

## TECHNICAL NOTE TN-0042

<b>Problem</b>	Cleaning optics	<b>Date</b>	26 <sup>th</sup> of August 2015
<b>Author(s)</b>	EHE	<b>Ver</b>	1.1

## CLEANING OPTICS

The first surface of the fore optics or the slit window of the spectrograph is bound to get dirty during active use. Dust from environment and accidental fingerprints may collect to the surface. When removing the fore optics from the spectrograph we advice to insert the protective caps both to the spectrograph front and the objective ends.

In normal measurements any dirt in the surface will be cancelled out when making referencing to white sample and thus will not affect the final results. However, extreme dust will cause additional straylight (scattering) and could deteriorate the performance.

**WE ADVICE TO CLEAN THE OPTICS ONLY WHEN ABSOLUTELY NECESSARY.**

The cleaning method depends on the nature of the contaminant. The main concern is that one should not make the problem worse by doing something wrong. Keep it in mind that one will only have to proceed as far as is necessary to achieve a satisfactory result.

Basic lens cleaning tools are a hand rubber blower, canned air, a fine optics brush, natural cotton balls, a microfiber or fine linen cloth and various lens cleaning fluids.

### Abrasive particles

Particles like sand should not be removed by directly applying any cloth and cleaning fluid as these can easily scratch the glass surface and damage the coatings.

First, try to blast dust off the lens surface with the blower or canned clean air. This should be free from oil or other additives. If this does not remove all particles try to gently brush the surface with clean and soft brush.

In case of very persistent dirt one could try to locally wipe it with cotton ball tip dispensed to distilled water or lens cleaning fluid. Do not use excess liquid as it could easily spread to larger area.

### Grease and fingerprints

Fingerprints can usually be removed with a circular wipe of a micro fiber cloth. Start from the center and proceed gently to the lens edges. Note that all abrasive particles should be removed BEFORE using cloths.

Persistent dirt and grease should be removed with special lens cleaning fluid and fine linen cloth. Note that the fluid should be dripped to the cloth no to the lens surface.

We do not recommend using acetone or alcohol unless absolutely necessary.