Water Analysis

NANOCOLOR® UV/VIS

Integrated turbidity control in COD analysis

More than a spectrophotometer

NANOCOLOR® UV/VIS

- Safe water and waste water analysis
- *NANOCOLOR®* Barcode Technology for fast measurements
- Colored touch screen with intuitive user guidance
- High resolution scans
- Turbidity measurements according to EN ISO 7027
- CIE-compliant color measurements
- Internal quality control according to ISO 9001
- USB interface for update and data transfer

Innovative precision

UV/VIS Spectrophotometer with reference detector technology (RDT)

- Powerful UV/VIS spectrophotometer with monochromator (190-1100 nm)
- For universal use in all areas of water and waste water analysis

Highly accurate measurements by using high-quality optical components

- Precision optics and reference detector technology (RDT) ensure accurate results
- High resolution scans are recorded and displayed within seconds

Save time

Fast measurements – *NANOCOLOR*® barcode technology

- Fully automatic, instant cuvette detection
- Test method and wavelength selection, the measurement itself and result storage are all carried out automatically

Measurement without cuvette slot cover

- The progressively designed optics is insensitive to external light and makes measuring straightforward

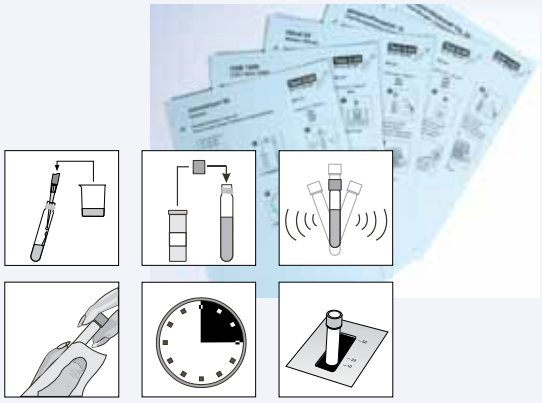
No cuvette adapter required

- Universal cuvette slot for the use of tubes (16 mm OD) and rectangular cuvettes (2, 10, 20, 50 mm) without any adaptor

Increase accuracy

Self-explanatory user guidance

- All tests and menu items can be activated fast and easily
- Operation without complex and time-consuming training



User-friendly, backlit touch screen

- All significant data and functions are clearly shown on the colored, backlit touch screen display

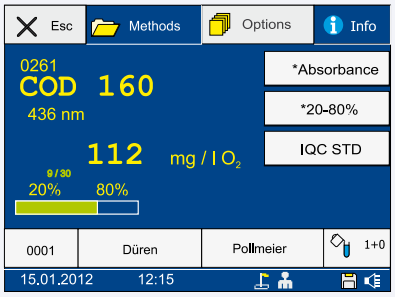
Manual with test instructions, presented as pictograms

- Easy to understand pictograms make running tests very simple and convenient

Assure results

Documentation of results according to GLP

- Individual entries of sample number, sample location, user and dilution
- Graphic display of results, including to measurement range and optional 20–80% range



Clear memory management

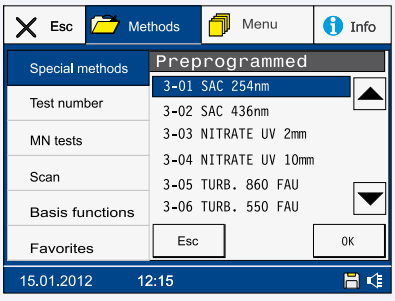
- GLP-conform storage of results with all supplementary information such as date, time, sample number, sample location, user and dilution
- Fast and easy access to stored results and data sets

Time saving sample allocation with the *NANOCOLOR*® USB handheld scanner

- Easy administration of sample locations
- Classification of results within seconds
- Comfortable preparation of sample lists

Experience flexibility

Preprogrammed tests and free programming of user-defined applications

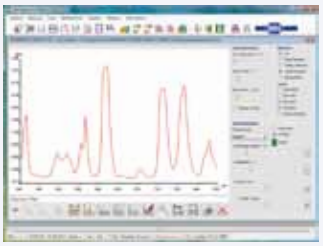


- Easy access to all photometric basic functions
- More than 200 preprogrammed tests and special methods
- Determination of the spectral absorption coefficient (SAC) at 254 nm and 436 nm
- Environmentally friendly determination of nitrate without chemicals
- Color determination according to DIN EN ISO 7887 at 3 wavelengths
- Free programming of up to 100 user-defined methods

