water and wastewater

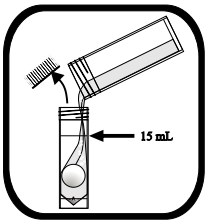
Denitrifying bacteria indicate the decomposition of waste organic nitrogenous materials. These bacteria reduce nitrate to nitrite and some continue nitrification to gaseous nitrogen (complete denitrification). In water, aggressive denitrifiers can indicate high concentrations of nitrates, and that the 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.



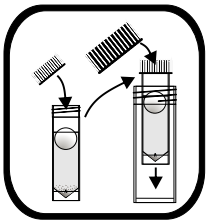
1. Remove the inner tube from the outer tube.



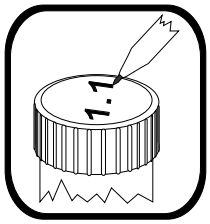
2. Using the outer tube from the BART, or a different sterile container, collect at least 20 mL of sample.
Note: *Do not touch or contaminate the inside of the tube or lid. Use aseptic technique.*



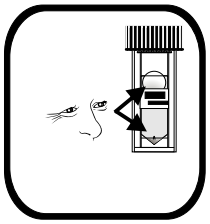
3. Fill the inner tube with sample until the level reaches the fill line.
Note: *After removing the cap from the inner tube, set it down directly on a* ***clean surface****. To avoid contamination, do not invert the cap.*



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 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 visually for reaction daily.

HACH Company
P.O. Box 389
Loveland, CO 80539-0389
Telephone: (970) 669-3050
Fax: (970) 669-2932

For Technical Assistance,
Price Information and Ordering:
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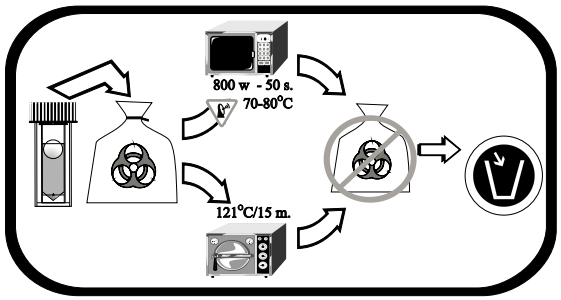
In Europe, the Middle East, and Mediterranean Africa:
HACH Company, c/o Dr. Bruno Lange GmbH • Willstätterstr. 11 • D-40549 Düsseldorf, Germany
Telephone: +49/[0]211.52.88.0 • Fax: +49/[0]211.52.88.231



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

Certificate of Analysis

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BART™ Type: DN-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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ISO 9001:2000
Registered

For more information, visit our web-site at:
http://www.DBI.ca

#8436

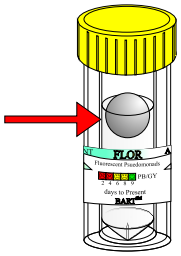
BART™ TEST FOR FLOR
Fluorescent Psuedomonads

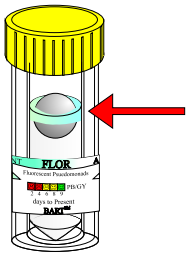
Present/Absent - observe daily for 8 days.

ABSENT
(Negative - Non-aggressive)

PRESENT
(Positive - Aggressive)

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





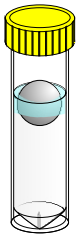
Glowing around ball under U.V. light.

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

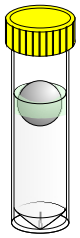
*Note: Refer to page bottom for approximate population

Advanced test information.

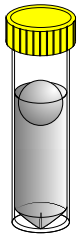
Determination of Dominant Bacteria



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



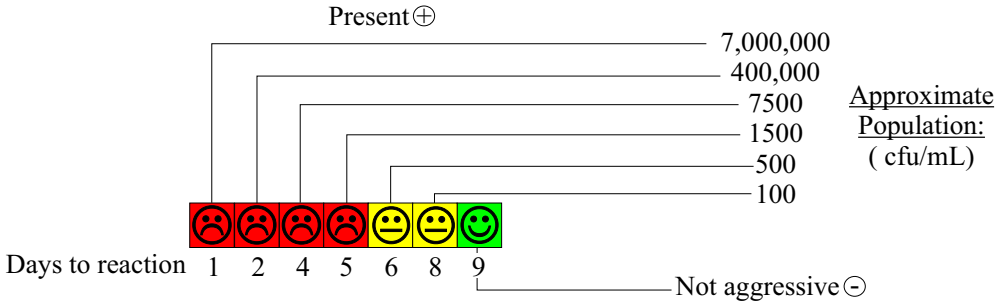
Greenish-Yellow(**GY**)
glowing -
Pseudomonas fluorescens.



Cloudiness(**CL**)
- No glowing -
Non-fluoresing pseudomonas.

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

Determination of Potential FLOR Population - observe daily for reaction.

