

# UVSCALE

## Ultraviolet Light Amount Distribution Measurement Film

With the new Fuji film UVSCALE Dr. Müller Instruments expands his product range to another measuring film that can measure the amount of UV light depending on the source in the range of 4 – 100.000 mJ/cm<sup>2</sup> in a wave length range from 200 to 420 nm.

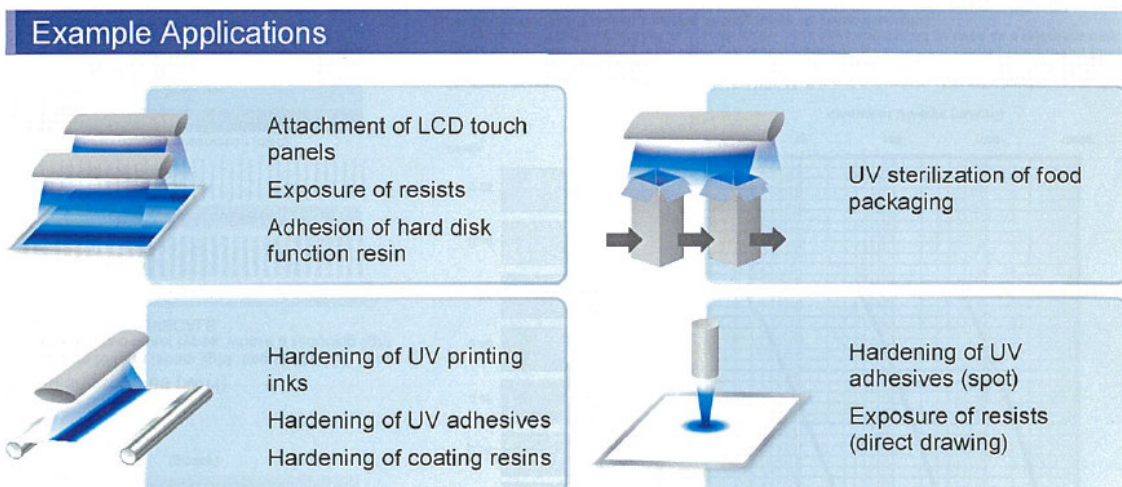
For 20 years, Müller supplies Fujifilm Prescale, the pressure measuring film to determine the surface pressure. It is today used in all sectors of industry.



The UV-light measuring film can be equally prepared as the heat flux film Thermoscale or pressure measuring film Prescale. Cut by scissors it is placed on the body to be tested. Within the film are microcapsules and color developer which react to exposure to and stain the slide. The intensity of the colour is proportional to the amount of UV light.

### Applications

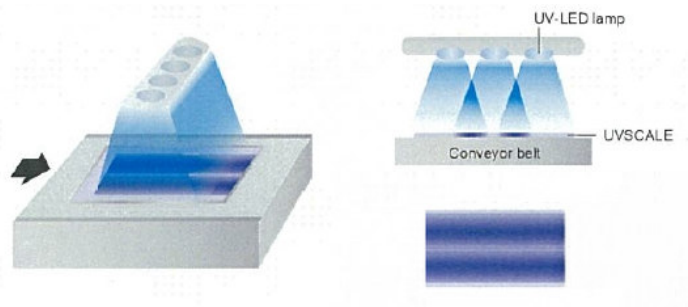
The use of UVSCALE varies similar as in case of the other measurement films. Applications during curing of bonding processes, disinfection of food packaging, hardening of UV printing processes are just a few examples