Powerful PC-Software – free of charge

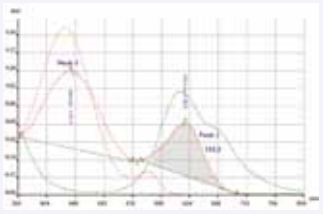
Convenient data export

- Easy transfer of results and spectra to PC
- Data storage on USB stick (included in delivery)



Professional data and spectrum processing

- Easy processing of transferred data either with the PC-software for *NANOCOLOR*® spectrophotometer or with standard software



Comprehensive spectrum analysis

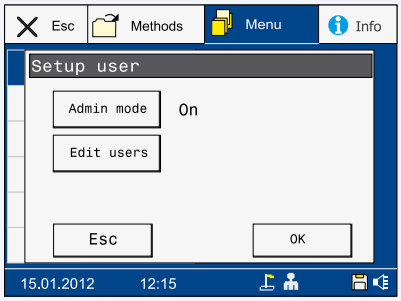
- Clearly displayed spectra
- Automatic and manual peak analysis

Photometer control via PC

- Convenient development and administration of special methods
- Numerous additional measuring programs such as scan kinetics, multi-wavelength measurements

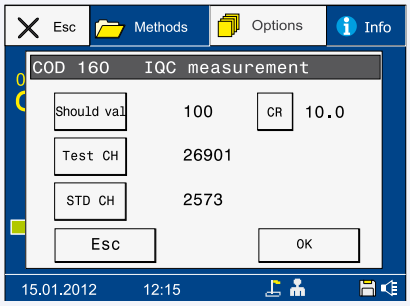
Meet specifications

Internal quality control according to ISO 9001



Password protection

Integrated measuring and day counter



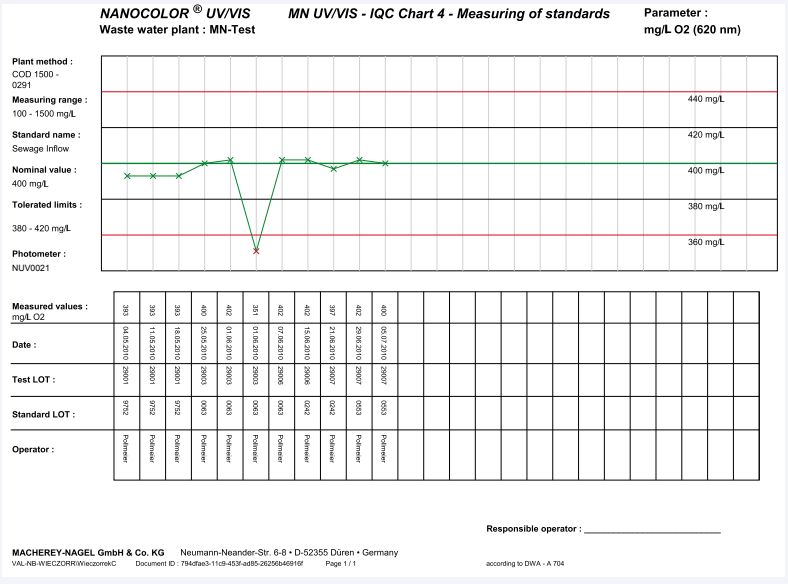