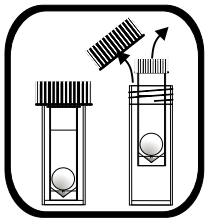


FLOR-BART™

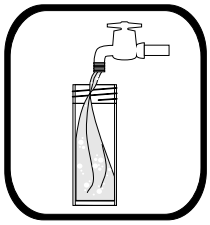
For water and wastewater

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.

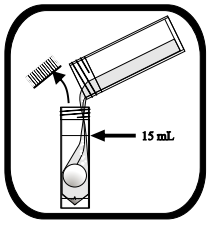
Pseudomonad bacteria can cause a range of problems in water, including slime formations, turbidity, taste and odor, corrosion, biodegradatrion, and hygiene risks. Pseudomonad bacteria produce distinctive odors such as "fishy" or "kerosene-like" odors. In recreational waters (such as swimming pools, hot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



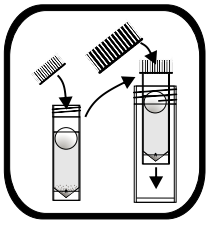
1. Remove the inner tube from the outer tube.



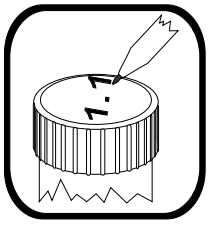
2. Using the outer tube from the BART, or a different sterile container, collect at least 20 mL of sample.
Note: *Do not touch or contaminate the inside of the tube or lid. Use aseptic technique.*



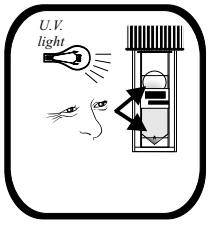
3. Fill the inner tube with sample until the level reaches the fill line.
Note: *After removing the cap from the inner tube, set it down directly on a* ***clean surface****. To avoid contamination, do not invert the cap.*



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 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.

HACH Company
P.O. Box 389
Loveland, CO 80539-0389
Telephone: (970) 669-3050
Fax: (970) 669-2932

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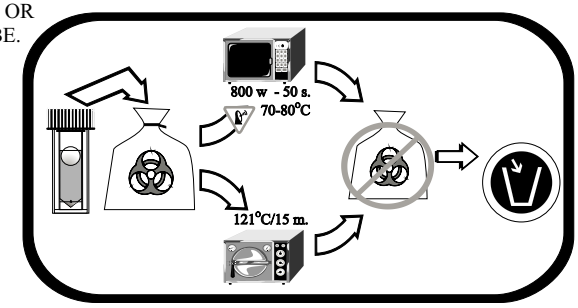

7. Safely dispose using a dedicated microwave oven or by autoclave.

Certificate of Analysis

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BART™ Type: FLOR-BART Batch #:

Release date*: Lot#:

Shipment date: Expiry date:

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#8436

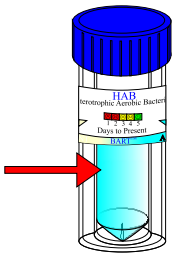
BART™ TEST FOR HAB HETEROTROPHIC AEROBIC BACTERIA

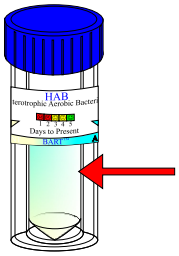
Present/Absent - observe daily for 4 days.

ABSENT
(Negative - Non-aggressive)

PRESENT
(Positive - Aggressive)

The solution is Blue.





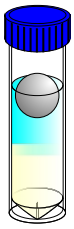
Bleaching of blue.

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

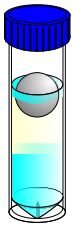
*Note: Refer to page bottom for approximate population

Advanced test information.

Determination of Dominant Bacteria

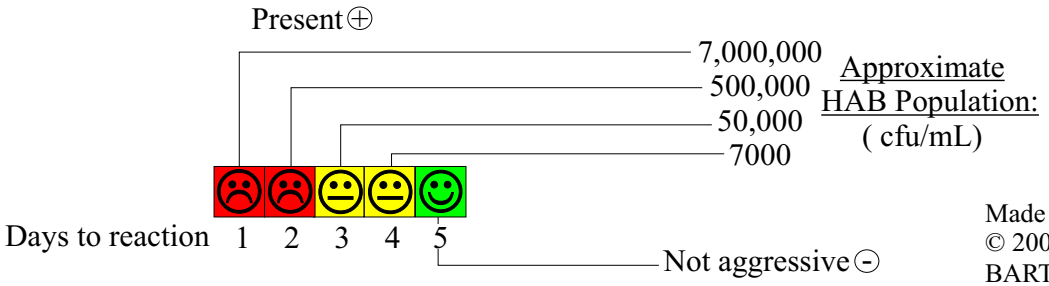


Blue Bleaching Up from Bottom **(UP)** - Aerobic Bacteria.



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

Determination of Potential HAB Population - observe daily for reaction.



