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PHPA Polymer Concentration Kit

Part No. #290-00

Instruction Manual

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Ver. 2.0

OFI Testing Equipment, Inc.

11302 Steeplecrest Dr. · Houston, Texas · 77065 · U.S.A.

Tele: 832.320.7300 · Fax: 713.880.9886 · www.ofite.com

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Intro

The Polyacrylamide (PHPA) polymer used for drill solids encapsulation for the oil and gas industry has a high molecular weight (long chain) and is anionic (negative) in charge. To obtain the concentration of Polyacrylamide in the fluid one must first precipitate the Acrylamide molecule as a complex tin. Once the Acrylamide molecule is precipitated, a centrifuge is used to compress the precipitate into a measurable mass which is then converted into oilfield units, lb/bbl, kg/m³, etc.

Components

#153-16	Graduated Cylinder, 20 mL × .2 mL, Glass
#153-19	Centrifuge Tube, 15 mL, PYREX® 8080
#153-25-15	Centrifuge, Portable, 2 Place, 2 - 15 mL Shields, 115 Volt
#153-34	Pipette, 1 mL × .01 mL, Glass
#153-36	Pipette, 2 mL × .01 mL, Glass
#153-38	Pipette, 5 mL × .1 mL, Glass
#153-41	Pipette Safety Bulb
#153-51-4	Beaker, 100 mL, Glass
#168-04	Stirring Rod, 6", Glass
#260-08	Sodium Hydroxide, 0.2 N, 8 oz (250 mL)
#275-06	Hydrochloric Acid, 0.2 N, 8 oz (250 mL)
#290-02	Cresol Red Indicator Solution, 2 oz (60 mL)
#290-04	*Stannic Chloride, 10% Solution, 16 oz (500 mL) UN3264

Procedure



1. Pour 10 mL of filtrate into a 100 mL glass beaker.
2. Add 4 drops of Cresol Red Indicator solution. The solution should turn purple.

Due to the potential harmful effects of swallowing chemicals, we recommend that a Pipette Safety Bulb be used with any pipette to withdraw reagents from the bottle.

3. Titrate carefully with 0.2N Hydrochloric acid, one drop at a time while gently swirling the 100 mL glass beaker. The end point is reached when the solution turns from a red to a yellow color. If you overshoot the end point, back titrate with 0.2N Sodium Hydroxide.
4. Using the 5.0 mL pipette and safety bulb, add 2.0 mL of Stannic Chloride Depolymerizer and an additional 0.5 mL for every estimated 0.5 lb/bbl of polymer in the drilling fluid. Swirl the solution by rotating the 100 mL beaker with a rapid clockwise motion for approximately 3 to 5 minutes. This swirling motion allows the 100 mL glass beaker to form a colloidal web or “mopping up effect”.
5. Pour the precipitate and the fluid from the 100 mL beaker into the 15 mL centrifuge tube. Use the glass stirring rod as a guide and dislodge any residual precipitate that might adhere to the beaker walls. Fill the opposing centrifuge tube with water or another sample as a counterbalance during high speed rotation of the centrifuge.



It is recommended the operator wear safety glasses and stand at a safe distance during the start up and operation of the centrifuge. Allow sufficient space for the tubes to swing out and remove any objects from the perimeter of the centrifuge. Stay clear of the centrifuge during operation, but do not leave it unattended while in motion.

6. Allow the centrifuge to run for approximately ten minutes. It is essential to operate the centrifuge the same amount of time during each test for optimal consistency.
7. After the time period is up, wait for the centrifuge to come to a complete stop. Remove the tube containing the precipitate and report the precipitate amount in mL. The glass stirring rod may be used to level off and press down the precipitate for a more accurate reading.
8. The volume of precipitation in mL is equivalent to the polymer concentration in lb/bbl. For example, 0.5 mL precipitation is equal to 0.5 lb/bbl or 1.43 kg/m³.

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.