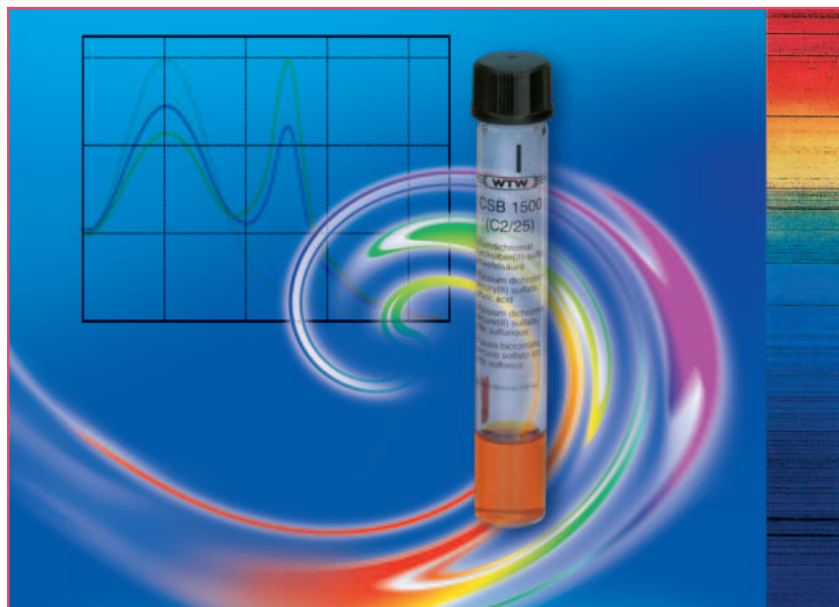


Photometry

Photometry



Photometric Methods

Photometry allows the concentrations of numerous parameters to be determined and is an important method for the measurement of wastewater and drinking water. Each specific test kit reacts with a particular substance to be measured. That reaction produces a specific color which is then analyzed.

The colored solution absorbs certain wavelengths contained in the white light spectrum. The photometric measurement normally takes place at the wavelength which is most influenced by the colored product. The photometer measures the intensity of the light at this wavelength before and after its passage through a cuvette containing the sample. The data stored in the computer are used to calculate the concentration.

Measuring Correctly

Precise measurements are only possible with test kits that are in the expected range of the sample to be measured. Choose the test kit that brackets your expected concentration range.

Portable and Accurate:

NEW

Photometry

The pHotoFlex and photoLab® series

With the pHotoFlex series, practical and universal portable photometers have now been added to our line of proven laboratory photometers. These portable photometers excel not only because of their ease of use and rugged field construction but also because of their advanced features!

In order to choose the appropriate instrument, the following should be considered:

Mobile measuring

With pHotoFlex and pHotoFlex Turb

For fast and accurate measurements in the field consider these features:

- low power consumption
- robust
- mobile
- precise

These requirements are met by a special optical system working with a combination of LED and filters. The robustness of the portable pHotoFlex instruments is due to the low warming and to the longer lifespan of the LEDs utilized. With two cuvette sizes, these photometers allow for all common tests and offer a wide measuring range.

Measuring in laboratory environment

With photoLab® S6/S12 and photoLab® Spektral

Highest demands are considered to be the basis for research, routine measurements and “calculation charges”. Therefore, the instruments have to offer:

- AQS/IQK
- accurate measuring
- wide measuring ranges
- comfort features, e.g. test and cuvette recognition

A complex optical system and a short warm up time guarantee constant measuring conditions. The constant power supply allows the use of bar-codes. The optical system and rectangular cuvettes up to 50 mm allow wide measuring ranges reaching up to trace elements analysis. The largely constant temperature in the lab allows extensive presettings for the methods, thereby providing a higher user comfort.

What are the common features of both series?

- Proven quality, adapted to the respective use
- Highest accuracy corresponding to the used optical system
- A large selection of cuvettes and outstanding instrument features for a simple use of the cuvettes.

Application Photometers

Application range	Portable Photometers		Laboratory Photometers		
	pHotoFlex	pHotoFlex Turb	photoLab® S6	photoLab® S12	photoLab® Spektral
Application areas	Environmental monitoring, water treatment, beverage industry, wine industry, process control, multi-parameter applications for photometry, pH and turbidity.		Routine measurements in wastewater and drinking water, optional field use	Routine measurements in wastewater and drinking water, comprehensive laboratory tests, optional field use	Routine measurements in wastewater and drinking water, professional instrument for comprehensive laboratory tasks in the VIS sector
Wavelengths	436, 517, 557, 594, 610, 690 nm	436, 517, 557, 594, 610, 690, 860 nm	6 wavelengths: 340, 445, 525, 550, 605, 690 nm	12 wavelengths: 340, 410, 445, 500, 525, 550, 565, 605, 620, 665, 690, 820 nm	330 nm – 850 nm stepless
Optical system	LED with filters		Filter/Reference beam	Filter/Reference beam	Zeiss spectrometer module
Special functions	pH measurement optional: LabStation for easy operation and laboratory evaluation with software and barcode reader support	pH measurement, Turbidity (IR)	AQS/IQK	AQS/IQK, Kinetics	AQS/IQK, Kinetics, Absorption spectrum; incl. PC software for easy data transfer
User-defined methods	100		No	50	100
Cuvettes	Round: 16 mm (height: 91 – 104 mm), 28 mm		Round 16 mm	Round and rectangular 10, 20, 50 mm	Round and rectangular 10, 20, 50 mm