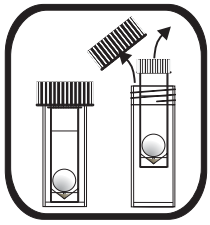
HAB-BART™

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.

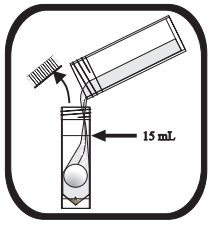
The test measure the ability of the total aerobic bacteria to respire while degrading the various nutrients in the dehydrated culture medium. Methylene blue, the dye, acts as an alternative to oxygen for microbial respiration. When the microbes respire, the methylene blue changes to a colorless form. 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.

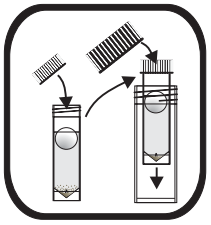


1. Remove the inner tube from the outer tube.

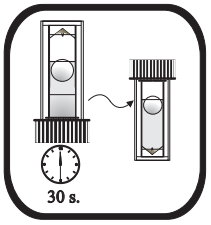
2. Using the outer tube from the BART, or a different sterile container, collect at least 20 mL of sample.
Note: *Do not touch or contaminate the inside of the tube or lid. Use aseptic technique.*



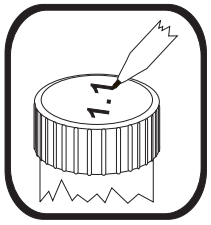
3. Fill the inner tube with sample until the level reaches the fill line.
Note: *After removing the cap from the inner tube, set it down directly on a* ***clean surface****. To avoid contamination, do not invert the cap.*



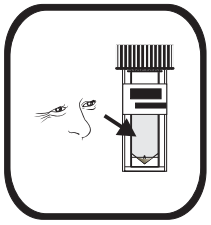
4. Tightly screw the cap back on the inner tube. Return the inner tube to the outer tube and screw the outer cap on tightly. Allow the medium to dissolve slowly, and the ball to rise at its own speed. DO NOT SHAKE OR SWIRL THE TUBE.



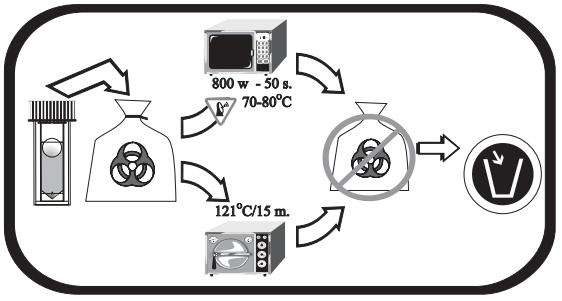
5. Invert tube for 30 seconds to dissolve the dye under the cap. Set tube upright for media to dissolve slowly.



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.



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

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BART™ Type: HAB-BART Batch #:

Release date*: Lot#:

Shipment date: Expiry date:

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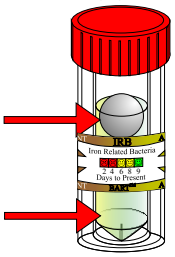
#8436

BART™ TEST FOR IRB
IRON RELATED BACTERIA

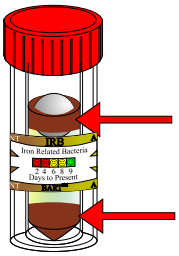
Present/Absent - observe daily for 8 days.

ABSENT
(Negative - Non-aggressive)

The solution has NO brown slime.



PRESENT
(Positive - Aggressive)



A **Brown** slime ring or foam around the ball,

and/or

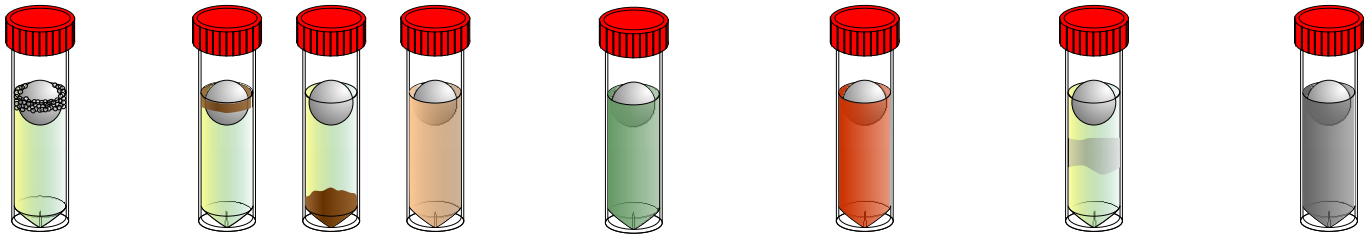
A **Brown** slime growth at the base of tube.

