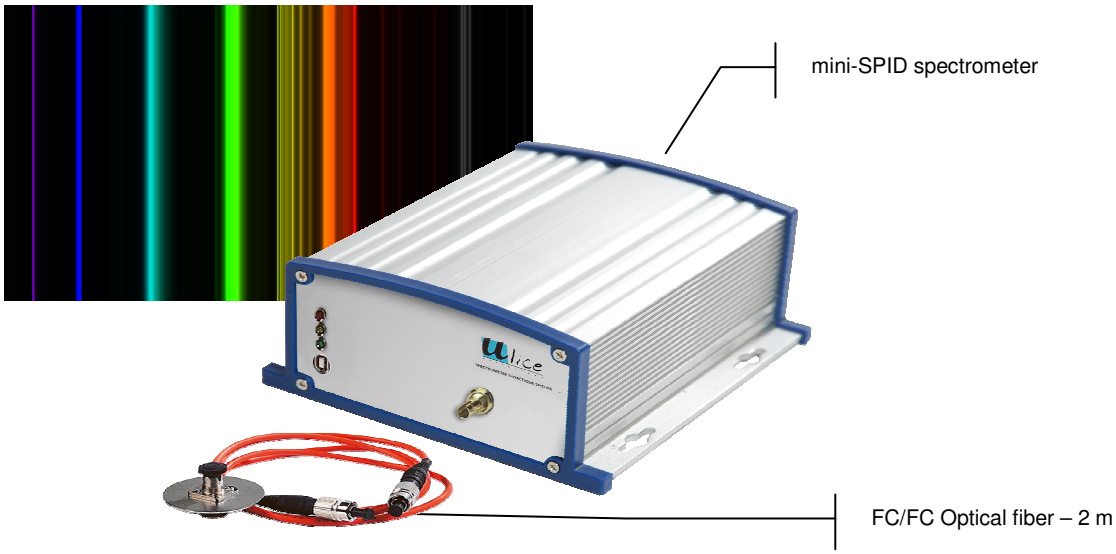
mini SPID, Pedagogical Spectrometer, ref POF 010 350

Composition

mini SPID is supplied with :



With these components, you will find also:

- USB connecting cable (connection to the computer)
- A diam 40-mm token with a fiber connector (for setting on a bench)
- Complete documentation

Presentation

mini-SPID is a pedagogical spectrophotometer which can be used in the visible range and which can analyse a signal in real time. It is specially conceived for experiments in High Schools and Universities:

- **Study of transmission spectrum, ray spectrum, continuous spectrum (sun, glowing lamp, candle)**
- **Detections, photometric measures**

Performances

- Spectral range : 350 - 900 nm
- Accuracy (in measuring the wavelength) : 0,5 nm
- Wavelength resolution: 1,5 nm
- Transmission : from 0 to 100 %, resolution 0,1%

- Optical setting: Czerny Turner
- Sensor: linear silicium CCD sensor

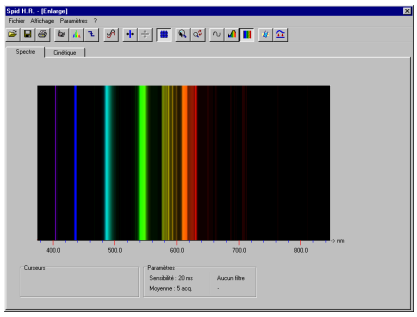
Some examples of manipulations …

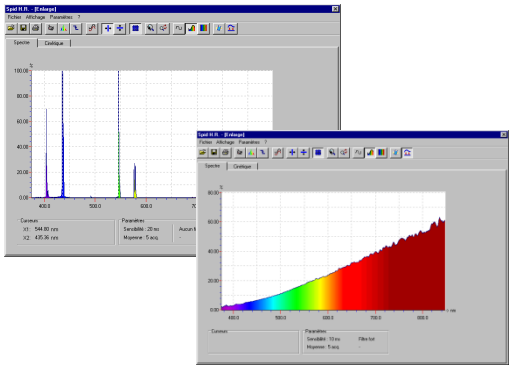
The following experiments were done with the spectrometer.

Transmission spectra

Protocol:

Put the end of the fiber toward a light source.



