



## FLUID BACTERIA KIT

### Microbiology Survey ON-SITE ANALYSIS

#### KIT CONTENTS

- 4 - 3-mL Syringes
- 2 - Alcohol Swabs
- 5 - Bottles Postgate Media "B" 2% Salt Sulfate Reducer Media - Green Cap
- 5 - Bottles of Aerobic Phenol Red 2% Salt (Acid Producers - Aerobic Media) - Red Cap
- 1 - Microbiology Survey Reporting Form

#### INSTRUCTIONS

- 1 - Bacteria Kit Sampling and Testing Instructions, consisting of three (3) pages and one (1) Microbiology Survey Reporting Form.

#### WARRANTY

*Products are warranted by MSES Consultants, Inc. Corrosion Products Division, to perform as described in the technical literature furnished with each product, provided the products are used in accordance with the directions provided. This kit must be used before the expiration date shown on the kit. Adequate quality control must be done by the user of the products.*

*MSES Consultants, Inc. Corrosion Products Division disclaims any implied warranty of merchantability or fitness of its products for any purpose other than that described in its technical literature and in no event shall MSES Consultants, Inc. Corrosion Products Division be liable for any consequential damages out of the aforesaid warranty.*

If you have any questions about any of the products and services provided by MSES Consultants, Inc. Corrosion Products Division please call or write to the address below:

### PRODUCT INFORMATION AND ORDERING

#### PRODUCT INFORMATION

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## FLUID BACTERIA KIT

### Microbiology Survey

## USER INSTRUCTIONS

**SPECIAL** Before using this Microbiology Survey kit READ ALL INSTRUCTIONS.

**NOTE:** This kit only contains enough materials for one (1) test.

### MICROBIOLOGY AND GENERAL CHEMISTRY

This kit will test for the following parameters:

APBs - Acid Producing Bacteria (Red Cap)

SRBs - Sulfate Reducing Bacteria (Green Cap)

### INSTRUCTIONS

#### Microbiology Testing Inoculation of APBs Bottles

- Step 1. Number the **red-cap** bottles 1 through 5.  
(Located in the foam block).
- Step 2. Remove the metal tabs from the centers of all **red-cap** bottles. Do not remove the entire metal seal.
- Step 3. Using one of the enclosed alcohol swabs, wipe the exposed rubber part of the cap on each of the **red-cap** bottles.
- Step 4. Unwrap one of the four syringes. Draw one (1) ml of fluid from the sample to be tested into the first syringe.
- Step 5. Insert the syringe needle into the top of the first **red-cap** bottle and inject the sample into the bottle (**red-cap** bottle 1). Move the syringe plunger up and down a couple of times to mix the sample in the bottle. Empty the syringe into this bottle prior to removing the syringe.
- Step 6. Remove the empty syringe and set it aside. *You will not use it again.*
- Step 7. Unwrap the second of the four syringes. Insert it into the first **red-cap** bottle.
- Step 8. Now pull up on the syringe plunger to draw up one (1) ml of sample from the first **red-cap** bottle into the syringe.
- Step 9. Pull the syringe out of **red-cap** bottle 1, insert the needle into **red-cap** bottle 2, and inject the liquid into bottle 2. Once again, move the syringe plunger up and down to mix the sample, draw up one (1) ml of liquid, and inject it into **red-cap** bottle 3.
- Step 10. Repeat the above step until all of the **red-cap** bottles have been injected. Note: you do not have to draw any liquid out of the last **red-cap** bottle (bottle 5).
- Step 11. Remove the empty syringe from the last **red-cap** bottle and set the syringe aside. *You will not use it again.*

## Microbiology Testing Inoculation of SRBs Bottles

- Step 12. Number the **green-cap** bottles 1 through 5. (Located in the foam block).
- Step 13. Remove the metal tabs from the centers of all **green-cap** bottles. Do not remove the entire metal seal.
- Step 14. Using one of the enclosed alcohol swabs, wipe the exposed rubber part of the cap on each of the **green-cap** bottles.
- Step 15. Unwrap the third of the four (4) syringes. Draw one (1) ml of fluid from the sample to be tested into the syringe.
- Step 16. Insert the syringe needle into the top of the first **green-cap** bottle and inject the sample into the bottle (**green-cap** bottle 1). Move the syringe plunger up and down a couple of times to mix the sample in the bottle. Empty the syringe into this bottle prior to removing the syringe.
- Step 17. Remove the empty syringe and set it aside.  
*You will not use it again.*
- Step 18. Unwrap the fourth syringe. Insert it into the first **green-cap** bottle.
- Step 19. Now pull up on the syringe plunger to draw up one (1) ml of sample from the first **green-cap** bottle into the syringe.
- Step 20. Pull the syringe out of **green-cap** bottle 1, insert the needle into **green-cap** bottle 2, inject the liquid into bottle 2. Once again, move the syringe plunger up and down to mix the sample, draw up one (1) ml of liquid, and inject into **green-cap** bottle 3.
- Step 21. Repeat the above step until all of the **green-cap** bottles have been injected. Note: you do not have to draw any liquid out of the last **green-cap** bottle (bottle 5).
- Step 22. Remove the empty syringe from the last **green-cap** bottle and set the syringe aside.  
*You will not use it again.*
- Step 23. Upon completion of Step 22, the syringes, etc. may be discarded. The syringes are to be discarded per the section entitled "Syringe Disposal". The alcohol swabs, etc. can be disposed of in the trash.