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 BG BC

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

GC

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

RC

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

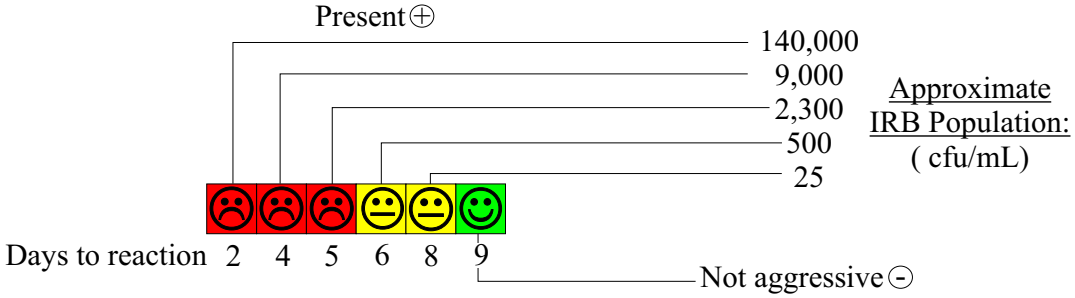
CL

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

BL

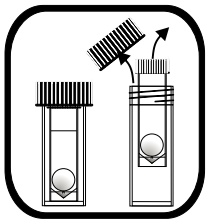
Solution BLACK**(BL)** - Pseudomonads and Enterics.

Determination of Potential IRB Population - observe daily for reaction.

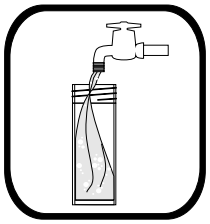


IRB-BART™
For water and wastewater

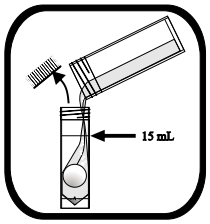
Iron-Related bacteria are difficult to enumerate because they are subdivided into several groupings (e.g., iron-oxidizing and iron-reducing bacteria). Iron-related bacteria can use iron in their metabolism. Taste and odor problems and "red water" are common symptoms of problems due to iron-related bacteria. 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 ferroxidans*.



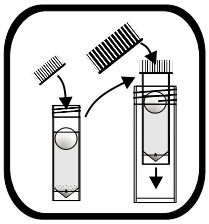
1. Remove the inner tube from the outer tube.



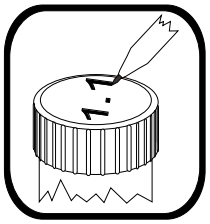
2. Using the outer tube from the BART, or a different sterile container, collect at least 20 mL of sample.
Note: *Do not touch or contaminate the inside of the tube or lid. Use aseptic technique.*



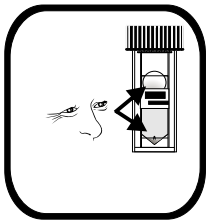
3. Fill the inner tube with sample until the level reaches the fill line.
Note: *After removing the cap from the inner tube, set it down directly on a* ***clean surface****. To avoid contamination, do not invert the cap.*



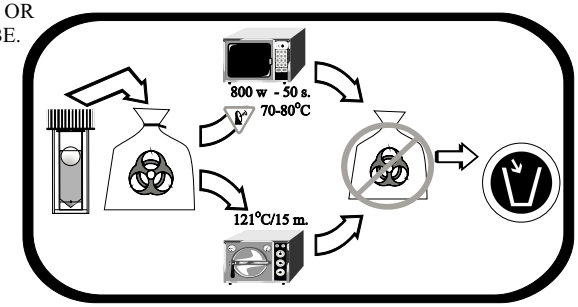
4. Tightly screw the cap back on the inner tube. Return the inner tube to the outer tube and screw the outer cap on tightly. Allow the medium to dissolve slowly, and the ball to rise at its own speed. DO NOT SHAKE OR SWIRL THE TUBE.



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 visually for reaction daily.



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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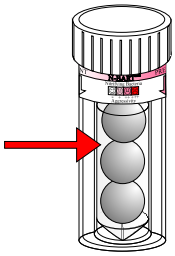
BART™ TEST FOR N NITRIFYING BACTERIA

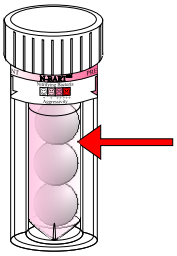
Present/Absent - observe at day 5.

ABSENT
(Negative - Non-aggressive)



NO pink solution.

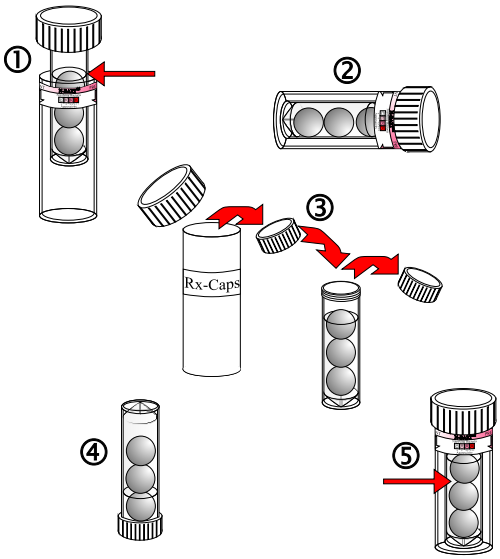
PRESENT
(Positive - Aggressive)



Solution pink.