Flag standard measurements

Automatic generation of a printable quality control card

Test and standard description

Set value of standard incl. tolerance levels

Test and standard LOT



Ensure quality

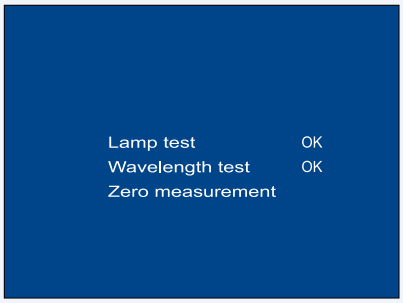
Integrated equipment monitoring

Integrated lamp test

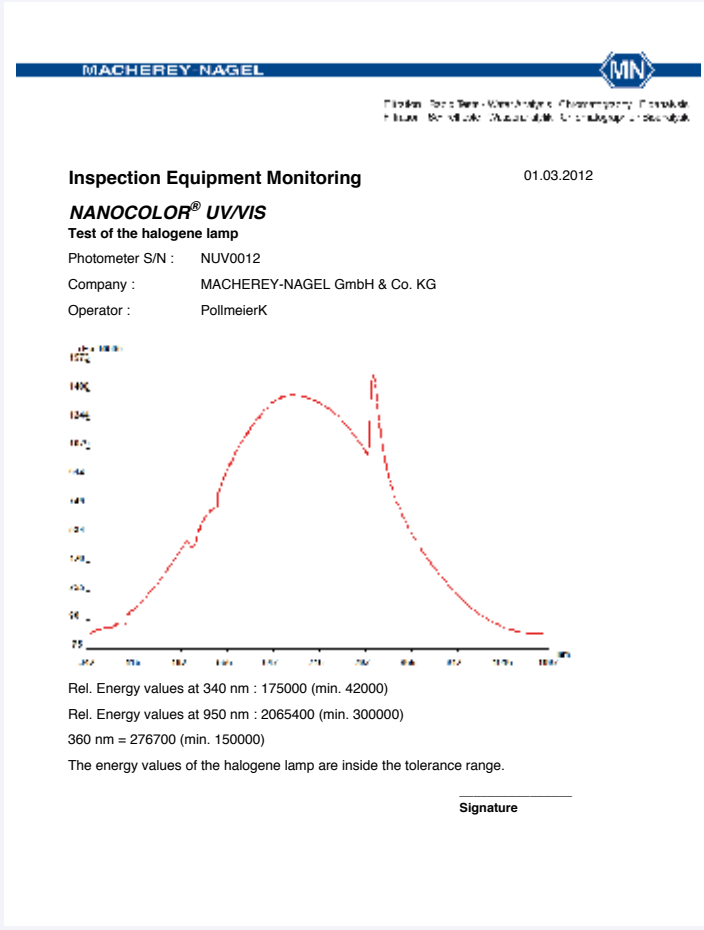
Lamp power test
at different wavelengths

Wavelength accuracy test

Built-in, internationally accepted holmium oxide filter



Automatic system check



MACHEREY-NAGEL

Inspection Equipment Monitoring 01.03.2012

NANOCOLOR® UV/VIS

Test of the halogene lamp

Photometer S/N : NUV0012

Company : MACHEREY-NAGEL GmbH & Co. KG

Operator : PollmeierK

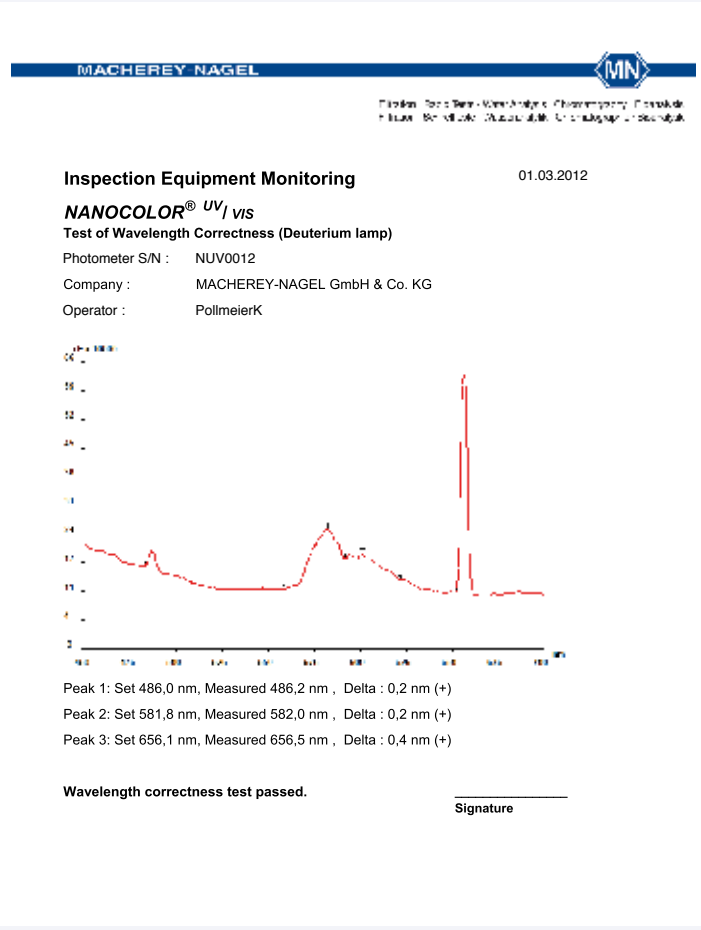
Rel. Energy values at 340 nm : 175000 (min. 42000)

Rel. Energy values at 950 nm : 2065400 (min. 300000)

360 nm = 276700 (min. 150000)

The energy values of the halogene lamp are inside the tolerance range.

