

### **CONSTGLASS**



### Technical Data sheet



**Technique:** 

Light microscope (LM)

with reflected or transmitted light

#### **General description**

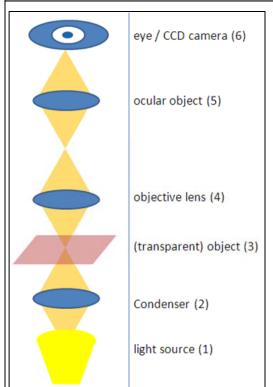
Light microscopes are a widely-used technique, also in the field of conservation and restoration. With a light microscope magnifications of up to 1000 times are possible.

Particularly glass samples can be analyzed either with transmitted or reflected light.



#### Leitz DM RXE

### **Operating principle**



Schematic diagram of a transmission light microscope

Light microscopes magnify an object by the use of lenses.

The light from a source (1) will be concentrated by a lens called condenser (2). The focused light will then either be reflected by the sample (reflected light) or will be transmitted through the sample (transmitted light) (3). Reflected light is helpful for all kinds of samples and transmitted light is only useful for investigations of transparent or very thin samples. The objective (4) and ocular lens (5) magnify the objects. The light will be captured either directly by naked eyes (6) or by a digital CCD-camera which display the object on a monitor or TV screen.

The magnification can be calculated by the magnification factor of the ocular lens and the objective lens, which is generally written directly on the lenses.

 $M = M_{oc} x M_{ob}$ 

By the integration of filters in the light path, e.g. polarizations or coloured filters, different improvements of the light microscopes are possible. With special objective lenses also dark field analyzes are feasible in reflected light.

TechnicalData\_LM Page 1 of 2



## **CONSTGLASS**



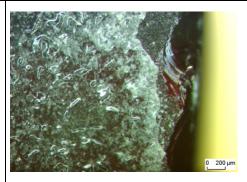
## Technical Data sheet



### **Example: Glass sample from Cologne Cathedral.**

Red flashed glass treated with the ORMOCER® protective system

#### Reflected light



With reflected light the topography of the surface (here the protective coating system) is observable. The red colour of the flashed glass is almost invisible.

Description: The coating looses adhesion and flakes off only at the borders of the samples; whitish glass corrosion crystals underneath the coating do not affect the coating system

# Transmitted light



Same detail as above. With transmitted light the red colour of the flashed glass will be visible. Therefore the surface of the protective coating system is almost invisible.

Description: Remnants of glass corrosion products (dark structures) underneath the coating, no micro fissures in the coating

TechnicalData\_LM Page 2 of 2