*Note: Refer to page bottom for approximate population

N-BART Instructions.



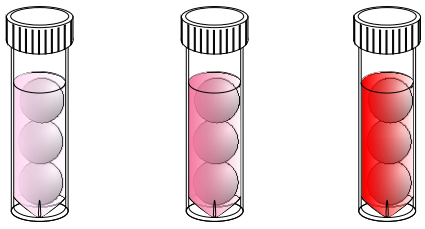
1. Remove inner vial and add water sample to fill line.

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.

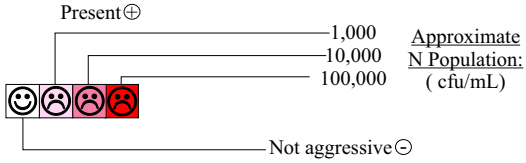
5. After 3 hours observe for pink color change.



1,000 10,000 100,000

Approximate N Population:(cfu/mL)

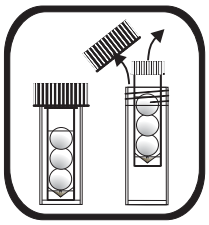
Determination of Potential N Population - observe daily for reaction.



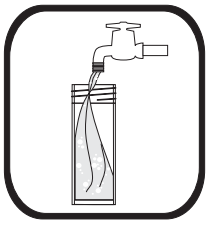
N-BART™

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.

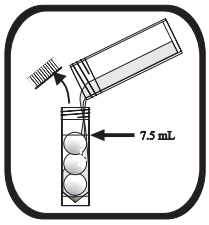
Nitrates in water can be a potential health risk, particularly to infants who have not yet developed a tolerance to nitrates. Aggressive nitrifying bacteria in waters may indicate the latter stages of aerobic degradation of nitrogen-rich organic matter. This can indicate that the water may have been 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.



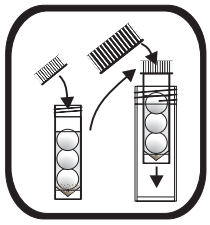
1. Remove the inner tube from the outer tube.



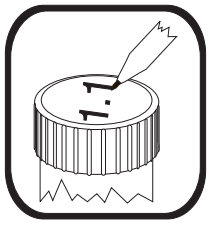
2. Using the outer tube from the BART, or a different sterile container, collect at least 20 mL of sample.
Note: *Do not touch or contaminate the inside of the tube or lid. Use aseptic technique.*



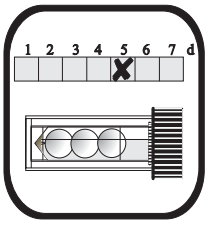
3. Fill the inner tube with sample until the level reaches the fill line.
Note: *After removing the cap from the inner tube, set it down directly on a* ***clean surface****. To avoid contamination, do not invert the cap.*



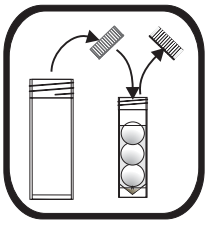
4. Tightly screw the cap back on the inner tube. Return the inner tube to the outer tube and screw the outer cap on tightly. Allow the medium to dissolve slowly, and the ball to rise at its own speed. DO NOT SHAKE OR SWIRL THE TUBE.



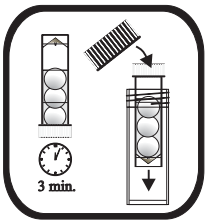
5. Label the outer tube with the date and sample origin.



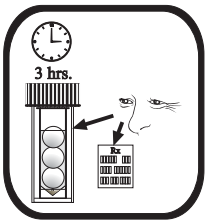
6. Place the BART tube on its side away from direct sunlight for five days at room temperature (21 to 25°C).



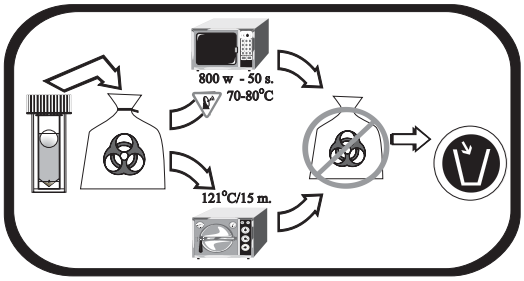
7. After five days, return the tube to a vertical position. Remove the white cap from the inner tube and replace with a Reactor Cap from the white supply tube. Screw the Reactor Cap on tightly.



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 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.

HACH®
HACH Company
P.O. Box 389
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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: N-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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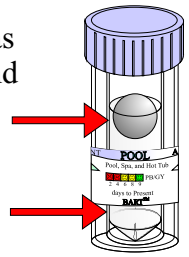
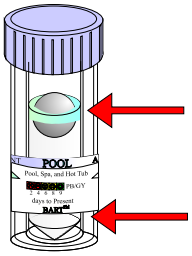
#8436

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

Present/Absent - observe daily for 8 days.

