

## Advanced Optics for Microscopy

It was the optical glass from SCHOTT which caused a revolution in microscopy about 120 years ago. The new glass types with unprecedented homogeneity and predictable optical properties enabled manufacturing of microscopes to evolve from a trial and error process with modest results to the mastered design of instruments with outstanding and reproducible quality.

Since then SCHOTT continued to develop glass types and production processes suited to push progress in optical resolution and color trueness constantly.

Very low dispersion glass types, anomalous dispersion glass types, high index – high transmission glass types, low fluorescence quality grades and extremely narrow optical tolerance deliveries contribute to the key role which microscopy still plays today. A broad range of applications is supported from life sciences research to precision inspections in high tech industries.

SCHOTT has been a strong partner of leading edge microscope manufacturers for decades. Also, in the future, SCHOTT will be their competent partner to find excellent solutions for sophisticated microscope applications.



## Main Products:

### ■ Optical Filters



## Applications:

The optical filter glass product line from SCHOTT comprises more than 50 types of colored filter glass and in addition individual designed interference filters, for a wide range of different applications. In the field of microscopy, special types are used for contrast enhancement of the observed specimen, for heat protection from the illuminating light source or for the selection of different spectral ranges of the light source, especially in the ultraviolet. Furthermore optical filters are widely used as additional blocking filters with highly sophisticated exciter and barrier interference filters for fluorescence microscopy. SCHOTT also offers a complete portfolio of standard filter sets based on excitation-, emission-filters and beamsplitters.

### ■ Special Optical Glass



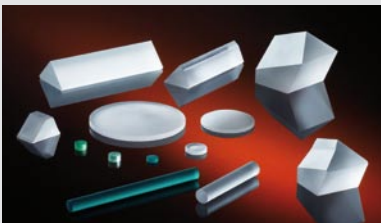
SCHOTT offers a variety of optical glasses with tight specifications regarding optical position, dispersion and self fluorescence suited for the designs of state of the art microscopy applications. The special short flint glasses N-KZFS4, N-KZFS5 and N-KZFS8 offer a unique pronounced deviation of the partial dispersion from the normal line. These "true color" glasses are suited for high end apochromatic lens designs and have been developed to highly transmit light in the blue violet range in combination with a remarkable low self fluorescence making them perfect candidates for fluorescence microscopy. In addition, modern melting technologies allow to purposefully reduce self fluorescence also of other, selected glass types like it has been achieved for our N-LASF44.

### ■ Fiber Optical Illumination Systems



Fiber optical illumination systems from SCHOTT supply a homogeneous, white and bright light illumination to the probe. The heart of all fiber optical components is an optical fiber made of special optical core rods from SCHOTT (e.g. F2, LF5) with an extremely high transmission; far better than the optical glass catalog values for the respective glass types.

### ■ (Semi)-Finished Optical Glass Products



SCHOTT offers a wide range of finished or semi finished optical glass products for the use in microscopes, which are made of our special optical glass. Semi finished or finished optical glass products include hot formed, matt pressed spherical lenses, ball lenses and prisms, high quality finished aspheres and polished ball lenses.

### ■ LITHOTEC® Calcium Fluoride



LITHOTEC® Calcium Fluoride is a unique material used for color correction in objective lenses for microscopy. This correction is possible due to the combination of a high dispersion and a low diffractive index of the material. SCHOTT as the market leader is producing this material in an outstanding quality and offers it as synthetic crystal

Detailed product datasheets available

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glass made of ideas