



Test Kit for Aerobic and Anaerobic Bacteria

Part No. #180-50

Instruction Manual

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Ver. 3

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Intro

Casing, production, and drillstring tubulars have been known to suffer severe corrosion as the result of bacterial action. Microorganisms contribute to corrosion in different ways. Some act as cathodic depolarizers, while others form slimes or growths that shield a portion of the metal, scale, and oxygen concentration cell. Generally, microorganisms affecting corrosion are classified according to oxygen requirements. Aerobic refers to a presence of oxygen. Anaerobic refers to an absence of oxygen or low oxygen.

In aerobic environments, the species *thiobacillus* accounts for most of the corrosion. This species converts sulfur to sulfuric acid, which stimulates attack. Sulfate-reducing bacteria are found in anaerobic environments. This mechanism involves both the direct attack of iron by hydrogen sulfide and cathodic depolarization. Even in aerated fluids, sulfate-reducing bacteria may be found within active corrosion pit areas where the oxygen content becomes low.

Microbiological testing using an extinction-dilution technique may be used in the Field Mud Laboratory to identify and count the number of organisms present. Bacterial testing vials are available for both aerobic (Phenol Red) and anaerobic (Modified Postgate B) testing.

Components

#153-61	Disposable Syringe, Qty: 5
#180-36	Phenol Red Vial, 10 cc, Qty: 5
#180-38	Modified Postgate B Vial, Qty: 5

Procedure

1. Tape five vials together in a row.

For testing aerobic bacteria, use the Phenol Red vials (#180-36). For testing anaerobic bacteria, use the Modified Postgate B vials (#180-38).

2. Number the vials 1 through 5 and label them with the sampling point, date, and location.
3. Remove the metal tab from the top of each vial without removing the metal seal from the stopper.
4. Using a disposable syringe, inoculate the first serum vial with 1 mL of sample water (or filtrate) and shake it thoroughly. Discard the syringe.
5. With a new syringe, withdraw 1 mL from the first vial and inject it into the second vial. Shake it thoroughly. Discard the syringe.
6. Repeat step 5 until all vials have been inoculated.
7. Incubate the vials at 37°C (98°F) or within 5°C (25°F) of system temperature and observe daily for growth. API RP 38 recommends a 28-day incubation period for anaerobic vials and minimum 5-day period for aerobic vials.

Results

1. Positive results:
 - API or postgate media “B” sulfate-reducer vials: Black material forms in bottles
 - Phenol red vials: Media turns yellow
2. Use the table below to calculate the bacteria level in each vial.
3. When sampling a system with H₂S present, vial #1 will often turn positive (black) within 15 – 60 seconds of inoculation. If no other vials turn positive after 28 days, this should be considered no growth. If vial #2 turns black immediately, obtain a new sample and purge the H₂S with Nitrogen.

Vial Number	Dilution Factor	Growth Interpretation
1	0	1 per mL
2	1:10	10 per mL
3	1:100	100 per mL
4	1:1,000	1,000 per mL
5	1:10,000	10,000 per mL
6	1:100,000	100,000 per mL
7	1:1,000,000	1,000,000 per mL

Warranty and Return Policy

Warranty:

OFI Testing Equipment, Inc. (OFITE) warrants that the products shall be free from liens and defects in title, and shall conform in all respects to the terms of the sales order and the specifications applicable to the products. All products shall be furnished subject to OFITE's standard manufacturing variations and practices. Unless the warranty period is otherwise extended in writing, the following warranty shall apply: if, at any time prior to twelve (12) months from the date of invoice, the products, or any part thereof, do not conform to these warranties or to the specifications applicable thereto, and OFITE is so notified in writing upon discovery, OFITE shall promptly repair or replace the defective products. Notwithstanding the foregoing, OFITE's warranty obligations shall not extend to any use by the buyer of the products in conditions more severe than OFITE's recommendations, nor to any defects which were visually observable by the buyer but which are not promptly brought to OFITE's attention.

In the event that the buyer has purchased installation and commissioning services on applicable products, the above warranty shall extend for an additional period of twelve (12) months from the date of the original warranty expiration for such products.

In the event that OFITE is requested to provide customized research and development for the buyer, OFITE shall use its best efforts but makes no guarantees to the buyer that any products will be provided.

OFITE makes no other warranties or guarantees to the buyer, either express or implied, and the warranties provided in this clause shall be exclusive of any other warranties including ANY IMPLIED OR STATUTORY WARRANTIES OF FITNESS FOR PURPOSE, MERCHANTABILITY, AND OTHER STATUTORY REMEDIES WHICH ARE WAIVED.

This limited warranty does not cover any losses or damages that occur as a result of:

- Improper installation or maintenance of the products
- Misuse
- Neglect
- Adjustment by non-authorized sources
- Improper environment
- Excessive or inadequate heating or air conditioning or electrical power failures, surges, or other irregularities
- Equipment, products, or material not manufactured by OFITE
- Firmware or hardware that have been modified or altered by a third party
- Consumable parts (bearings, accessories, etc.)

Returns and Repairs:

Items being returned must be carefully packaged to prevent damage in shipment and insured against possible damage or loss. OFITE will not be responsible for equipment damaged due to insufficient packaging.

Any non-defective items returned to OFITE within ninety (90) days of invoice are subject to a 15% restocking fee. Items returned must be received by OFITE in original condition for it to be accepted. Reagents and special order items will not be accepted for return or refund.

OFITE employs experienced personnel to service and repair equipment manufactured by us, as well as other companies. To help expedite the repair process, please include a repair form with all equipment sent to OFITE for repair. Be sure to include your name, company name, phone number, email address, detailed description of work to be done, purchase order number, and a shipping address for returning the equipment. All repairs performed as "repair as needed" are subject to the ninety (90) day limited warranty. All "Certified Repairs" are subject to the twelve (12) month limited warranty.

Returns and potential warranty repairs require a Return Material Authorization (RMA) number. An RMA form is available from your sales or service representative.

Please ship all equipment (with the RMA number for returns or warranty repairs) to the following address:

OFI Testing Equipment, Inc.
Attn: Repair Department
11302 Steeplecrest Dr.
Houston, TX 77065
USA

OFITE also offers competitive service contracts for repairing and/or maintaining your lab equipment, including equipment from other manufacturers. For more information about our technical support and repair services, please contact techservice@ofite.com.