ABSENT (Negative - Non-aggressive)	PRESENT (Positive - Aggressive)
The solution has NO glow around ball under U.V. Light and NO Cloudy solution.	Glowing around ball under U.V. Light and/or Cloudy solution.



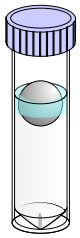


1. View test each day for 8 days.
2. Observe any growths/color changes.
3. Compare with descriptions.

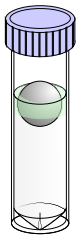
*Note: Refer to page bottom for approximate population

Advanced test information.

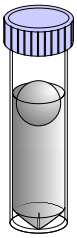
Determination of Dominant Bacteria



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



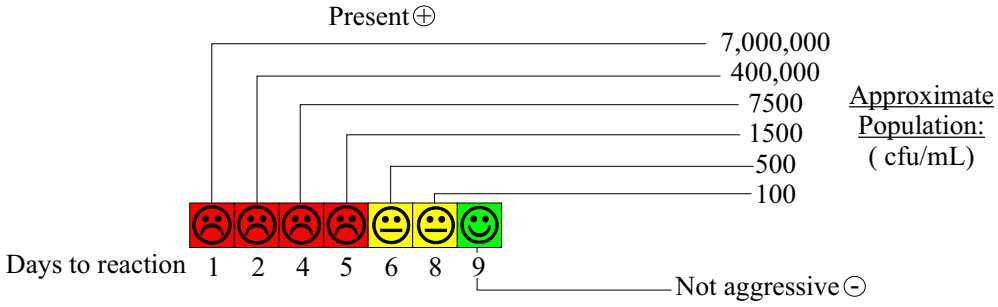
Greenish-Yellow(**GY**) glowing - *Pseudomonas fluorescens*.



Cloudiness(**CL**) - Non-fluoresing pseudomonas.

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

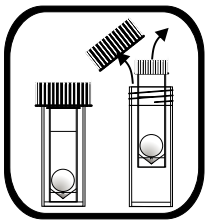
Determination of Potential POOL Population - observe daily for reaction.



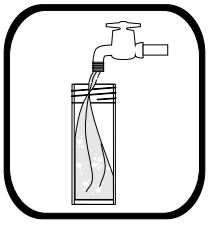
POOL-BART™

For Pools, Hot Tubs, and Spas

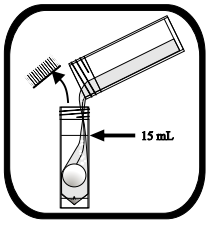
Recreational waters such as are found in swimming pools, hot tubs and beaches can often harbor a range of bacteria. These bacteria can affect the water quality and also present a hygiene risk. Water quality is normally affected by losses in clarity due to cloudiness, taste and odor problems when nuisance 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.



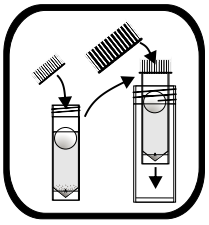
1. Remove the inner tube from the outer tube.



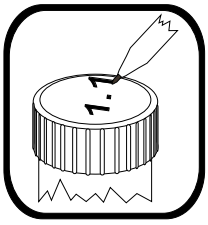
2. Using the outer tube from the BART, or a different sterile container, collect at least 20 mL of sample.
Note: *Do not touch or contaminate the inside of the tube or lid. Use aseptic technique.*



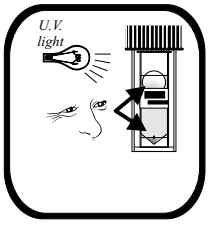
3. Fill the inner tube with sample until the level reaches the fill line.
Note: *After removing the cap from the inner tube, set it down directly on a* ***clean surface****. To avoid contamination, do not invert the cap.*



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.

HACH Company
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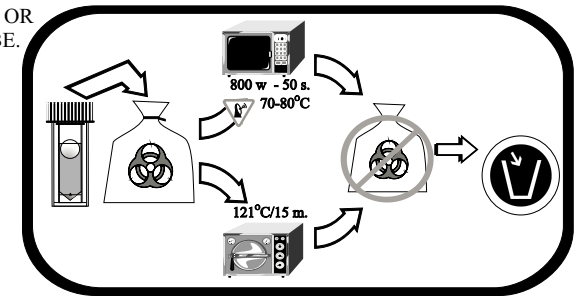

7. Safely dispose using a dedicated microwave oven or by autoclave.

Certificate of Analysis

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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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http://www.DBI.ca

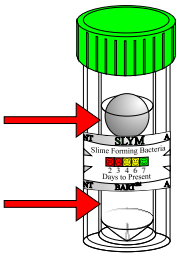
#8436

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.

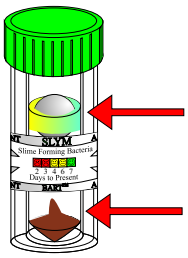


PRESENT
(Positive - Aggressive)

Cloudy solution, Glowing ring around ball under U.V. Light,

and/or

Slime growth at base of tube.

