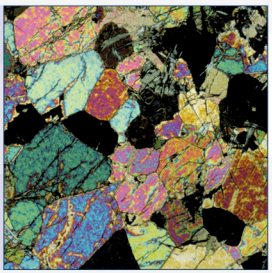
about
petrological microscopy

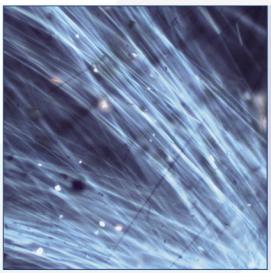
Euromex microscopes for polarization are intensively used in petrology and optical mineralogy to identify rocks, minerals in thin sections and asbestos fibers

Conventional brightfield microscopes are turned into a petrological microscope by:
replacing the conventional rectangular stage with a circular 360° rotating stage

- adding strain free objectives for correct color rendering
- adding a removable polarization filter into the light path
- adding a second removable 360° rotating polarization filter - called analyzer - into the light path
- adding a Bertrand lens* for observation of conoscopic interference fringes
- adding compensation wave plates
- adding reflected illumination

Mineral petrology





Crocodolite asbestos fiber

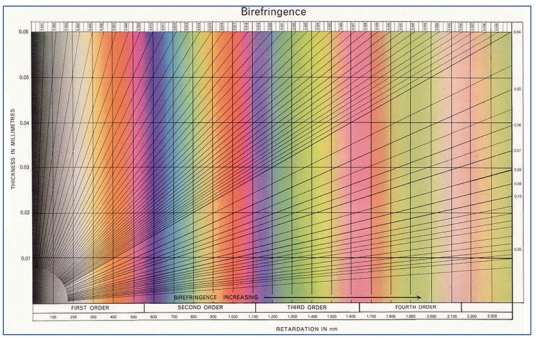
The most common compensators are:

1 λ Wave plate is often referred to as a first-order red plate or as a sensitive tint because it produces the interference color having a tint similar to the first-order red seen in the Michel-Levy chart. Introduce an optical path difference of circa 540-570 nm

- 1/4 λ Wave plate is often referred to as a mica plate and is usually made from quartz or muscovite crystals sandwiched between two glass windows. Introduce an optical path difference of circa 140 nm

Quartz wedge is the simplest compensator, which is utilized to vary the optical path length difference to match that of the specimen

- Other attachments such as DSO (Dispersion Staining Objectives) and phase contrast equipment can be added for specific identification of asbestos fibers



Michel-Levy chart

* *A so-called Bertrand lens - positioned between the analyzer and the eyepieces allows the microscopist to observe interference fringes. These images appear in the objective rear focal plane when an optically anisotropic specimen is viewed between crossed polarizers*