Parameter

pH

ORP

ISE

Oxygen (D.O.)

Conductivity

Multi-parameter

BOD/Respiration

Photometers

Turbidity

Colony Counter

Software/Printers

The WTW photoLab® Photometer Series

Getting Results: simple, precise and quick

Simply insert cuvette: the concentration is displayed and stored. In WTW photometers, all necessary settings for the parameters to be determined are already stored as method data. Coded test kits makes the "AutoSelect" function possible. All method data in the photometer are available for download from the WTW home page (www.wtw.com) and can therefore be updated at any time using PC in combination with the AK Labor connection cable (optional accessory). A self-check is regularly performed at start up and during operation for continuously precise results.

Large Selection of Test Kits for Routine and specialized Tasks

Our ever expanding selection of test kits and the ability to automatically recognize either round or rectangular cuvette.

User-Defined Methods for simplified Determination of user-defined Parameters

WTW photometers can store user-defined method data to simplify your testing methods. This is either performed by direct entry into the photometer itself or – even easier – by using the optional Multi/ACHAT II software. Simply insert the cuvette, enter the method number and read the concentration value.

AQA/IQC

For important Analytical Quality Assurance (=AQA) or Internal Quality Control (=IQC) even more options are now available to ensure precise and reliable measuring results. Apart from regular checking of the photometer by means of the PhotoCheck function, measured values can also be regularly checked and be assured using standard solutions, CombiChecks and PipeCheck. This inspection can be programmed with defined intervals. The AQA task is documented together with the measured result and appears on the printout.

Automatic self-check

AutoSelect

Automatic cuvette identification



Which instrument for which Task?

Photometry

photoLab® S6

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Routine instrument with 6 wavelengths for all common routine determinations with reaction cuvettes, in particular for wastewater and drinking water; also available as a version equipped with rechargeable battery.

photoLab® S12

page 85

All-round instrument with 12 wavelengths for all offered test kits in round and rectangular cuvettes for wide measuring ranges. In addition, 50 user-defined methods and Kinetic measurements are possible; also available as a version equipped with rechargeable battery.

photoLab® Spektral

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High quality. Variable spectral photometer equipped with Zeiss optics for all routine and specialized tasks in the VIS sector: all available test kits for round and rectangular cuvettes, Kinetics measurements, recording of absorption spectrums as well as 100 user-defined methods with selectable wavelength from 330-850 nm.

Thermoreactors for Digestions:

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CR 2200

5 programs and 3 digestion temperatures for 12 reaction cuvettes

CR 3200

5 fixed plus 8 user-defined programs and variable temperature up to 338 °F (170 °C) for 24 reaction cuvettes

CR 4200

5 fixed plus 8 user-defined program and variable temperature up to 338 °F (170 °C) for 2 simultaneous programs with 2 x 12 reaction cuvettes

Reagents

all available tests from Al for aluminum to Zn for zinc

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CombiCheck and Standard Solutions

Everything required for AQA/IQC

General Notes on Reagents

interesting facts from shelf life to disposal

Reagent-free Tests

from color to turbidity

- High-quality optics
- Bar Code Test Identification
- Expanded AQA/IQC functions



photoLab® Application

	photoLab® S6	photoLab® S12	photoLab® Spektral
Application areas	Routine measurements in wastewater and drinking water, Optional field use	Routine measurements in wastewater and drinking water, Comprehensive laboratory tests, Optional field use	Routine measurements in wastewater and drinking water, Professional instrument for comprehensive laboratory tasks in the VIS sector
Wavelengths	6 wavelengths: 340, 445, 525, 550, 605, 690 nm	12 wavelengths: 340, 410, 445, 500, 525, 550, 565, 605, 620, 665, 690, 820 nm	330 nm - 850 nm stepless
Optical system	Filter/Reference beam	Filter/Reference beam	Zeiss Spectrometer module
Special functions		Kinetics	Kinetics Absorption spectrums
Own methods	No	50	100
Cuvettes	Round 16 mm	Round and rectangular 10, 20, 50 mm	Round and rectangular 10, 20, 50 mm

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