

FUJIFILM

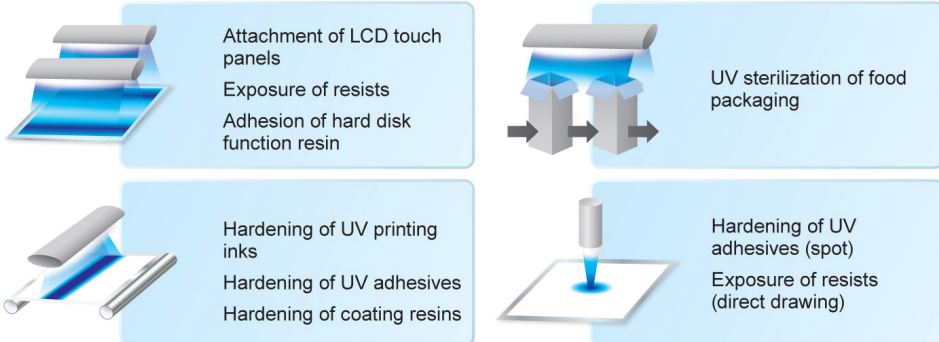
UVSCALE

NEW UVSCALE

The ultraviolet light amount distribution
can easily be measured through the
changes in the color density of the film

Ultraviolet Light Amount Distribution Measurement Film

Example Applications



Specifications

Type	Product size		Light amount measurement range (mJ/cm ²)	Thickness	Classification
	Roll type	Sheet type			
UVSCALE L	270 mm × 5 m	270 mm × 200 mm (5 sheets)	2 - 30	0.1 mm	Mono sheet type
UVSCALE M			30 - 400	0.1 mm × 2	Two sheet type
UVSCALE H			400 - 5,000	0.1 mm × 2	Two sheet type

* Please note that these light amount measurement ranges are estimates using our own high pressure mercury lamps, and that these ranges will vary depending on the type of lamp used as a light source and on the ambient environment.

Light amount measurement range: For color density 0.30-0.75 in the standard color sample

* Applies to wavelengths in the 200 to 420 nm range

Roll type



Sheet type



MODERNE

MODERNE elemat GmbH
Postfach 23 03 42
D-70623 Stuttgart
GERMANY

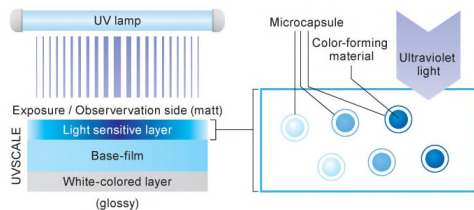
Telefon: ++49-(0)711-753024
Telefax: ++49-(0)711-753332
E-mail: moderne@moderne.de
Internet: www.moderne.de



Structure and How it works

Structure

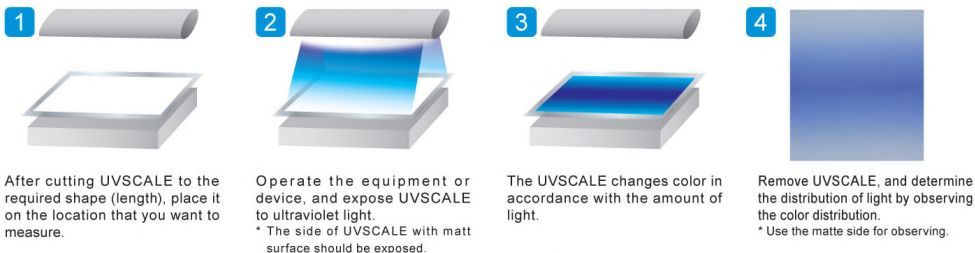
As shown to the right, one side of the base film has a ultraviolet light sensitive layer, with the opposite side having a white-colored layer. The light sensitive layer changes color according to the amount of ultraviolet light it receives, so the amount of light distributed on the exposed surface is easily seen by observing a light sensitive layer and whitish layer are attached to the base. Since the color density of the whitish layer corresponds to the volume of ultraviolet light received, the light volume distribution on the light receiving surface can easily be investigated.



Principle

The color forming material in the microcapsules reacts to the ultraviolet light and changes color.

How to Use

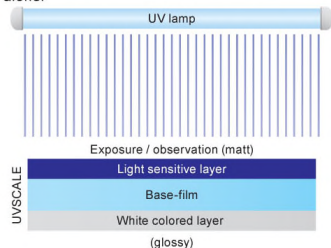


Reducing light Film

In order to cover a range of accumulated light volumes, we offer the product in three types.

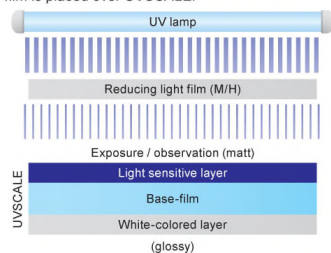
① Mono sheet type (L)

For low levels of light UVSCALE can be used alone.



