GUIDE TO CLEANING OPTICS

CRYSTRAN
UV · VISIBLE · IR SPECIALIST OPTICS

Crystal optics are more delicate than glass and should be treated carefully if they have to be cleaned. Some materials are very delicate, and should be treated with extra care. We describe the method, but the technique comes with practice. Handle optics by the edge and use lint-free nylon gloves. Use plastic protective gloves when cleaning with solvent but check that the solvent does not attack the glove.

Clean optics as little as possible and only if absolutely necessary. Cleaning may create fine scratches which you cannot see easily but which may contribute to scattering, particularly in the UV. If the optic is mounted, try never to let solvent creep into the mounting ring. Use an air jet and no solvent at all for removal of dust.

Very Delicate Materials: CsI, KRS5, Germanium, Zinc Selenide, Zinc Sulphide.
These materials are soft, or are inclined to take marks (sleeks) or show up marks easily. They should be washed in a solvent such as methanol or propanol for light marking. Use an environmental friendly solvent such as NuSol Rapide (a replacement for trichloroethylene which is available in the UK) or otherwise acetone, for greasy or waxy contaminants. Soak the optic and wipe while wet with cotton wool (known as absorbent cotton in the USA) dipped in the solvent and let the optic dry by evaporation or assist it with airflow as it is wiped.

Delicate Materials: Calcium Fluoride, Coated Materials, Magnesium Fluoride, Other fluorides, Silicon.
These should be treated as above where practical, but it is often preferable to clean them carefully with a damp tissue. We use Kimtech Science 100 professional wipes from Kimberly-Clark or something similar. Do not rub the optic, but wipe gently and allow the thinnest film of solvent to dry by evaporation.

Harder Materials: Glasses, Sapphire, Diamond-Like Coatings.
It is safest to treat them as delicate materials anyway.

Coated Materials: Coatings should be treated as delicate materials even though they can be more rugged than the crystal base material. Diamond Like Coating (DLC) on germanium is a case of a very tough coating.

Aqueous Cleaning: *Calcium Fluoride, Magnesium Fluoride, Lithium Fluoride*
We have become aware that very small absorptions (< 1%) can occur due to closely bonded organic surface contamination. Notably this is found at 3.4µm and probably due to waxes used in the polishing process. Aqueous cleaning using demineralized water with a surfactant detergent such as Alconox can be effective. Use a bath of the fresh warm solution in place of or additionally to the solvent methods. Soak the optic for 10minutes and wipe while wet with cotton wool (known as absorbent cotton in the USA) dipped in the solvent. Rinse in clean warm demineralized water dry by evaporation or assist it with airflow.

If you are uncertain as to how to treat any particular material please contact us.

Alconox® Precision Optical Cleaner
PC International Ltd
TEL: +44 1223 893402

Ansell-Edmont Dura-Touch Gloves (Stock 34.590)
Or similar from your local sundries suppliers

Kimberly-Clark Kimtech Science 100 (Stock Code 7102)
Or similar from your local sundries suppliers.

NuSol Rapide
Draychem Ltd. UK
TEL: +44 1225 78322

Nylon Gloves (Stock Code 222/0659)
VWR International in the UK
TEL: 0800 223344 (Other offices Worldwide)

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CRYSTRAN LTD
1, Broom Road Business Park, Poole, BH12 4PA, UK
TEL: +44 (0)1202 307650 FAX +44 (0)1202 307651
Email: sales@crystran.co.uk www.crystran.co.uk
Registered in England No. 2863378 VAT GB619 6814 12