

## Photoactivation of Self-cleaning Products

- [UV-visible illumination chamber](#)
- [Measurements tools for photocatalytic activity](#)
- [LED-based optical arrangements](#)
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### Overview

MRC offers a modular [illumination chamber](#) for reproducible photoactivation of samples as well as flexible [LED-based optical arrangements](#) for illumination of self-cleaning products. Illumination is based on different light sources and intelligent electronic controls. The solutions can be customized for specific applications with special design requirements and geometries.

We also offer [measurements tools](#) for the simultaneous determination of the photocatalytic activity.



The photos above show a UV illumination chamber in the standard configuration (left) and the transmission measurement through a Petri dish filled with methylene blue (right). The measurement can be integrated into the chamber.

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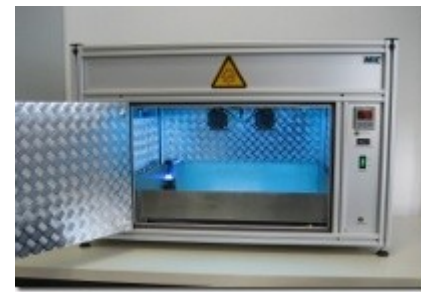
## UV-Visible Illumination Chamber

### Features

- Reproducible sample illumination with control of process parameters
- Displays for temperature, humidity, UV intensity
- Exchangeable UV-visible fluorescent lamps with different spectra
- Adjustable light intensity
- Homogeneous light distribution
- Measurement with marker dyes according to DIN standard 52980 (Photocatalytic activity of surfaces - Determination of photocatalytic activity by degradation of methylene blue)

## Additional Options

- Data logger for automatization of experiments
- Software for data acquisition and evaluation
- Integrated climate control (temperature, humidity)
- Optical measurements: transmission, absorption, reflection, haze
- Automated sample placement by rotary disk (for fast evaluation and direct comparison)
- Height adjustment
- Integrated watering and de-watering



## Applications

- Investigation of photocatalytic processes
- Photostability testing
- Material testing
- Methylene blue degradation test
- Irradiation of cell cultures, bacteria, germs, etc

## Specification

UV light source	G13 socket, 590 mm 4 lamps (different spectra available)
Light intensity	up to 2 mW/cm <sup>2</sup>
Wavelengths	365nm, 370nm, 400nm, 420nm, etc.
Housing dimensions	780x420x514 mm <sup>3</sup> (lxwxh)

## Features

- Low detection noise by means of electronic chopper
- Integrated offset compensation
- Actively stabilized laser diode

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## LED Illumination

Different types of LEDs and SMD-LEDs can be used for miniaturized UV or visible photoactivation of self-cleaning surfaces. Compact LEDs can be adapted to arbitrary geometries while different wavelengths can be used to obtain a desired spectrum. Our electronics enable the flexible variation of illumination properties.



Light sources can be arranged in different ways to activate the surfaces by direct illumination or by light transfer in the substrates. Our concept of customizing basic modules leads to cost-efficient and application-specific solutions.

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## Measurement of Photocatalytic Activity

The detection system comprises a stabilized light source and a sensitive photodiode. It enables the user-friendly measurement of light transmitted through a dyed fluid. As an example, to observe the degradation of methylene blue during photoactivation, a laser diode with a wavelength of 664 nm can be used that matches the absorption peak of the dye. The system can efficiently suppress background light by means of a synchronisation of light source and detection with an electronic chopper.



## Features

- Low detection noise by means of a 3 kHz electronic chopper
- Integrated offset compensation
- Actively stabilized laser diode

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## Manuals

- Product information Illumination Chamber
- Manual Illumination Chamber
- Data Sheet Optical Transmission Meter

Work in progress. Subject to change without prior notice.

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