

SLYM-BART Reaction Patterns

Quick Break Training

13 March 2009

Slime related bacteria are those bacteria that grow slime coatings outside the cell. These slimes form protective functions stopping the growths from dieing when the water dries out; and also acting as a coating to protect the cells from chemical treatments or invasion by other microbes. They are fast growing and can easily out-compete other bacteria particularly when the conditions are oxidative. Not surprisingly the SLYM-BART is one of the quickest to go positive. Normally the dominant reaction is the water sample in the SLYM-BART tester going cloudy (CL reaction). Other reactions can occur and most precede the CL reaction. These reactions include cloudy plates (CP); dense slimes (DS); thread-like forms (TH) and slime rings (SR). After the CL reaction, reaction can include blackening of the liquid (BL) and glowing around the BART ball which is easier to observe with a UV light. The glows can be of a pale blue (PB) or a green yellow (GY) color and last for two to four days (PB) or four to ten days (GY). Rarely there is foam formation (FO) but that commonly follows the CL reaction when it occurs. FO indicates that the sampled conditions were reductive and dominated by anaerobic bacteria.

Reactions that can occur before the general cloudiness in a SLYM-BART includes: (CP) Which can be recognized as floating cloudy plates in the sample, these last only a few hours before moving to a CL; (DS) is given to the development of a dense gel-like in the lower third of the tester, this is commonly linked to slime forming bacteria that either generate tight capsules around the cell or very dense slime both of which are more difficult to treat; (TH) are thread-like forms of growth often as gelatinous strings connecting the BART-ball to the base, these are generally short lived; and (SR) which are slime rings that form around the BART ball, once formed these are very durable and indicate a high probability that oxidative plugging is likely to occur. Generally the color of these reactions is white but some colors have been observed.

After the clouding reaction (CL) has occurred then there are now three possible reactions that can occur: (BL) occurs with a blackening of the liquid which means that a complex bacterial community is active; (GY) glows are a green yellow and indicate that pseudomonad bacteria are active but commonly are not a health risk; and (PB) glows are pale blue and indicate that a potential health risk exists from *Pseudomonas aeruginosa*.

With the SLYM-BART tester bacterial activity can occur very quickly and generally a very active bacterial population would be detected in less than two days while a negative after four days would mean that there is only a background in bacterial activity. This tester is good for detecting bacterial activity quickly but is not so good for identifying types unless there is a pale blue or greenish yellow just under the BART ball which indicates the presence of pseudomonad bacteria. If the last reaction is a black liquid (BL) then this indicates that there is a very active bacterial community and the water sample needs to be checked for the presence of coliform bacteria if there is a health concern.

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