

1.10077.0001

MQuant™ Lead Test

Pb

1. Method

In acidic solution lead(II) ions react with rhodizonic acid to form a red complex. The concentration of lead(II) is 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
20 - 40 - 100 - 200 - 500 mg/l Pb ²⁺	100

3. Applications

This test measures only lead(II) ions, but not complex-bound lead or organolead compounds. It is also suited for the detection of lead in metallic materials or in deposits on surfaces (see section 7.2).

Sample material:

Groundwater and surface water
Wastewater
Percolating water
Soils
Piping conduits and surface deposits (e.g. in exhaust pipes)

4. Influence of foreign substances

This was checked in solutions with 100 and 0 mg/l Pb²⁺. 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			
Ag ⁺	300	Cu ²⁺	100
Al ³⁺	1000	Fe ²⁺	300
Ba ²⁺	10	Fe ³⁺	100
Ca ²⁺	1000	K ⁺	1000
Cd ²⁺	1000	Mg ²⁺	1000
Cl ⁻	1000	Na ⁺	1000
CN ⁻	1000	NH ₄ ⁺	1000
Co ²⁺	1000	Ni ²⁺	1000
CrO ₄ ²⁻	1000	NO ₂ ⁻	1000
		NO ₃ ⁻	1000
		PO ₄ ³⁻	1000
		S ²⁻	10
		Sn ²⁺	300
		SO ₃ ²⁻	10
		SO ₄ ²⁻	1000
		S ₂ O ₃ ²⁻	1000
		Sr ²⁺	100
		Zn ²⁺	1000

5. Reagents and auxiliaries

The test strips and the test reagent 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 Pb-1
1 test vessel

Other reagents:

MColorpHast™ Universal indicator strips pH 0 - 14, Cat. No. 109535
Sodium hydroxide solution 1 mol/l TitriPUR®, Cat. No. 109137
Nitric acid Titrisol® for 1 mol/l, Cat. No. 109966
Lead standard Titrisol® for 1000 mg/l Pb²⁺, Cat. No. 109969

6. Preparation

Samples containing more than 500 mg/l Pb²⁺ must be diluted with distilled water.

7. Procedure

7.1 Determination in aqueous solutions

Rinse the test vessel several times with the pretreated sample.		
Pretreated sample (15 - 35 °C)	5 ml	Fill the test vessel to the 5-ml mark.
Check the pH with universal indicator strips. If the pH is in the range 2 - 5, proceed without adding reagent Pb-1. Otherwise proceed as follows:		
Reagent Pb-1	3 drops ¹⁾	Add and swirl.
Check the pH with universal indicator strips. If the pH is outside the range 2 - 5, the pH of a new sample must be adjusted to 2 - 5 with sodium hydroxide solution or nitric acid prior to the determination.		
Immerse the reaction zone of the test strip in the measurement sample for 1 sec.		
Shake off excess liquid from the strip and after 2 min 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 Pb ²⁺ .		

¹⁾ 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 500 mg/l Pb²⁺ is obtained.

Concerning the result of the analysis, the dilution (see also section 6) must be taken into account:

Result of analysis = measurement value x dilution factor

7.2 Determination on metallic surfaces

Depending on the accessibility of the surface in question, various procedures can be followed to detect the presence of lead.

In this connection every red coloration of the reaction zone indicates that lead is present. If the reaction zone is yellow or colorless, no lead is present.

Reagent Pb-1	1 drop	Place on the reaction zone of the test strip.
Immediately press the reaction zone lightly on the metallic surface to be tested - after removing any deposits (calcium), wherever necessary - for 2 min.		
Assess the color of the reaction zone.		
Repeat the test at various sites, if necessary.		

or

(the case of not easily accessible surfaces, e.g. in exhaust pipes)

Use e.g. a screwdriver to scrape off a small amount of the surface deposit and transfer to the test vessel.		
Reagent Pb-1	5 drops	Add, mix and allow to react for 1 min.
Bring the reaction zone of the test strip into contact with the measurement sample for 1 second.		
Shake off excess liquid from the strip and assess the color of the reaction zone after 1 min.		

8. Method control

To check test strips, test reagent, and handling: Dilute the lead standard with distilled water to 100 mg/l Pb²⁺ and analyze as described in section 7. Additional notes see under www.qa-test-kits.com.

9. Notes

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

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