

BART™ TEST FOR SRB SULFATE REDUCING BACTERIA

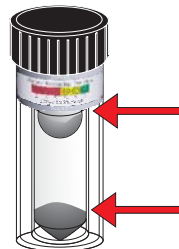
Present/Absent - observe daily for 8 days.

ABSENT
(Negative - Non-aggressive)



The solution has NO black slime.

PRESENT
(Positive - Aggressive)



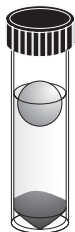
A **Black** slime ring beneath the ball,
and/or
A **Black** slime growth at the base of tube.

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

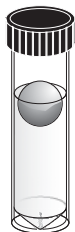
*Note: Refer to page bottom for approximate population

Advanced test information.

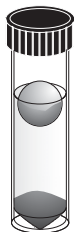
Determination of Dominant Bacteria



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).

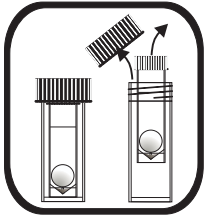
Please submit any comments and concerns to: sales@dbi.ca

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.

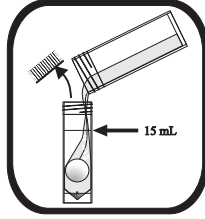
If SRB activity is present in the BART, sulfate is reduced to H₂S, which reacts with the diffusing ferrous iron to form black iron sulfide. This sulfide commonly forms either in the base (as black precipitates) and/or around the ball (as an irregular black ring).



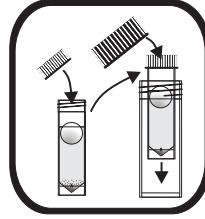
1. Remove the inner tube from the outer tube.



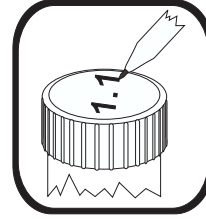
2. Using the outer tube from the BART, or a different sterile container, collect at least 20 mL of sample.
Note: Do not touch or contaminate the inside of the tube or lid. Use aseptic technique.



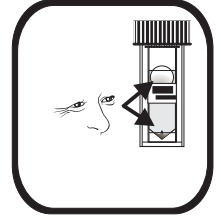
3. Fill the inner tube with sample until the level reaches the fill line.
Note: After removing the cap from the inner tube, set it down directly on a clean surface. To avoid contamination, do not invert the cap.



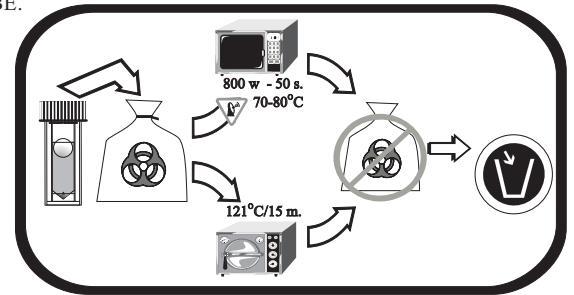
4. Tightly screw the cap back on the inner tube. Return the inner tube to the outer tube and screw the outer cap on tightly. Allow the ball to rise at its own speed.
DO NOT SHAKE OR SWIRL THE TUBE.



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.



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 2004 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 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.