

USERS MANUAL FOR EUROMEX HAND SPECTROSCOPES



Spectroscopy in general

The principle of spectra apparatus lies in the dispersion of light. White daylight has the property to break up in single, colored lightbeams, socalled *spectra colors*, when led through a prism under certain conditions. Solid and fluid bodies in glowing condition give a coherent image of spectral colors, without dark spots, the *continuing spectra*.

Shining gasses or vapours give a spectra consisting of colored lines, parted by dark lines, the socalled *discontinuing spectra*. One speaks by continuing and discontinuing spectra also of *emission spectra*.

A third way to show a spectra is achieved as follows: direct light of a known wave-length through a colored medium which is placed in between, e.g. a mixture of blood. By means of the in-between medium an absorption takes place and as spectra we do not only get fields of non-interrupted color order, but besides that, some dark absorption lines, the socalled *absorption spectra*.

Optical spectra-analysis offers the opportunity of qualitative definition of several kinds of atoms in a sample. It goes without saying the spectroscope also belongs in the hands of natural science students.

Using the hand spectroscope

A spectroscope offers single, or comparison observations of solid, fluid or gasformed substances in glowing condition, aswell as examination of colored light sources, color filters and gems etc.

Look through the eyepiece and open the light slit. Focusing the spectra is done by pulling out the inner tube. The intensity of the incoming light can be adjusted by opening or closing the light slit, until the socalled "Fraunhofer" line is clearly focused.

When interfering lines occur, there could be dust in the light slit. This can be reoved as described below:

- Gently un-screw the eyepiece and remove it.
- Clean with air brush. Do not sweep!

Light slit Cover Adjustment

Outer tube

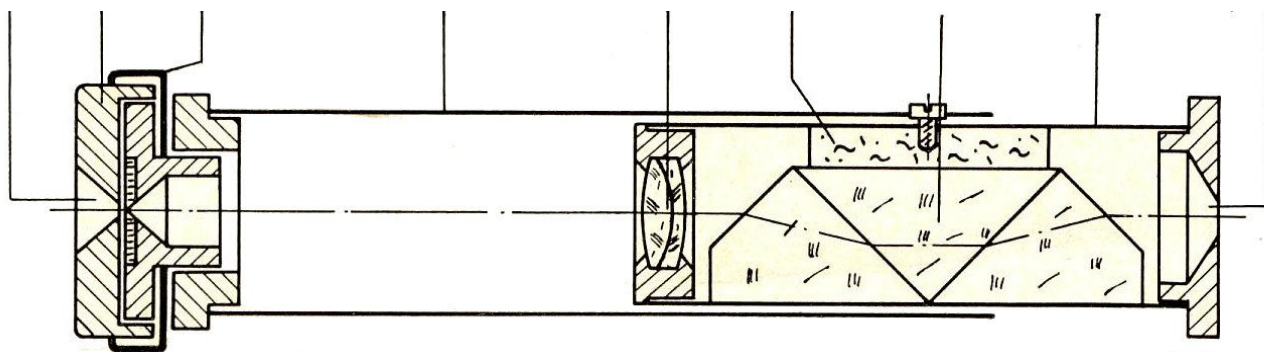
Magnifier

Cork bed

Viewing-
Prism

Inner tube

Eyepiece



Euromex hand spectroscope

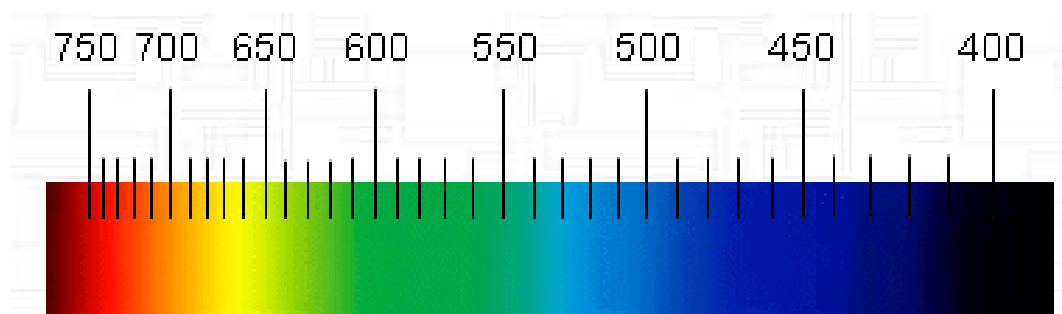
Euromex hand spectroscopes are beautifully designed and easy in use. There are 4 types, with the following technical data:

