

# UV/VIS Spectralphotometer Cecil CE2041

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## Principle of Measurement

By molecular interactions it measures the extinction or transmission of a sample solution at a defined wavelength.

The spectrophotometer is used for:

- Quantitative analysis and to evaluate
- Kinetics.

## Device Set-Up

- Single beam spectrophotometer
- Littrow monochromator using 1200 lines/mm holographic grating
- Coated optics
- Silicon photodiode
- Lamp change wavelength 355 nm (default)
  - VIS: Tungsten lamp
  - UV: Deuterium lamp

## Range of Measurement

- Wavelength range 190 – 1000 nm (depends on used cell and solvent)
- Optical bandwidth 4 nm
- Extinction display -0,3 to 3,0
- Scan speed 10 – 66 nm/s
- Wavelength accuracy better  $\pm 1$  nm
- Photometric accuracy 1% of extinction or 0,005 (whichever is greater)

Table 1: Table of solvents for minimal measuring wavelength by means of solvent absorption.

Solvent	Cut-of wavelength [nm]
water	190
acetonitrile	210
ethanol/methanol	210
hexane	219
ethyl acetate	259
acetone	330

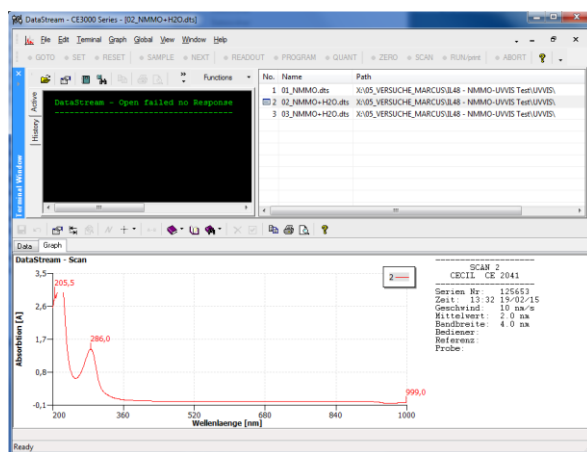
## Accessories

- 10 mm cell holder
- quartz cells
- micro cuvettes
- flow cell

## Measuring

- Different measuring modes:
  - Wavelength scan
  - Kinetic mode
  - Differential measurement at 2 wavelengths...
- Linear behavior of spectrophotometer  $< 0.7$  for quantitative analysis
- Evaluation of spectral data by DataStream (Software)

Figure 1: Evaluation of spectral data over a broad wavelength range using the DataStream Software.



## Literature

W. Gottwald, K. H. Heinrich, *UV/VIS Spektroskopie für Anwender*, Wiley-VCH, Weinheim 1998.



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