

1.17927.0001

# MQuant™ Arsenic Test

As

## 1. Method

When zinc powder, a solid acid, and - for the **elimination of interfering sulfide ions** - an oxidizing agent are added to compounds of arsenic(III) and arsenic(V), arsenic hydride is liberated, which in turn reacts with mercury(II) bromide contained in the reaction zone of the test strip to form yellow-brown mixed arsenic-mercury halogenides. The concentration of arsenic(III) and arsenic(V) are measured **semiquantitatively** by visual comparison of the reaction zone of the test strip with the fields of a color scale.

## 2. Measuring range and number of determinations

| Measuring range / color-scale graduation                  | Number of determinations |
|---|--------------------------|
| 0.005 - 0.010 - 0.025 - 0.05 - 0.10 - 0.25 - 0.50 mg/l As | 100                      |

## 3. Applications

This test measures trivalent and pentavalent arsenic.

### Sample material:

Drinking water and mineral water  
Spring water and well water  
Groundwater and surface water

## 4. Influence of foreign substances

This was checked in solutions with 0.1 and 0 mg/l As. The determination is not yet interfered with up to the concentrations of foreign substances given in the table.

| Concentrations of foreign substances in mg/l or % |      |                                    |                  |
|---|------|------------------------------------|------------------|
| Ag <sup>+</sup>                                   | 0.5  | Mg <sup>2+</sup>                   | 1000             |
| Al <sup>3+</sup>                                  | 100  | MnO <sub>4</sub> <sup>-</sup>      | 500              |
| Ca <sup>2+</sup>                                  | 1000 | Na <sup>+</sup>                    | 1000             |
| Cl <sup>-</sup>                                   | 1000 | Ni <sup>2+</sup>                   | 1                |
| CN <sup>-</sup>                                   | 500  | NO <sub>2</sub> <sup>-</sup>       | 100              |
| CO <sub>3</sub> <sup>2-</sup>                     | 100  | NO <sub>3</sub> <sup>-</sup>       | 100              |
| CrO <sub>4</sub> <sup>2-</sup>                    | 250  | PO <sub>4</sub> <sup>3-</sup>      | 100              |
| Cu <sup>2+</sup>                                  | 0.5  | S <sup>2-</sup>                    | 2                |
| F <sup>-</sup>                                    | 100  | Sb <sup>3+</sup>                   | 1                |
| Fe <sup>2+</sup>                                  | 500  | SeO <sub>3</sub> <sup>2-</sup>     | 1                |
| Fe <sup>3+</sup>                                  | 500  | SO <sub>3</sub> <sup>2-</sup>      | 2                |
| K <sup>+</sup>                                    | 1000 | SO <sub>4</sub> <sup>2-</sup>      | 1000             |
|   |      | EDTA                               | 1000             |
|   |      | Free chlorine (hypochlorite)       | 250              |
|   |      | Polyethylene glycol                | 10 <sup>1)</sup> |
|   |      | Anionic surfactants <sup>2)</sup>  | 1                |
|   |      | Cationic surfactants <sup>3)</sup> | 0.1              |
|   |      | Nonionic surfactants <sup>4)</sup> | 0.05             |
|   |      | NaCl                               | 20 %             |

<sup>1)</sup> In case of higher concentrations, eliminate polyethylene glycol acc. to the application (see the website).

<sup>2)</sup> tested with Marlon® A 375

<sup>3)</sup> tested with N-cetyl-N,N,N-trimethylammonium bromide

<sup>4)</sup> tested with Triton® X-100

## 5. Reagents and auxiliaries

### Please note the warnings on the packaging materials!

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

### Package contents:

Tube containing 100 test strips  
1 bottle of reagent As-1  
1 bottle of reagent As-2  
1 bottle of reagent As-3  
1 red dosing spoon  
1 green dosing spoon  
2 reaction bottles with screw caps

### Other reagents:

Arsenic standard Titrisol® for 1000 mg/l As, Cat. No. 109939

## 6. Preparation

Samples containing more than 0.50 mg/l As must be diluted with distilled water. Alternatively, it is also possible to use the Arsenic Test (visual test strips) Cat. No. 117917 (measuring range 0.02 - 3.0 mg/l As).

## 7. Procedure

|                   |                                   |  |
|-------------------|-----------------------------------|--|
| Pretreated sample | 60 ml                             | Fill the reaction bottle to the mark.                                      |
| Reagent As-1      | 2 drops <sup>1)</sup>             | Add and swirl.   |
| Reagent As-2      | 1 level <b>red</b> dosing spoon   | Add and swirl <b>until the reagent is completely dissolved</b> .           |
| Reagent As-3      | 1 level <b>green</b> dosing spoon | Add and <b>immediately</b> reclose the reaction bottle with the screw cap. |

Flip up the black test strip holder integrated in the screw cap, with the white dot facing you. **Immediately** insert the test strip into the opening, reaction zone first, as far as the mark and flip the test strip holder down completely.

**Leave to stand for 20 min**, swirling two or three times during this period. **Avoid any contact between the test strip and the solution!**

Remove the strip, briefly dip into distilled water, shake off excess liquid, and determine with which color field on the label the color of the reaction zone coincides most exactly. Read off the corresponding result in mg/l As.

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

### Notes on the measurement:

- The color of the reaction zone may continue to change after the specified reaction time has elapsed. This must not be considered in the measurement.
- If the color of the reaction zone 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 0.50 mg/l As 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 strips, test reagents, and handling:

Dilute the arsenic standard with distilled water to 0.10 mg/l As and analyze as described in section 7.

Additional notes see under [www.qa-test-kits.com](http://www.qa-test-kits.com).

## 9. Notes

- **Reclose** the reagent bottles and **the tube containing the test strips immediately after use**.
- Rinse the reaction bottles **with distilled water only**.

