

Supelco®

1.14780.0001  
1.14780.0007MQuant®  
Zinc Test

Zn

## 1. Method

## Determination with color-disk comparator

In sulfuric solution zinc ions react with thiocyanate ions and brilliant green to form a blue-green complex. The zinc concentration is measured **semi-quantitatively** by visual comparison of the color of the measurement solution with the color fields of a color disk.

## 2. Measuring range and number of determinations

| Measuring range / color-scale graduation              | Number of determinations |
|---|--------------------------|
| 0.1 - 0.2 - 0.3 - 0.4 - 0.5 - 0.7 - 1 - 2 - 5 mg/l Zn | 120                      |

## 3. Applications

This test measures only zinc ions.

## Sample material:

Groundwater and surface water  
Drinking water and mineral water  
Beverages  
Industrial water  
Boiler water  
Wastewater and percolating water  
Electroplating wastewater  
This test is **not suited** for seawater.

## 4. Influence of foreign substances

This was checked individually in solutions containing 1 and 0 mg/l Zn. The determination is not yet interfered with up to the concentrations of foreign substances given in the table. Cumulative effects were not checked; such effects can, however, not be excluded.

| Concentrations of foreign substances in mg/l or % |      |                              |      |                                 |       |
|---|------|------------------------------|------|---------------------------------|-------|
| Al <sup>3+</sup>                                  | 1000 | Cu <sup>2+</sup>             | 100  | Ni <sup>2+</sup>                | 100   |
| Ca <sup>2+</sup>                                  | 1000 | F <sup>-</sup>               | 1000 | NO <sub>2</sub> <sup>-</sup>    | 1000  |
| Cd <sup>2+</sup>                                  | 1000 | Fe <sup>3+</sup>             | 100  | Pb <sup>2+</sup>                | 100   |
| CN <sup>-</sup>                                   | 1000 | Hg <sup>2+</sup>             | 1000 | PO <sub>4</sub> <sup>3-</sup>   | 1000  |
| CO <sub>3</sub> <sup>2-</sup>                     | 1000 | Mg <sup>2+</sup>             | 1000 | SCN <sup>-</sup>                | 1000  |
| Cr <sup>3+</sup>                                  | 500  | Mn <sup>2+</sup>             | 1000 | SiO <sub>3</sub> <sup>2-</sup>  | 100   |
| Cr <sub>2</sub> O <sub>7</sub> <sup>2-</sup>      | 100  | NH <sub>4</sub> <sup>+</sup> | 1000 | SO <sub>3</sub> <sup>2-</sup>   | 1000  |
|   |      |                              |      | EDTA                            | 0 %   |
|   |      |                              |      | Na-acetate                      | 1000  |
|   |      |                              |      | NaCl                            | 1 %   |
|   |      |                              |      | NaNO <sub>3</sub>               | 0.5 % |
|   |      |                              |      | Na <sub>2</sub> SO <sub>4</sub> | 1 %   |

## 5. Reagents and auxiliaries

## Please note the warnings on the packaging materials!

The test reagents are stable up to the date stated on the pack when stored closed at +15 to +25 °C.

## Package contents:

1 bottle of reagent Zn-1  
1 bottle of reagent Zn-2  
1 bottle of reagent Zn-3  
1 bottle of reagent Zn-4  
1 graduated 5-ml plastic syringe  
1 grey dosing spoon  
2 test tubes with screw caps  
1 color-disk comparator

## Other reagents and accessories:

Nitric acid 65 % for analysis EMSURE®, Cat. No. 100456  
MQuant® Universal indicator strips pH 0 - 14, Cat. No. 109535  
Sodium hydroxide solution 1 mol/l Titripur®, Cat. No. 109137  
Sulfuric acid 0.5 mol/l Titripur®, Cat. No. 109072  
Zinc standard solution Certipur®, 1000 mg/l Zn, Cat. No. 119806

MQuant® Flat-bottomed tubes with screw caps for MQuant® tests with color disk comparator (12 pcs), Cat. No. 117988

## Refill pack:

## Cat. No. 114782

Zinc Test

Refill pack for 114780 and 114412

(Reagents **without technical accessories** for the number of determinations stated in section 2)

## 6. Preparation

- Analyze immediately after sampling. Otherwise preserve with nitric acid 65 % (1 ml nitric acid per 1 l of sample solution).
- The pH must be within the range 1 - 10.**  
Adjust, if necessary, with sodium hydroxide solution or sulfuric acid.
- Filter strongly turbid samples.

## 7. Procedure

|   | Measurement sample<br>right-hand tube (A)<br>behind the color disk | Blank<br>left-hand tube (B)<br>behind the color disk |   |
|---|--|--|---|
| Pretreated sample<br>(20 - 25 °C)   | 5 ml   | 5 ml   | Inject into the test tube with the syringe.   |
| Reagent Zn-1  | 4 drops <sup>1)</sup>  | -  | Add, close the tube, and mix.<br><b>The pH must be within the range 0.9 - 1.0.</b><br>Adjust the pH, if necessary, with reagent Zn-1. |
| Reagent Zn-2  | 1 level grey dosing spoon  | -  | Add, close the tube, and shake <b>vigorously until the reagent is completely dissolved.</b>   |
| Reagent Zn-3  | 1 level grey microspoon (in the cap of the Zn-3 bottle)            | -  | Add, close the tube, and shake <b>vigorously until the reagent is completely dissolved.</b>   |
| <b>Leave to stand for exactly 5 min (reaction time).</b>  |  |  |   |
| Reagent Zn-4  | 4 drops <sup>1)</sup>  | -  | Add, close the tube, and mix.   |
| <b>Immediately</b> hold the comparator to the light, keeping it upright, and rotate the disk until the closest possible color match is achieved between the two large windows.<br>Read off the result in mg/l Zn shown in the small window. |  |  |   |

<sup>1)</sup> Hold the bottle vertically while adding the reagent!

## Notes on the measurement:

- The color of the measurement solution remains stable for only a short time.**
  - Turbidity in the measurement solution makes the color comparison more difficult.
  - If the color of the measurement solution is equal to or more intense than the darkest color on the scale, repeat the measurement using **fresh**, diluted samples until a value of less than 5 mg/l Zn is obtained.
- Concerning the result of the analysis, the dilution (see also section 6) must be taken into account:

$$\text{Result of analysis} = \text{measurement value} \times \text{dilution factor}$$

## 8. Method control

To check test reagents, measurement device, and handling:  
Dilute the zinc standard solution with distilled water to 0.5 mg/l Zn and analyze as described in section 7.

Additional notes see under **www.qa-test-kits.com**.

## 9. Notes

- Reclose the reagent bottles immediately after use.
- Rinse the test tubes and the syringe **with distilled water only**.
- Information on disposal can be obtained at [www.disposal-test-kits.com](http://www.disposal-test-kits.com).**

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