Signature



MACHEREY-NAGEL

Inspection Equipment Monitoring 01.03.2012

NANOCOLOR® UV/VIS

Test of Wavelength Correctness (Deuterium lamp)

Photometer S/N : NUV0012

Company : MACHEREY-NAGEL GmbH & Co. KG

Operator : PollmeierK

Peak 1: Set 486,0 nm, Measured 486,2 nm , Delta : 0,2 nm (+)

Peak 2: Set 581,8 nm, Measured 582,0 nm , Delta : 0,2 nm (+)

Peak 3: Set 656,1 nm, Measured 656,5 nm , Delta : 0,4 nm (+)

Wavelength correctness test passed.

Signature

Original test report: lamp power and wavelength accuracy

...and much more

Scattered light according to DAB and PhEur

Signal to noise ratio check

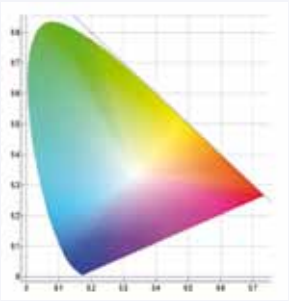
Photometric accuracy test with
NANOCONTROL NANOCHECK solutions

Enjoy versatility

CIE-compliant color measurements

In many industrial settings, the product's color is an important quality criterion. In order to establish a relationship between human color perception and physical color stimulus specification, the International Commission on Illumination (CIE – commission internationale de l'éclairage) has, already in the year 1931, defined the CIE norm-valency system and CIE norm color system, respectively. The above mentioned system constitutes the foundation for color measurements with the *NANOCOLOR® UV/VIS*.

- CIE-L*a*b*, CIE-L*Ch, CIE-L*u*v*, Hunter-Lab, RGB, CMYK, HSB, HSL, YUV, tristimulus values X, Y, Z, et cetera
- Hazen/APHA/PtCo-, Gardner-, Saybolt-, Klett-, Iodine-, Hess-Ives-, ASTM-, Ph. Eur.-, ADMI-color index et cetera



- Determination of color differences against a quality control reference according to classic and modern standards (ΔE CIE 1976, ΔE CIE 1994, ΔE CIE 2000, ΔE CMC (1:1), ΔE CMC (2:1), ΔE DIN 99)
- Easy determination against numerous stored reference values

MEBAK – beer color, bitterness units, VDK and more

- Reliable determination of all important parameters like beer color, bitterness units, vicinal diketones, total polyphenoles, anthocyanogenes, α - acids, photometrical iodine sample etc.

Food analysis

Enzymatic measurements with the PC-Software for *NANOCOLOR®* spectrophotometers

- For quality assurance and raw material control in food analysis
- Analysis of enzymatic tests from r-biopharm AG

See clear

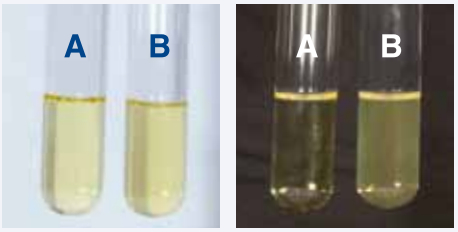
Nephelometric turbidity measurements according to EN ISO 7027

- Determination of scattered light at a 90° angle (nephelometric) at 860 nm in a range from 1 to 1000 NTU/FNU.
- Absorption measurement at a 180° angle (turbidimetric) at 550 nm in a range of 1 to 100 FAU and at 860 nm in a range of 2 to 400 FAU
- Turbidity control in COD analysis

Integrated automatic turbidity control

In photometric analysis, turbidity as a source of error is often underestimated. Turbidity is caused by particles that are already within the water sample, or are formed during an analytical reaction. In both cases, the resulting turbidity impacts the measurement value while visual detection may be tricky. Experience shows, that even low turbidity values that cannot be detected with the human eye, may significantly interfere with analytical results.

