

Acidity - pH

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In nature, the concentration of carbonic acid in water is usually not in equilibrium with the carbon dioxide pressure in the air. In order to measure the actual pH of the sample, unaerated pH is measured, in an attempt to minimise disruption of the gas equilibrium. The analysis is made as soon as possible on a sample from a completely filled bottle dedicated to only pH determination. The analysis is automatic using a sample changer. The pH is measured with a combination electrode in a thermostated flow-through cell. The sample is handled without direct contact with the air.



Analysis equipment for pH measurement of water samples. Photo: Victor Sonesten.

Alternatively, aerated pH can also be measured at a carbonic acid content in equilibrium with the air, which is achieved by aerating the sample prior to the measurement. This analysis is performed at room temperature.

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Current method of measurement

Valid since September 2012

Method: Swedish Standard SS-EN ISO 10523:2012 (modified). The analysis is made at 25°C, calibration range 4-7.

Instruments: sample changer Metrohm 856 with built-in pH meter with combination electrode in a thermostated flow-through cell. The sample is transferred from the bottom of the sample to the flow-through cell using a peristaltic pump.

Previous methods

2009-09 – 2012-08

Method: Swedish Standard SS 02 81 22-2 (modified). The analysis is made at 25°C, calibration range 4-7.

Instruments: sample changer Metrohm 855 with built-in pH meter with combination electrode in a thermostated flow-through cell. The sample is transferred from the bottle to the cell using a peristaltic pump.

2002-01 – 2009-08

Method: Swedish Standard SS 02 81 22-2 (modified), The analysis is made at 25°C, calibration range 4-7.

Instruments: Radiometer PHM 210 pH meter with peristaltic pump, thermal bath and combination electrode in a flow battery.

1988-01 – 2001-12

Method: Swedish Standard SS 02 81 22-2 (modified), The analysis is made at 25°C, calibration range 4-7.

Instruments: Orion Research model 601 digital ion analyser or Radiometer PHM Precision pH Meter with Radiometer electrode

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1984-01 – 1987-12

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The analysis is made at 25°C, calibration range 6-8.

Instruments: Orion Research model 601 digital ion analyser. Radiometer electrode pair G 202C/K 401.

1975-01 – 1983-12

The analysis is made at room temperature, calibration range 6–8.
Instruments: Orion Research model 601 digital ion analyser.
Radiometer electrode pair G 202C/K 401.

1965-01 – 1974-12

The analysis is made at room temperature, calibration range 6–8.
Instruments: Radiometer pH meter PHM 26 (analogue).
Radiometer electrode pair G 202C/K 401.

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Links

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