

# Molybdenum low measuring range (1-10 mg/l Mo<sup>6+</sup>) with cuvette test LCK 330

## Applikation APP-PHM-0013

### General

This application describes the analysis of molybdenum measurements with the HACH LANGE LCK 330 cuvette test for low measuring range of 1–10 mg/L molybdenum on the DR 2800 / DR 3800 / DR 3900 / DR 5000 and DR6000 spectral photometers.

Due to the high requirements for the small measuring range, the measurement must be carried out with a reagent blank.

### Principle

Molybdate ions react with thioglycolic acid to form a yellow complex, which is photometrical assessed.

### Application area

Untreated water and groundwater, drinking water, boiler water and process analysis.

### Measuring range

1.0–10.0 mg/L Molybdenum as Mo<sup>6+</sup>

### Accessories

LCK 330 cuvette test

1.0–5.0 mL variable pipette (BBP 065)

Pipette tips for BBP 065 (BBP 068)

### Storage instructions

The test reagents can be stored at 2–8°C until the expiry date specified on the packaging.

### Interferences

The ions listed have been individually checked up to the given concentrations and do not cause interference. We have not determined cumulative effects and the influence of other ions.

The following ions do not interfere:

1000 mg/l:	Na <sup>+</sup> , K <sup>+</sup> , SO <sub>4</sub> <sup>2-</sup> , Ca <sup>2+</sup> , Mg <sup>2+</sup>
500 mg/l:	NO <sub>3</sub> <sup>-</sup>
80 mg/l:	Cl <sup>-</sup>
40 mg/l:	PO <sub>4</sub> <sup>3-</sup>
20 mg/l:	Fe <sup>2+</sup> , Mn <sup>2+</sup>
4 mg/l:	Fe <sup>3+</sup>
0,4 mg/l:	NO <sub>2</sub> <sup>-</sup> , Cu <sup>2+</sup>

The sample to be tested should be colourless and free of turbidity. Allowance can be made for slight colorations by means of a sample-specific blank (2.0 mL distilled water + 4.0 mL sample). If the colorations are caused by organic contaminants, these can be corrected by sample digestion with the LCW 902 Crack set, the result needs to be multiplied by 1.2.

Turbidities can be filtered with a membrane filter (LCW 904). The test results must be assured by a plausibility check (dilution and/or concentration of the water sample).

### pH value/temperature/time

The pH value of the sample must be between 4 and 9.

Temperature dependency: the specified parameters apply to a reaction temperature of 22°C.

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### Analytical quality assurance

The accuracy of analytical data in the water analysis is measured on the steps taken to assure results. Thus, the approval of test results requires confirmation that analytical quality assurance (AQA) is practiced. This is taken to mean, for example, the implementation of replicate determinations, the maintenance of quality control charts, plausibility checks by means of dilution

series and concentrations as well as the participation in round-robin tests. The analytical quality assurance can be rounded off with a comparative analysis of the cuvette test and standard procedures.

### Specifications

Procedure coefficient of variation: max. 5.0%

### Disposal

HACH LANGE GmbH collects the used cuvettes free of charge for proper disposal. Apply for the collection of the used reagents with your next order.

### Working Procedure

In the cuvette test, pipet:		
For the reagent blank:	distilled water	4.0 mL
For the sample cuvette:	sample	4.0 mL
Close cuvette and invert. Evaluate after 10 minutes.		

### Photometer with barcode reader (DR 2800 / DR 3800 / DR 3900 / DR 5000 / DR6000)

- Place cuvette for the reagent blank (with distilled water as sample) in the round cuvette holder.
- Close the lid (only DR 5000 / DR6000).
- Select test (measuring range 10 mg/L molybdenum start or start permanently).
- The blank is automatically measured.
- Place the sample cuvette (sample) in the round cuvette holder.
- Close the lid (only DR 5000 / DR 6000).
- The concentration is provided in mg/L Mo6+ per 4 mL sample.
- More sample cuvettes can be evaluated now.

### When using the DR 2800 / DR 3800 / DR 5000 / DR 3900 / DR600 for the first time:

Download the additional evaluation **Molybdenum APP-PHM-0013** as an application from the Internet.

- Go to **[www.hach-lange.com](http://www.hach-lange.com)** and select under **LCK330** and **Documents and Software** the application **Molybdenum** and save it on your PC.
- Open the zipped file with a double-click and save the folder used for your photometer to a USB stick:
- DR 2800 / DR 3800 dbhlc
- DR 5000 dbhl
- DR 3900 dbhlm
- DR 6000 dbhlh
- Take the USB stick and upload the application to your photometer.
- In the PDF file you will find the application note with detailed description

Refer to the photometer operating manual for details.

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