

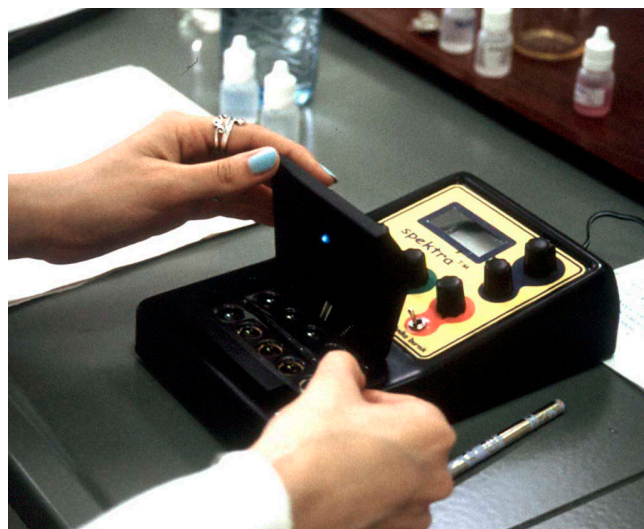
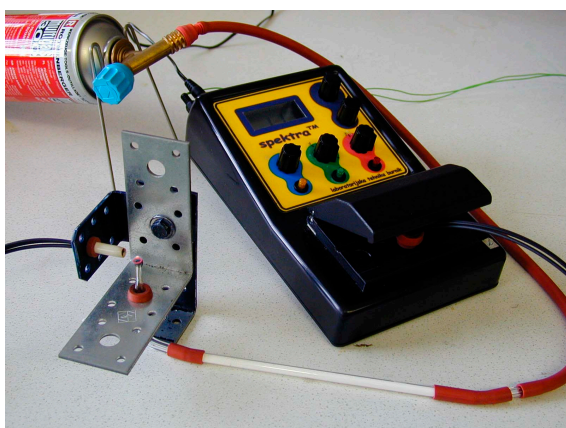
MULTIPURPOSE SPECTROMETER FOR HANDS-ON APPROACH IN TEACHING AND LEARNING CHEMISTRY, PHYSICS AND BIOLOGY

Tri-colour light emitting diode spectrometer for measurement on blisters enables:

- Rapid spectrometric determinations of chemical parameters in real samples (e.g. natural waters, food products, beverages).
- Experiments with light and colour.
- Introduction of the Beer's law through hands-on approach.
- Exploration of chemical equilibrium.
- Following the kinetics of chemical reactions.
- Spectrometric titrations.



The instrument encourages innovative activities of students and lecturers and stimulates research of young researchers. The instrument can be upgraded into other analytical instruments, e.g. gas chromatograph, for the introduction of basic chromatographic parameters through hands-on approach.



The spectrometer Spektra™ is based on a tri colour light emitting diode with the emission maxima at 470 nm (blue), 565 nm (green) and 660 nm (red).

ADVANTAGES OF THE SPECTROMETER SPEKTRA™

- The components, which are the most essential for the measuring process, e.g. the light source, the measuring chamber and the sensor are all visible. As a consequence the instrument does not represent a "black box" to students; they find the instrument easy to understand and operate.
- Polymeric supports, called blisters, are used as reaction and measuring chambers and allow for small volumes of tested solutions (0.35 ml) and rapid homogenisation of reagents.
- Experimental work is simple and requires no special laboratory training. Even drop-based experimental approach can be used where appropriate.
- Experiments are safe, no laboratory glassware is used, and only small volumes of chemical waste are produced.
- The instrument is small, portable and can be used also outside laboratory.