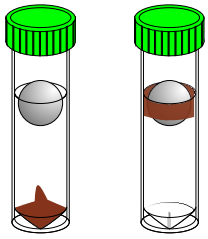


1. View test each day for 8 days.
2. Observe any growths/color changes.
3. Compare with description(s).

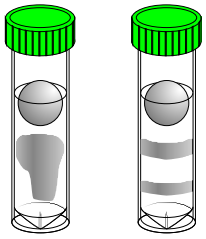
*Note: Refer to page bottom for approximate population

Advanced test information.

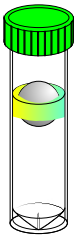
Determination of Dominant Bacteria



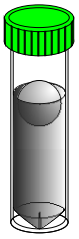
DENSE SLIME**(DS)** in base or SLIME RING**(SR)** around ball- Dense Slime Bacteria.



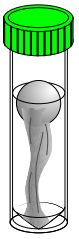
CLOUDY**(CL)** growth or LAYERED PLATES**(CP)**- Slime Forming Bacteria.



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

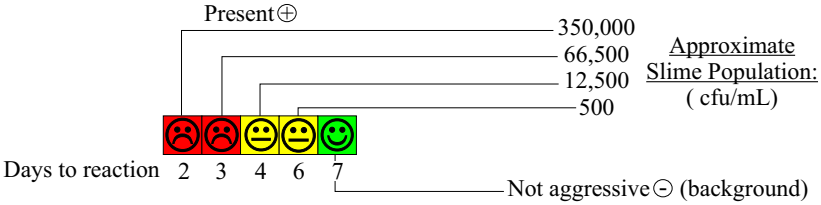


BLACKENED LIQUID**(BL)** - Pseudomonads and Enterics.



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

Determination of Potential SLYM Population - observe daily for reaction.

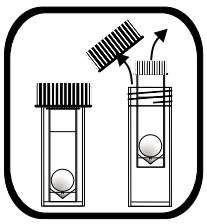


SLYM-BART™

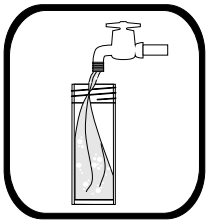
For water and wastewater

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.

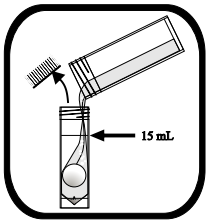
Slime-forming bacteria generally produce the thickest slime formations under aerobic (oxidative) conditions, which develop around the floating ball. Growth may be recognized as a cloudy or gel-like growth, which can be localized or occur throughout the sample. These growths are usually white, grey, yellow,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



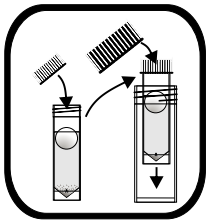
1. Remove the inner tube from the outer tube.



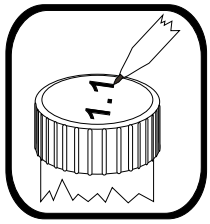
2. Using the outer tube from the BART, or a different sterile container, collect at least 20 mL of sample.
Note: *Do not touch or contaminate the inside of the tube or lid. Use aseptic technique.*



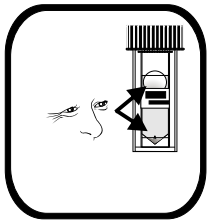
3. Fill the inner tube with sample until the level reaches the fill line.
Note: *After removing the cap from the inner tube, set it down directly on a* ***clean surface****. To avoid contamination, do not invert the cap.*



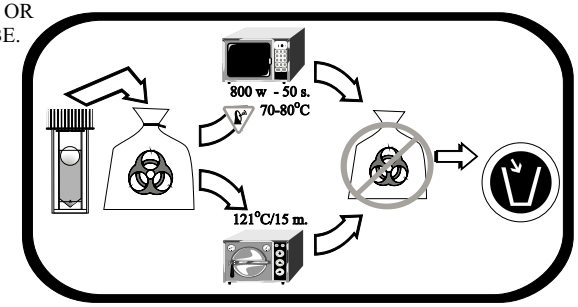
4. Tightly screw the cap back on the inner tube. Return the inner tube to the outer tube and screw the outer cap on tightly. Allow the medium to dissolve slowly, and the ball to rise at its own speed. DO NOT SHAKE OR SWIRL THE TUBE.



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 visually for reaction daily.



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

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BART™ Type: SLYM-BART Batch #:

Release date*: Lot#:

Shipment date: Expiry date:

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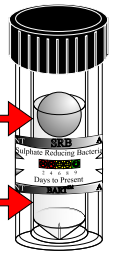
#8436

BART™ TEST FOR SRB
SULFATE REDUCING BACTERIA

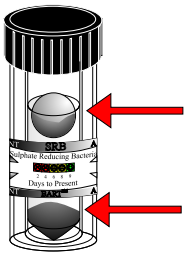
Present/Absent - observe daily for 8 days.

