



Dependable Products From People You Trust

<http://www.ofite.com>

INSTRUCTIONS
ZINC (Zn) in BRINES DETERMINATION KIT
Ofite Part No. 145-66



COMPONENTS:

- | | |
|------------------|--|
| #144-90-05 | Dropper Pipette, Polyethylene, 2 ml |
| #153-34 | Pipette, glass, 1 ml x 1/100 ml |
| #153-38 | Pipette, glass, 5 ml x 1/10 ml |
| #153-40 | Pipette, glass, 10 ml x 1/10 ml |
| #153-50-1 | Erlenmeyer Flask, 125 ml (2 supplied) |
| #153-51-3 | Beaker, glass, 50 ml |
| Reagents: | |
| #205-02 | Hardness Indicator Sol'n., (Calmagite®), 2 oz (60 ml) |
| #205-04 | *Hardness Buffer Sol'n., (Ammonium), 2 oz (60 ml) UN2672 |
| #205-17-3 | Titration Sol'n., (EDTA), 4000 mg/L Ca ⁺² , 16 oz (500 ml) |
| #206-02 | Deionized Water, 16 oz (500 ml) |
| #262-00 | Sodium Sulfide, 10% Sol'n., 8 oz (250 ml) |
| #270-01 | *Nitric Acid, 1 N, 8 oz (250 ml) UN2031 |
| Optional: | |
| #115-00 | Mud Balance, OFITE, 4-scale, metal, with carrying case |
| #153-52 | Hydrometer Kit, range 0.700 to 2.00 specific gravity, with carrying case |

Procedure:

1. The density or specific gravity of the undiluted brine as sampled is required in order to calculate the results of this test. The brine density may be measured on a Mud Balance or by using a suitable Hydrometer to obtain the fluid density in grams per cubic centimeters, gm/cc. This equipment is not included in the kit and may be purchased as separate items if necessary.
2. The original brine sample must be first diluted to a 1:5 mixture with deionized water. Dispense 10 ml of deionized water into the 50 ml beaker and then use the 5 ml pipette to add 5.0 ml of the brine sample. Mix well and then flush the pipette 2 or 3 times with the solution in the flask to reduce any residual brine left in the pipette. Carefully add deionized water to the 25 ml line on the beaker and mix thoroughly. The diluted brine sample is now ready to test.
3. Use a 1 ml pipette to transfer 1.0 ml of the diluted brine (step 2) to each of the two 125 ml Erlenmeyer Flasks. Mark the Flasks *A* and *B*.
4. Add 20 ml of deionized water to each of the 125 ml flasks.
5. Add 6 drops of 1 N Nitric Acid to flask *A* only using the polyethylene dropper pipette. With a clean 5 ml pipette add 4.0 ml of Sodium Sulfide solution to the flask (*A*) and mix well. If Zinc is present a white precipitate will form.
6. Add 1 ml of Hardness Buffer solution of each flask.
7. 5 to 10 drops of Hardness Indicator solution to each flask and mix well. A red color will develop.
8. Fill the 10 ml pipette with Titration solution, (EDTA), 4000 mg/L Ca⁺² and titrate both flasks to the blue color end point. Record the respective pipette readings for both flask *A* and flask *B* at the blue end point color.

Calculations:

$$\text{ZINC, \%} = \frac{3.26 \times B - \text{Reading, ml}}{\text{Brine Density, gm / cc}}$$

$$\text{CALCIUM, \%} = \frac{2.0 \times A - \text{Reading, ml}}{\text{Brine Density, gm / cc}}$$