### Varies Applications for UVSCALE

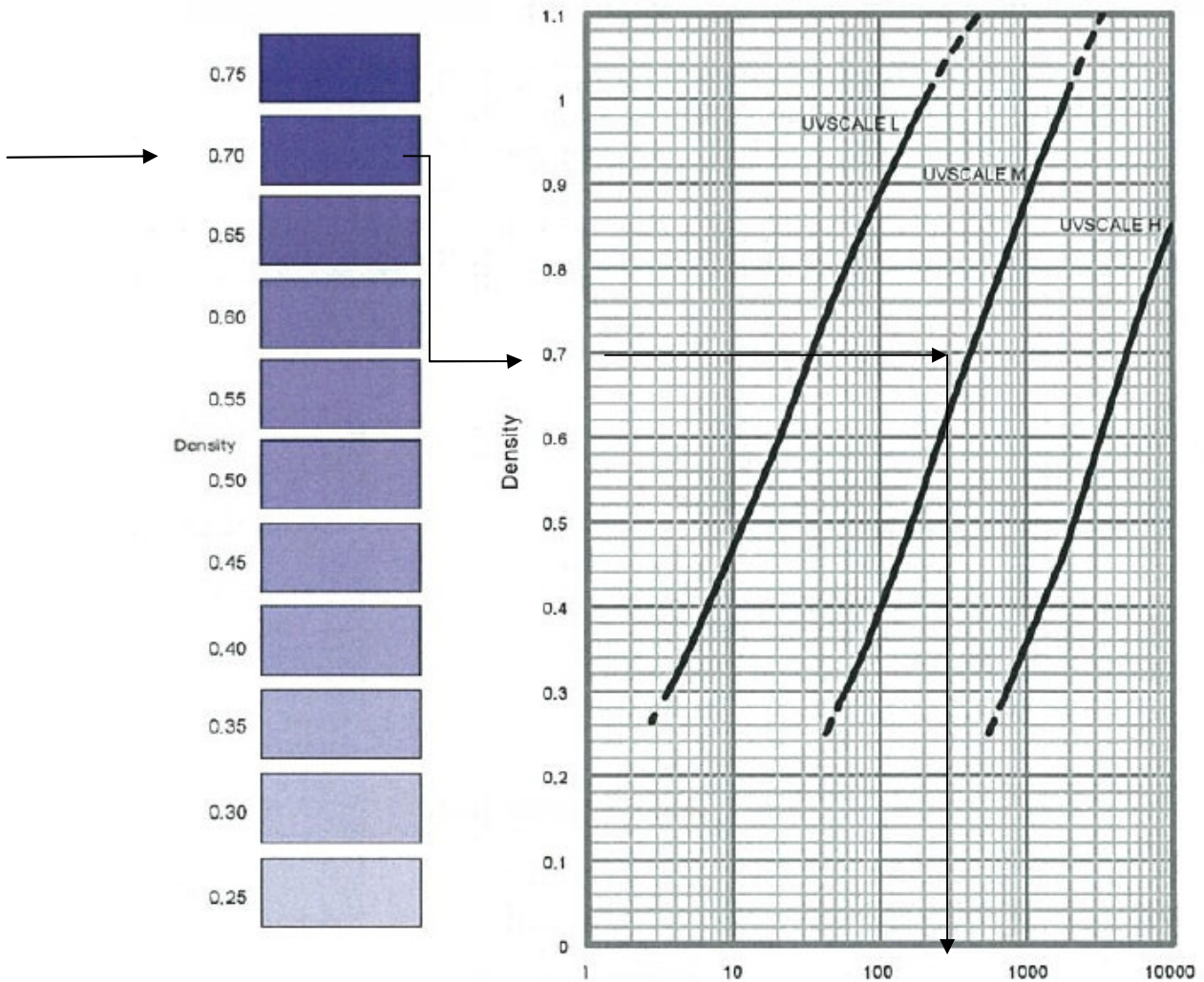
Compared to conventional technologies, where numerous measurement sensors try to detect the UV light, easily-coverage measurements with very high spatial resolution of about 100 microns are now possible.

Often the interest it's not just about the absolute amount but to ensure the uniformity especially in the area. In case the UV radiation is applied by numerous lamps the uniformity is particularly of interest  
 Vulnerabilities are now instantly recognizable.



## Visual Qualitative and Quantitative Results

The evaluation can be done purely visual in the latter case. Is it, however necessary, to determine the absolute amount a visual comparison between the film and the sample boards in conjunction with the calibration curves shown below will be helpful\*.



Compare the obtained measurement film with the colour samples on the left. Then the respective calibration curve/film type can be found and its ultraviolet light amount can be read on the abscissa.

\*To generate the calibration curves shown above Fuji used the light of a high pressure mercury vapor lamp with a wavelength of 365 nm, however, it can result in deviations from it using other lamps and other wavelengths. Fujifilm therefore gives no warranty to the UV light dosage measurement.

## Quantitative Analysis with Program FUD 7010E

The quantitative evaluation is done same as in the pressure measuring film with has a certain EPSON scanner and the analysis program of Fuji.



The evaluations are possible for all lighting types mentioned below. The display is in false or true colours. The following are the system requirements:

### **Fuji Analysis System FUD-7010E**

Package Contents: Software, Scanner trailer, calibration sheet  
 Scanner: Epson V37 and Epson Perfection V-370  
 Resolution: 0.125 mm  
 PC: 2 GHz, 2 GB  
 Operating System: MS Windows 7 32/64 bit  
 Screen: 1024 x 768 pixels

## Measurement Ranges and Choice of Film Size

The new measurement film UVSCALE covers amount of UV light from 4 – 100.000 mJ/cm<sup>2</sup> in a wavelength range of 200 to 420 nm. For the different amount of UV light, three different UV light measurement films are available

#### ●Light amount measurement range

| Measurable lamp            | Type      | Effective light amount measurement range <sup>※1</sup> (mJ/cm <sup>2</sup> ) |
|----------------------------|-----------|--|
| High-pressure mercury lamp | UVSCALE L | 4-200  |
|                            | UVSCALE M | 50-2000  |
|                            | UVSCALE H | 800-40000  |
| Metal halide lamp          | UVSCALE L | 6-200  |
|                            | UVSCALE M | 30-1000  |
|                            | UVSCALE H | 700-20000  |
| Low-pressure mercury lamp  | UVSCALE L | 20-3000  |
| UV-LED lamp (365 nm)       | UVSCALE L | 200-6000   |
|                            | UVSCALE M | 300-7000   |
|                            | UVSCALE H | 5000-100000  |

※1: The measurement ranges mentioned above is when FUD-7010E is used.

The light amount range that can be visually checked is the density on standard color samples (0,30 to 0,75).

※Applies to wavelengths in the 200 to 420 nm range ※This does not guarantee the absolute values of UV light amount values.

All UV light measurement films are supplied in reels of a width of 270 mm. For initial testing purposes, we also offer small quantities of 1 m length.