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.

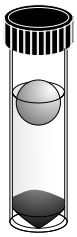
2. Observe any growths/color changes.

3. Compare with description(s).

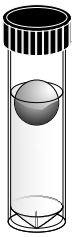
*Note: Refer to page bottom for approximate population

Advanced test information.

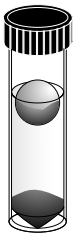
Determination of Dominant Bacteria



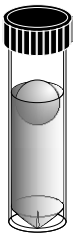
BLACK only in BASE**(BB)** - Dense anaerobic SRB consortium.



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

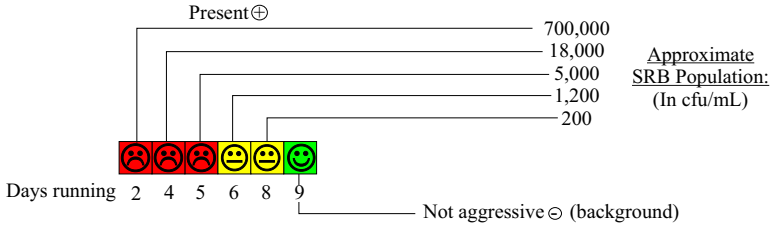


BLACK in BASE and around BALL - Combination of aerobic**(BT)** and anaerobic**(BB)** SRB.



Solution CLOUDY - Anaerobic bacteria present.

Determination of Potential SRB Population - observe daily for reaction.



Made in Canada

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, BB or BA) 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).

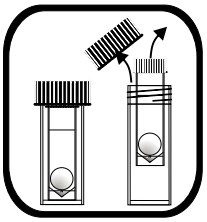
Please submit any comments and concerns to: drc@dbi.ca

SRB-BART™

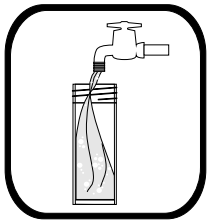
For water and wastewater

Sulfate-Reducing bacteria are a group of anaerobic bacteria that generate hydrogen sulfide (H_2S). 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.

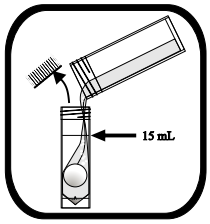
If SRB activity is present in the BART, sulfate is reduced to H_2S, which reacts with the diffusing ferrous iron to form black iron sulfide. This sulfide commonly forms either in the base (as black precipitates) and/or around the ball (as an irregular black ring).



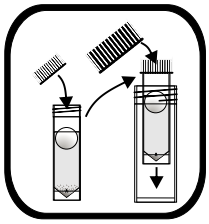
1. Remove the inner tube from the outer tube.



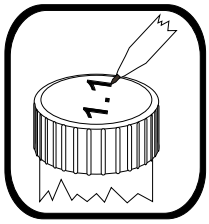
2. Using the outer tube from the BART, or a different sterile container, collect at least 20 mL of sample.
Note: *Do not touch or contaminate the inside of the tube or lid. Use aseptic technique.*



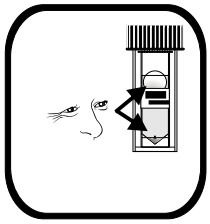
3. Fill the inner tube with sample until the level reaches the fill line.
Note: *After removing the cap from the inner tube, set it down directly on a* ***clean surface****. To avoid contamination, do not invert the cap.*



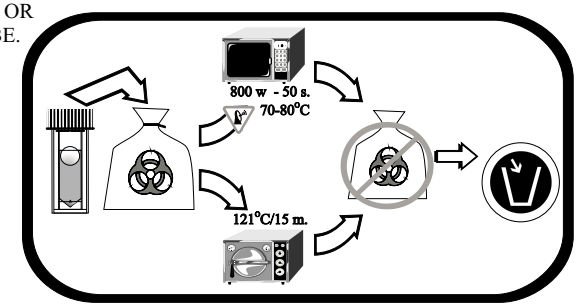
4. Tightly screw the cap back on the inner tube. Return the inner tube to the outer tube and screw the outer cap on tightly. Allow the medium to dissolve slowly, and the ball to rise at its own speed. DO NOT SHAKE OR SWIRL THE TUBE.



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 visually for reaction daily.



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

HACH®

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Fax: (970) 669-2932

For Technical Assistance,
Price Information and Ordering:
In the U.S.A.
Call toll-free 800-227-4224

In Europe, the Middle East, and Mediterranean Africa:
HACH Company, c/o Dr. Bruno Lange GmbH • Willstätterstr. 11 • D-40549 Düsseldorf, Germany
Telephone: +49/[0]211.52.88.0 • Fax: +49/[0]211.52.88.231

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: SRB-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.

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.

DBI ISO 9001:2000 Registered

For more information, visit our web-site at:
http://www.DBI.ca

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