## Recording the Microbiology Survey Results

- Step 24. The carton in which the Microbiology Survey APB and SRB bottles, syringes, etc. were originally shipped can be used as an incubator for the completion of the Microbiology Survey. After inoculating all the bacteria bottles, place the foam block containing the inoculated SRB and APB bottles back into the box, and close the lid. All other materials can then be discarded. The Microbiology Survey record found as a label on the lid of the box can be completed, for ease of reference.
- Step 25. Keep the bottles out of direct sunlight and at room temperature for one month (30 days).
- Step 26. Ten (10) days after inoculation, check the APB (**red-cap**) bottles for any color changes. If the liquid has changed from red to yellow, count that bottle as having changed (positive). Record the number of APB (**red-cap**) bottles, starting with Bottle 1, that have changed on the enclosed Microbiology Survey Reporting Form. After the ten (10) days, no further observations are needed for the APB (**red-cap**) bottles.

### **Recording the Microbiology Survey Results (continued)**

- Step 27. Twenty-eight (28) to thirty (30) days after inoculation, check the SRB (**green-cap**) bottles for any color changes. If the liquid has changed from clear to black, count that bottle as having changed (positive). Record the number of SRB (**green-cap**) bottles, starting with Bottle 1, that have changed on the enclosed Microbiology Survey Reporting Form. After the thirty (30) days, no further observations are needed for the SRB (**green-cap**) bottles.
- Step 28. After the results have been recorded on the Microbiology Survey Reporting Form, the APB and SRB bottles can be discarded in the trash. No special handling or disposal requirements are applicable for their disposal.

### **Syringe Disposal**

Needles and syringe barrels are to be destroyed and disposed in accordance with Federal and Local laws. At a minimum, the needles must be destroyed before discarding by cutting the tips off the needle or by bending back the needle tips. Syringes must be destroyed by breaking or shattering the barrel.

\_\_\_\_\_  
(Company)

\_\_\_\_\_  
(Location)

## MICROBIOLOGY SURVEY REPORTING FORM

Storage Field	Line Number	
Bell Hole Number	Well Number	Drip Name and Number
Township/District	County	State
Comments		
Sample Location		Sample Number
Sample Type <input type="checkbox"/> - Soil <input type="checkbox"/> - Scale <input type="checkbox"/> - Solids <input type="checkbox"/> - Sludge/Gunk <input type="checkbox"/> - Mud <input type="checkbox"/> - Slime <input type="checkbox"/> - MIC <input type="checkbox"/> - Pipeline Dust <input type="checkbox"/> - Other _____		
Comments		
Sample Collection Date	Sample Collection Time <input type="checkbox"/> - AM <input type="checkbox"/> - PM	Sampler
SAMPLE DESCRIPTION Color _____ Odor _____ Texture _____		
pH MEASUREMENT pH _____	WEATHER CONDITIONS Air Temperature _____ Conditions _____	
<b>MICROBIOLOGY SURVEY RESULTS</b>		
Positive Culture Bottles Bottle Number (Red Cap) Number of Days	APBs	_____ Bacteria Colonies/ml
	○ (1)    ○ (2)    ○ (3)    ○ (4)    ○ (5) _____ ⊗ Record color change from red to yellow after 10 days	
Positive Culture Bottles Bottle Number (Green Cap) Number of Days	SRBs	_____ Bacteria Colonies/ml
	○ (1)    ○ (2)    ○ (3)    ○ (4)    ○ (5) _____ ⊗ Record color change from clear to black after 28-30 days	
TESTED BY	DATE	
COMMENTS		

# MICROBIOLOGY SURVEY

## INTERPRETATION OF RESULTS

### 1. POSITIVE RESULTS ARE AS FOLLOWS:

<u>BACTERIA</u>	<u>MEDIA</u>	<u>POSITIVE</u>
APBs	Red	Media turns yellow
SRBs	Clear With Nail	Media turns dark gray to black

2. The number of bottles that show positive results in the interval time (10 days APBs and 28 to 30 days SRBs) can be used to calculate the bacteria level in the original sample by the following table:

<u>NUMBER OF POSITIVE BOTTLES</u>	<u>BACTERIA COLONIES/ML</u>	<u>REPORTING VALUE</u>
0	<1 - 10	<10
1	1 - 10	10
2	10 - 100	100
3	100 - 1,000	1,000
4	1,000 - 10,000	10,000
5	≥10,000 - 100,000	100,000

3. When a sample has elevated H<sub>2</sub>S levels, the sulfate reducer (SRBs) nutrient bottle no. 1 will often turn “positive” (black) within 15 - 60 seconds of inoculation. This occurrence should be considered “no growth”, if only this bottle is positive after 28 days. If SRB bottle no. 2 turns black immediately, a new sample should be obtained and the H<sub>2</sub>S purged from the sample before inoculation. If SRB bottle no. 2 turns black hours or days after inoculation, the bottle should be marked “positive” and the results recorded, per the table in Item 2.