- World wide unique solution for turbidity problems
- Automatic turbidity control for tube tests
- Direct display of turbidities in NTU according to DIN ISO 7027
- Warning about potential interferences caused by turbidity
- Maximum measurement safety



Turbidity is not always easy to identify

Automatic measurement of sample series

Sipper *NANOCOLOR*® FP-100

- Increase measurement speed and save time for large test series, especially when using rectangular cuvettes and special methods
- Maximize measurement accuracy due to the same optical conditions for zero and sample
- Add flexibility using multiple cuvette sizes and variable pump / rinse times

Be prepared for the future

Fast photometer update – free of charge

- At any time, stay up-to-date by easy program updating via Internet/PC and USB stick
- For the current software update please visit ***www.mn-net.com***

NANOCOLOR® UV/VIS

Technical data

Type:	UV/VIS spectrophotometer with reference detector technology (RDT)
Light sources:	Halogen lamp (visible range) and deuterium lamp (UV range)
Optical system:	Monochromator
Wavelength range:	190–1100 nm
Wavelength accuracy:	± 1 nm
Wavelength resolution:	0.3 nm
Wavelength calibration:	Automatic
Wavelength selection:	Automatic, barcode, manual
Scan speed:	900 nm or 1 complete scan in less than 1 min
Spectral bandwidth:	< 4 nm
Photometric range:	± 3.0 E in wavelength range 200-900 nm
Photometric accuracy:	0.005 E at 0.0-0.5 E; 1% at 0.5-2.0 E
Photometric linearity:	< 0.5% at 2 E; ≤ 1% at > 2 E
Stray light:	< 0.05%
Measuring modes:	More than 200 preprogrammed tests, 100 optionally programmable methods, absorbance, transmission, factor, kinetics, 2-point calibration, scan, nephelometric turbidity measurement
Cuvette holder:	Test tubes 16 mm OD, rectangular cuvettes 2, 10, 20, 50 mm
Data memory:	1000 measured data sets, GLP conform
Display:	Colored, backlit LCD touch screen
Operation:	Barcode technology, display user guidance, touch screen
Languages:	de, en, fr, es, nl, it, hu, pl, pt, cz
External light:	Insensitive, open cuvette slot
Interfaces:	USB and bi-directional serial RS 232
Update:	Via Internet / PC and USB stick (included in delivery)
Operating range:	10-40 °C , max. 80% relative humidity (without condensation)
Power supply:	110-240 V~, 50/60 Hz, 60 VA
Dimensions L / W / H:	390 / 285 / 155 mm
Weight:	6.5 kg
Warranty:	2 years

CE This device complies with the following directives:
- 2006/95/EC - Low-Voltage Directive
- 2004/108/EC - EMC Directive

Ordering information:

Spectrophotometer *NANOCOLOR® UV/VIS* **REF 919 100**
incl. software DVD, quick reference guide, manual, dust cover, mains cable, USB cable, USB stick, serial cable, calibration cuvette and certificate

Accessories and spare parts:

Case for *NANOCOLOR® UV/VIS*	**REF 919 124**
Halogen lamp for *NANOCOLOR® UV/VIS*	**REF 919 104**
Deuterium lamp for *NANOCOLOR® UV/VIS*	**REF 919 103**
Dust cover for *NANOCOLOR® UV/VIS*	**REF 919 105**
Handheld scanner for *NANOCOLOR®* spectrophotometers	**REF 919 134**
Sipper pump *NANOCOLOR®* FP-100	**REF 919 140**
Quartz glass cuvette, 2 mm optical path	**REF 919 122**
Quartz glass cuvette, 10 mm optical path	**REF 919 120**
Quartz glass cuvette, 50 mm optical path	**REF 919 121**
Flow cuvette, quartz glass, 10 mm optical path	**REF 919 126**
Flow cuvette, quartz glass, 2 mm optical path	**REF 919 127**
Flow cuvette, glass, 10 mm optical path	**REF 919 128**

Your local distributor:

KATDE100072/Flyer NANO UVVIS de3/3/0/02.2012 PD
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www.mn-net.com

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