Crossed Polarised Light Accessory

Product Information

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Introduction

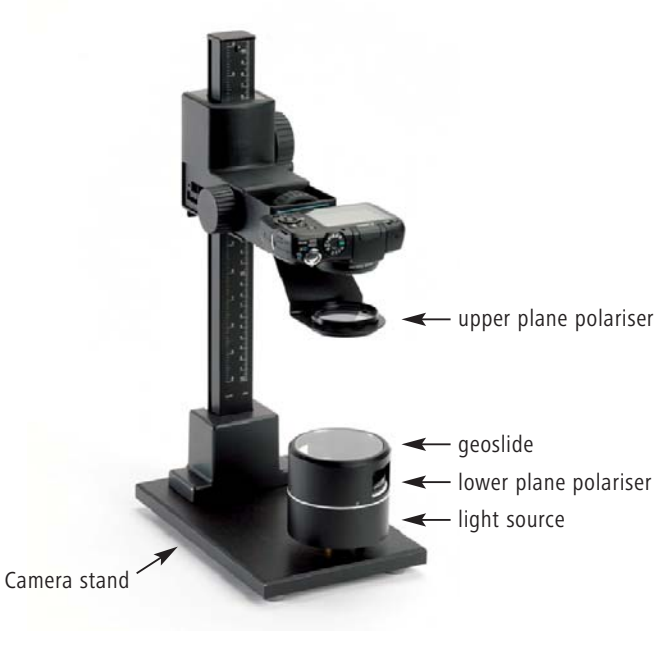
In geology, rock specimens are thinned with a diamond saw, glued to a glass slide, and ground to a thickness that permits transparency. When crossed polarised light microscopy is applied to a mineral thin section, the transmitted colour varies between grains depending upon their birefringence properties.

This technique leads to each individual grain transmitting a particular wavelength. Whilst in the dedicated light microscope very good contrast at high resolution can be obtained, the limited field of view makes imaging all of a 47 mm by 25 mm geological slide inconvenient.

The crossed polar accessory fits the Camerastand as shown in the photograph. Diffuse white light from a cool LED source passes through a plane polarised filter. A second filter before the camera is placed orthogonal to the first filter so that very little light is transmitted.

When a specimen is placed between the two filters, each grain will rotate a particular colour by 90 degrees to pass the plane filter in front of the camera. The effect is to produce high contrast colour images that represent the internal texture of the rock thin section.

The colour image obtained is then used in SmartSEM®'s Image Navigation feature to provide rapid navigation around the specimen.



