

Micro Fading Tester

to specify optimal illumination of art pieces

INSTYTUT
FOTONOWY

Determination of color fading rate under irradiation.

DESCRIPTION



The Micro Fading Tester (MFT) examines behavior of dyes under irradiation. MFT tests allow to rank objects in collections by their sensitivity to light. Color change under illumination is tested in a non-destructive way. This approach allows to adopt exhibition policies to actual data obtained for each tested object rather than use general assumptions which could be either too conservative and unnecessarily limit viewers access to the object or too optimistic and lead to irreversible light-induced damages.

The scientific grade instrument is equipped with up to 6 ultra precise LEDs on a motorized holder. One can perform light aging of samples with UV, Vis or NIR LED source and assess the color change with a white LED.

The micro fading tests can be performed for nearly all classes of materials found in museum collections and is particularly suited to study fugitive objects (works on paper: manuscripts, prints, watercolors, canvas paintings, textiles). The MFT instrument may be regarded as portable and so it can be moved within the museum to the objects' location, which is particularly important in the case of large artefacts (e.g. wall paintings, sculptures, maps) or objects of significant value.

Quantities measured by the instrument

- Total color change (ΔE) of the selected point in function of time and radiometric/photometric dose,
- Reflectance of the sample,
- Spectrum in VIS range,
- Colorimetric values.

SPECIFICATIONS

- Spot diameter: 0.5 mm,
- Spectral range: 400-750 nm,
- Spectral resolution: 2.50 nm,
- Vertical motion range: -80 to 200 mm,
- Light source: up to 6 motorized LEDs,
- Focus point search: automatic,
- Maximum light intensity at focus: about 4 mW (depends on selected LED),
- PC connectivity: USB 2.0,
- Size: 250 x 400 x 440 mm (w x l x h),
- Size when folded: 440 x 400 x 80 mm (w x l x h),
- Mass: 5 kg,
- Tripod mounting brackets enables portable measurements,
- Full control of the light output intensity,
- Automatic test ending when specified criteria is met (time, dose, color change),
- Automatic radiometric and photometric calibration of the light source with the light calibrator,
- Automatic generation of reports,
- Results averaging feature.

0.5 mm spot diameter



EXEMPLARY RESULTS

Aging results for oil paints with: Prussian Blue (PB), Strontium Yellow (SY), Carmine-based Lake (CL), Red Lead (RL) pigments. Results were performed and shared by dr Tomasz Łojewski (AGH University of Science and Technology).

