AMT RAPID CHEM Zn

AMT-I-C-003

ZINC TEST

0.01-10.0 mg/L Zn

PRINCIPLE OF METHOD

Read the supplied MSDS before running this test. Additional copies of MSDS can be obtained by contacting AMT Customer Service.

For the examination of water and waste water. Digestion is required for a total zinc analysis.

For total zinc determinations, the sample must be digested with heat and acid to make sure all forms of metal are measured. While these steps are optional and used for a total zinc determination the procedure below can be used and is a USEPA method for mild digestion. Other methods can be used but are not outlined in this manual. Please refer to the proper water analysis guide for additional procedures or contact AMT support.

PROCEDURE

This method can be used with HACH DR Series Photometers and the AMT-I-C-003-M. Contact AMT ordering Information.

IMPORTANT CONSIDERATIONS

Review the Material Safety Data Sheet (MSDA/SDS) for all chemical that are used. Use recommended personal protective equipment (PPE)

Reacted samples contain potassium cyanide and **MUST** be disposed of as a hazardous waste. Dispose of reacted solutions according to local, state and federal regulations. Refer to the Safety Data Sheet for disposal information of unused reagents. Refer to the environmental, health and safety staff for your facility and/or local regulatory agencies for further disposal information.

ITEMS SUPPLIED

Test ampoules
Safety cap

ITEMS REQUIRED BUT NOT SUPPLIED

Sample collection device (glass or plastic bottle that has been cleaned with 1:1 hypochloric acid and rinsed with deionized water)
20-50ml Sample cup (glass or plastic wide mouth jar that has been cleaned with 1:1 hypochloric acid and rinsed with deionized water)

SAMPLE COLLECTION

Collect sample in a clean glass or plastic bottle that has been cleaned with 1:1 hypochloric acid and rinsed with deionized water.
(optional) To preserve samples for later analysis, adjust the sample pH to less than 2 with concentrated nitric acid (about 2ml per liter). Note: no adjustment is necessary of the sample is to be analyzed immediately.
Preserved samples can be kept at room temperature for up to 6 months.
For best results samples should be adjusted to a pH of 4-5 with 5.0N sodium hydroxide prior to analysis. Note: DO NOT exceed a pH of 5 as zinc can precipitate.
If sample pH is adjusted correct the test result for the addition of any solution.
If sample is diluted correct the test result for the dilution factor.

TEST PROCEDURE

1. Collect sample, adjust the PH to 7,
2. Place 15-20ml of sample in 25ml container,
3. Place ampoule in container with the tip against the side,
4. push the ampoule tip against the side of the container until it breaks. The ampoule will auto fill. Keep the ampoule tip in the sample until filled,
5. Remove ampoule from sample and invert several times to dissolve the powder reagent,
6. Vigorously shake the sample for 30 seconds. The sample will show reddish orange, brown or blue depending on the zinc content in the sample,
7. Set sample down and wait 3 minutes,
8. Compare results to chart.

TOTAL ZINC DIGESTION

1) Concentrated nitric acid is added to the sample using a clean glass serological pipet and pipet filter:
a. For preserved samples: add 3ml of nitric acid to 1L of the sample.
b. Non-preserved samples: add 5ml of nitric acid to 1L of sample.
2) Place 100ml of the acid treated sample to a 250ml Erlenmeyer flask.
3) Add 5ml of a 1:1 solution of hydrochloric acid.
4) Place the sample on a hot plate at 203 degrees F or 95 degrees C only 15-20ml of the sample remains. Ensure the sample does not boil.
5) Place the sample through a 0.45um filter to remove any insoluble material.
6) Adjust the digested sample to a pH of 4-5 with 5.0N sodium hydroxide. Do not exceed a pH of 5.0 as zinc can precipitate.
7) Quantitatively transfer the sample to a 100ml volumetric flask and dilute to the mark with deionized water.
8) Run sample using the procedure on pages1.

ACCURACY CHECK

To validate the method or to find out if there are any interferences in the sample the following procedure can be used.

You will need to order a Zinc QC solution set from AMT. Please call AMT customer service at 410-737-9888. Third party standard solutions can be used. If QC sets are ordered from other suppliers order the following levels: 0.5ppm, 1ppm, 2ppm, 3ppm,4ppm, 10ppm. O ppm is checked with DI water.

QC test each standard using AMT-I-C-003 ampoules according to the procedure contained in these directions insure accuracy.

PRECAUTIONS

For Laboratory and field use by trained professionals.
The RAPID CHEM is a glass ampoule with a sharp tip when activated. **USE EXTREEM CAUTION** when breaking the tip. Always carefully apply the provided safety cap.
Dispose of broken unused ampoules in a broken glass receptacle.
Dispose of used ampoules in an appropriate sharps container or sealed puncture resistant receptacle
Keep away from children
Not for use as a diagnostic tool on humans or animals.

STORAGE

Store the ampoules out of direct sunlight at 30'C or below.

EXPIRATION DATE

Shelf life in unbroken container stored properly is up to 4 years.
The expiry date applies to media stored at or below 30'C out of direct sunlight.

INTERFERENCES

1. Aluminum: More than 6 mg/L
2. Nickel: More than 5 mg/L
3. Cadium: More than 0.5 mg/L
4. Organic material: Large amounts may interfere.
5. Copper: More than 5 mg/L
6. Highly buffered samples or extreme pH values
7. Iron (ferric): More than 7 mg/L
8. Amino-tri(methylene phosphonic acid) (AMP)
9. Manganese: More than 5 mg/L Set the flask under the distillation apparatus drip tube. Elevate the flask so that the end of the tube is immersed in the solution.

REACTION CHART

(VIEWING FROM THE BOTTOM)

Contact Us

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