② Two sheet types (M/H)

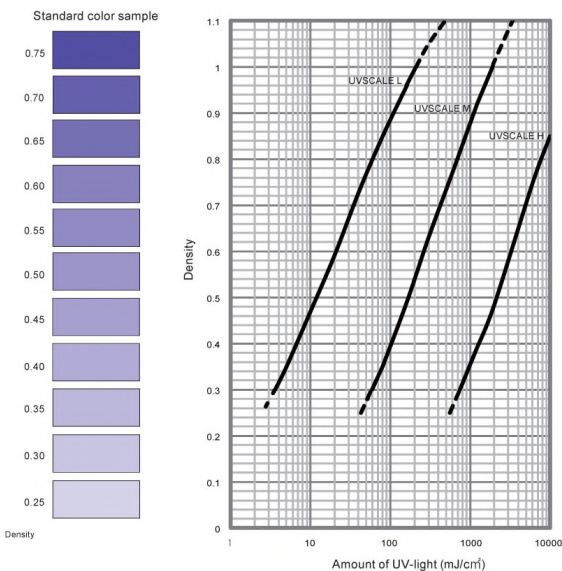
For medium to high levels light, use UVSCALE M or H. These are two sheet types, where a reducing light film is placed over UVSCALE.



Standard Color Chart

[High pressure mercury lamp]

The following are color characteristics generated by a high-pressure mercury lamp. However, please note that these color characteristics are values generated by using FUJIFILM light source and devices, so there may be differences in color density for a given amount of light due to difference and variations in individual lamps or environment.



- *1: Each density is the value measured by FUJIFILM. It is not a warranty of density level.
 *2: The amounts of UV-light are values using a 365nm UV illuminometer.
 *3: The solid lines on the graph show the recommended measurement range. The broken lines represent values that are not as precise as the solid lines and should be used as a reference only.
 *4: Standard Color Samples show the density range for visual evaluation.

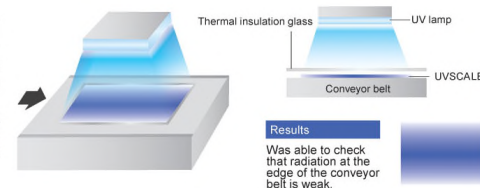
Examples of Measurement

Touch Panels

Checking UV light distribution on a conveyor belt during the OCR attachment process

Challenges: 1

- An illuminometer requires measurements at a large number of points.
- It is not possible to check whether the UV light extends right to the edge of the conveyor belt.

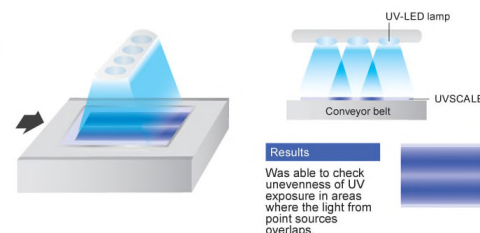


Benefits

- Unevenness of UV exposure and decreases in the amount of light can be checked by observing the intensity of the color.
- Allows the height and position of UV lamps to be adjusted when equipment is installed.
- Allows checking of the time for replacing lamps.

Challenges: 2

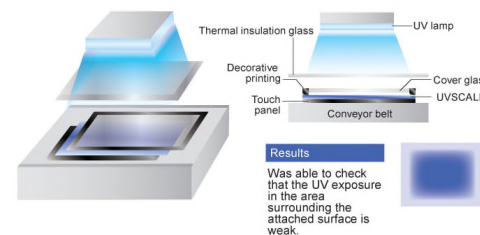
- Cannot check for unevenness of UV exposure caused by multiple point light sources.



Checking UV light distribution between panels in the OCR attachment process

Problems

- It is not possible to check whether the areas below the cover glass decorative printing and touch panel metal lines are being suitably exposed to UV light.
- Because the illuminometer will not fit into the space between panels, measurements cannot be made.



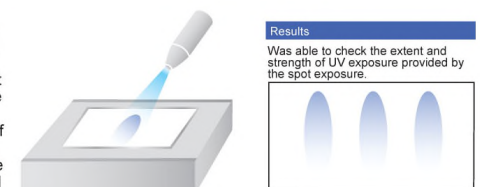
Benefits

- By observing the intensity of color, allows checking of whether the whole surface between panels is suitably exposed to UV light.

Spot Exposure

Challenges

- Illuminometer cannot measure UV exposure coverage of diagonal rays.
- The extent and strength of UV exposure is not known.
- Measurements cannot be performed on curved surfaces.



Benefits

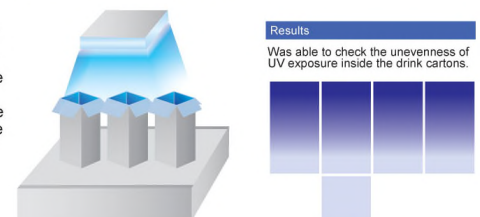
- Since decreases in the amount of UV light can be identified from the intensity of color, the presence of dirt on the lamp and the period for lamp replacement can be determined.
- Allows the height and position of UV lamps to be adjusted when equipment is installed.

Food Packaging

Checking of UV exposure in UV sterilization of drink cartons

Problems

- Measurements cannot be taken of moving objects.
- It is difficult to measure the amount of light inside the drink cartons.



Benefits

- Coverage and strength of exposure can be determined from the intensity of color.
- By attaching UVSCALE to a curved surface, the amount of light on a curved surface can be measured.