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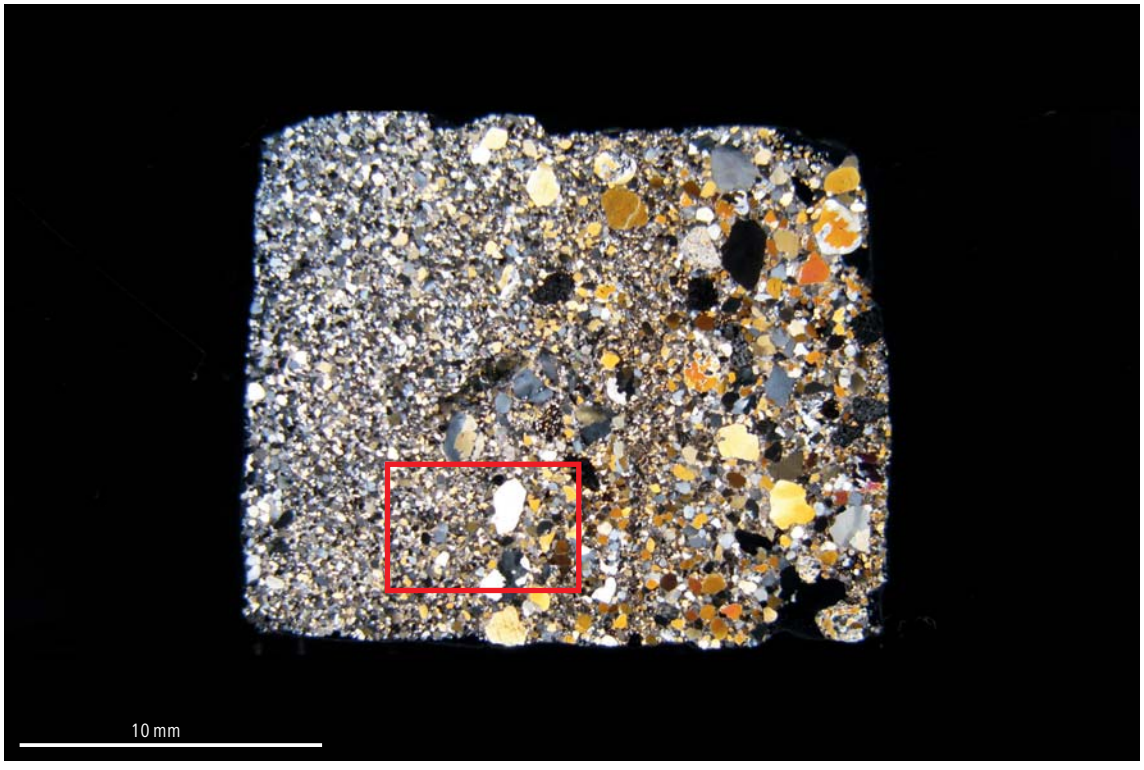
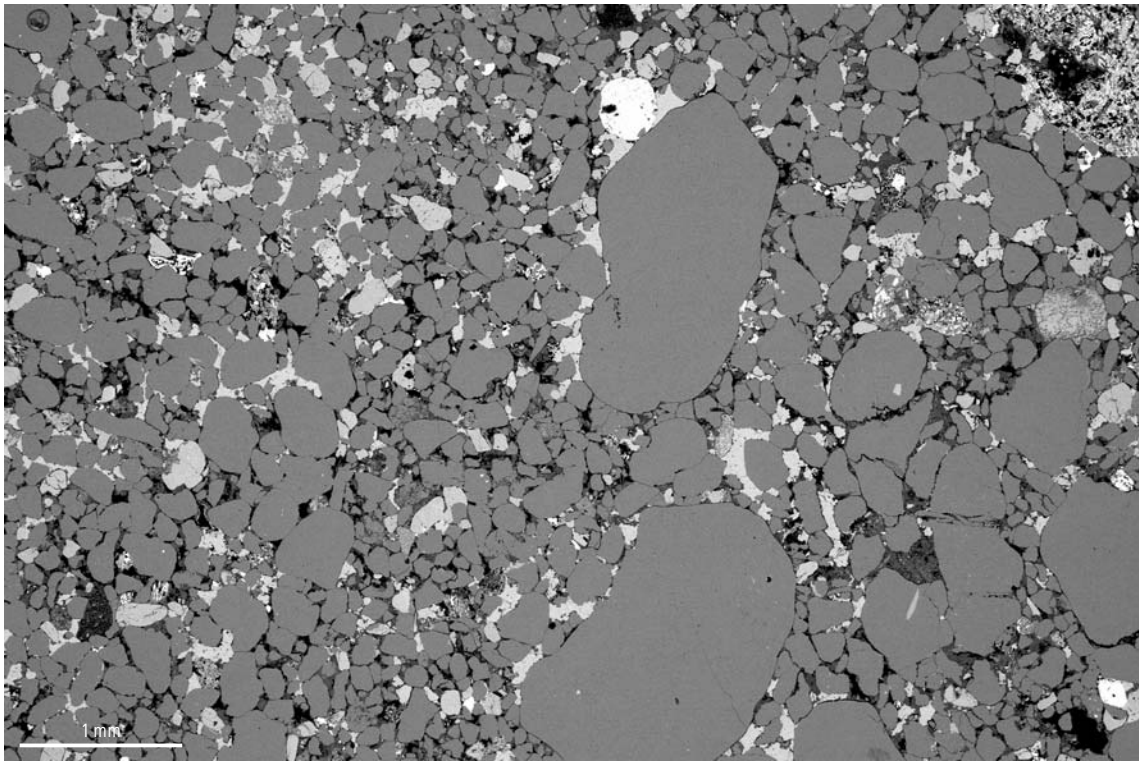
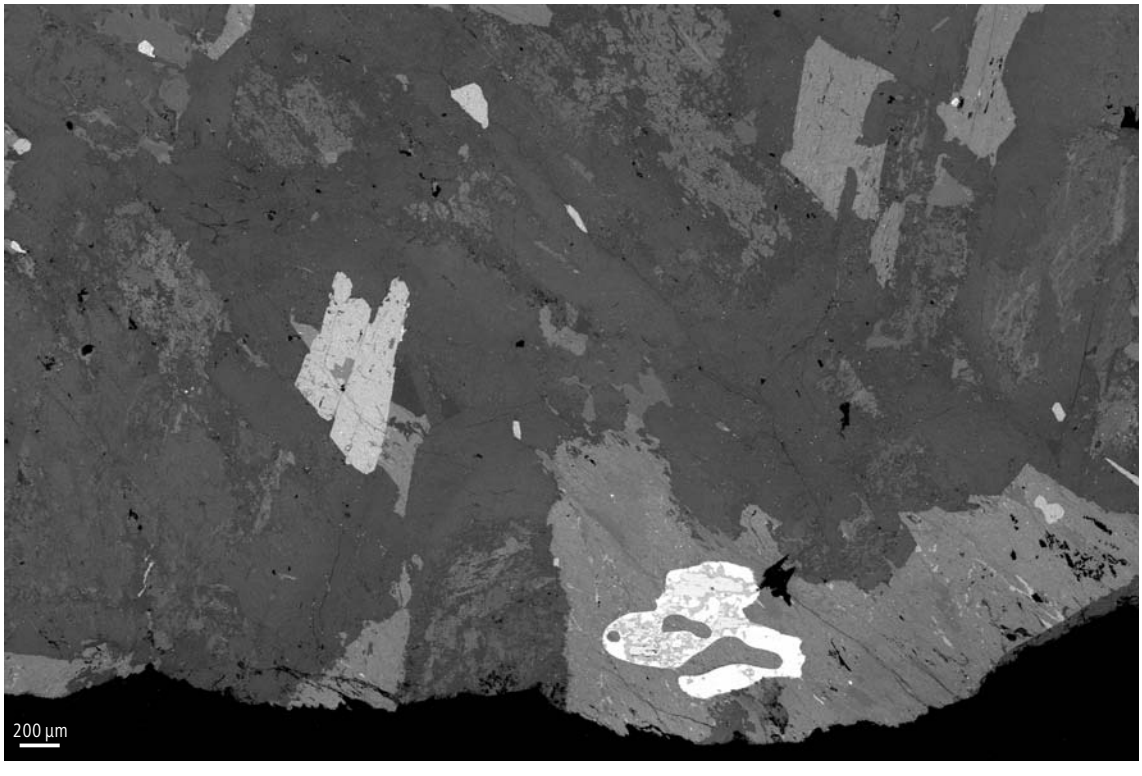


Crossed-polarised light image of a thin section of Corrie sandstone from Scotland, UK. The image reveals a range of grain sizes across the specimen. The sandstone specimen is 16 mm wide. Specimen courtesy of the Natural History Museum, London, UK.



One region of the Corrie sandstone, corresponding to the red rectangle above, imaged imaged using backscattered electrons showing quartz grains (mid grey grains) with calcite cement (bright areas).

Crossed-polarised light image of a Gabbro revealing a range of grain orientation. Specimen courtesy of Department of Geology, Kingston University, UK.



One region of the rock, corresponding to the red rectangle above, imaged in the SEM using backscattered electrons showing various mineral grains.

Applicability

The crossed-polarised light accessory is applicable to all Carl Zeiss scanning electron microscopes using SmartSEM® graphical user interface.

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