SP.5100 Spectroscope with fixed slit. Dispersion C-F 6°

SP.5150 Spectroscope with adjustable slit 0-1 mm. Dispersion C-F 7°. The slit can be adjusted during observation by turning the knurled ring.

SP.5155 Spectroscope with adjustable slit 0-1 mm. Comparison prism, mirror and 5 glass cuvettes. Dispersion C-F 7°. During comparison observations, the handle is put to the stop. The comparison prism will thus cover half of the slit, while the mirror directs the required quantity of light.

SP.5200 As SP-5155, but with an additional wave length scale from 400 – 750 nm. (see below)



EUROMEX Microscopen B.V.
HOLLAND

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SP.5100 EV1



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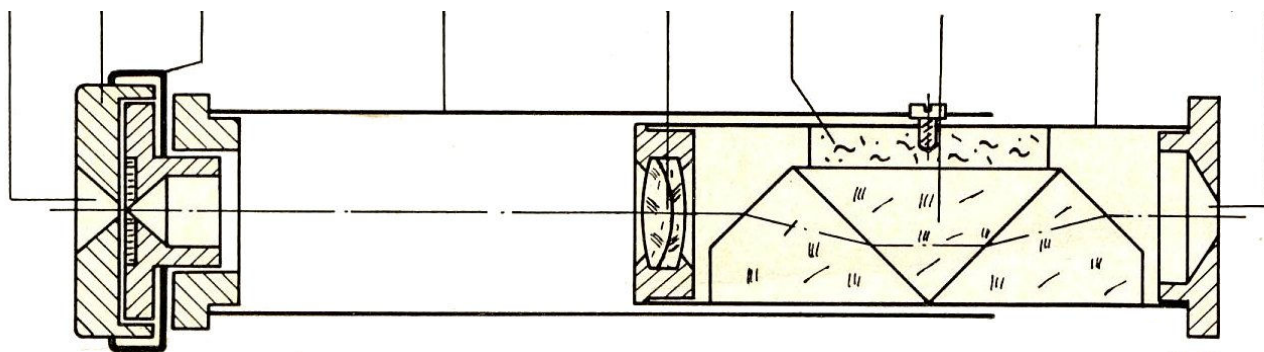
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Light slit Cover Adjustment Outer tube Magnifier Cork bed Viewing-Prism Inner tube Eyepiece



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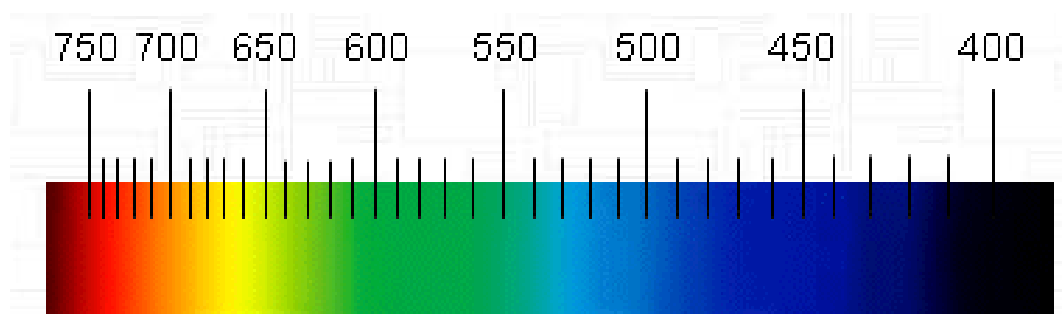
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