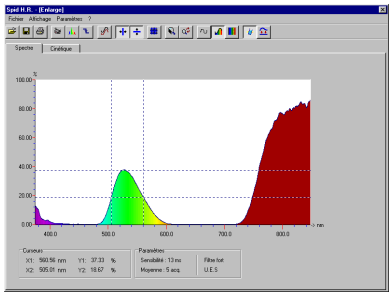


Spectrum of a « Energy saver » light source Spectrum of a mercury lamp and and of a incandescent light bulb

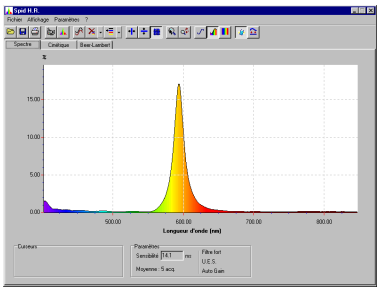
Transmission of filters

Protocol:

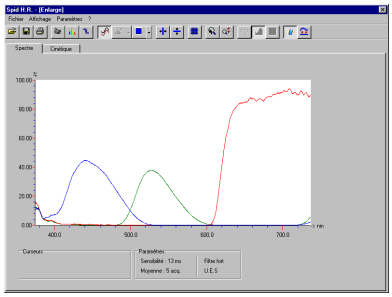
Observation of a filament bulb light source
The filter is put in the front of the lamp



Transmission with a green filter (gelatin filter)



Transmission with an interference filter

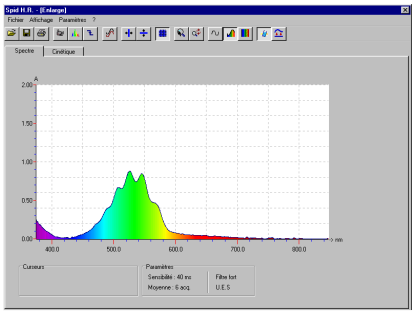


Transmission with a Red, Green, Blue filters

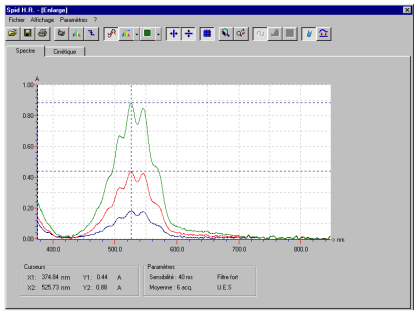
Absorption of chemical dosings

Protocol:

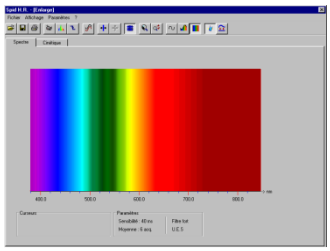
Observation of a filament bulb light source
The chemical solution is put in the front of the lamp
« White » is « done » once for every wavelengths
Measurement of the absorbance of chemical solutions in real time.



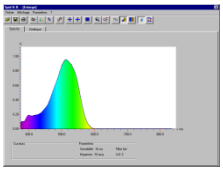
Absorption of potassium permanganate



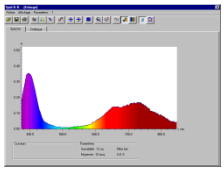
Absorption for several concentrations



Absorption bands



Red dye

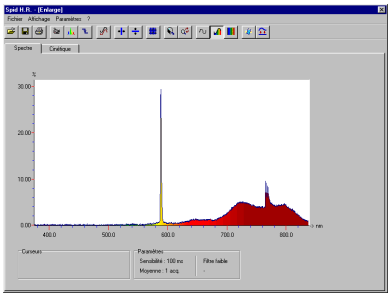


Cobalt chloride

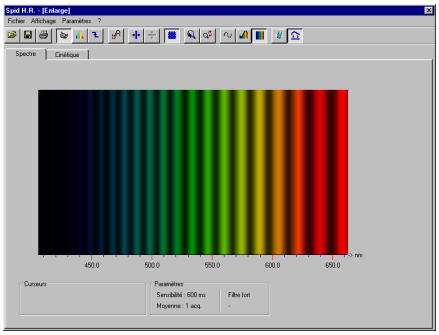
Other experiments…

Examples:

Spectrum of flames
Spectrum of the sun
Spectrometry principles
Fluted spectra
…



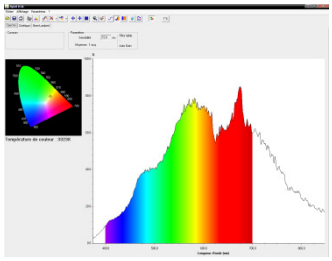
Spectrum of a candle with salt (sodium peak)



Fluted spectrum with an interferometer

OPTIONAL EXTRAS

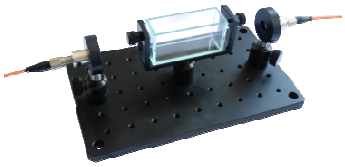
Absorption module



Linear sensitivity and colorimetry

Luxmeter

2-meters optical fiber – 50 µm
2-meters optical fiber – 100 µm



Optical fork

Collimator

FRENCH CONCEPTION AND MANUFACTURING.