

Laboratory report

Exposure to Laboratory light sources: Fluorescent UV lamps (ISO 4892-3 A1) on a plastic sample

Customer:	Großewinkelmann GmbH & Co. K
Address:	Wortstraße 34, 33397, Rietberg-Varensell
Country:	Germany
Contact:	Christian Schöler
Report no:	R260164-01
Date report:	7-9-2026
Drafted by:	Stefan Vermeer

1 Introduction

1.1 Order

By order of Großewinkelmann GmbH & Co. K, M2LAB B.V., has performed laboratory testing under order number 260164-01 as mentioned in 20260159.

The order has been confirmed by sending the samples. The samples were received on 08-07-2026.

1.2 Test purpose

The purpose of the test is to assess colour change in plastic after UV exposure using the grey scale.

1.3 Requirements

No requirements specified by customer.

2 Samples

Sample ID	Client description	Approx. dimensions (mm)	Performed test
260164-01-01	Plastic sample	150x75x2	Exposure to fluorescent UV lamps (ISO 4892-3 A1)
260164-01-02	Plastic sample	150x75x2	
260164-01-03	Plastic sample	150x75x2	



Figure: Representative samples cut from strip of supplied sample plastic sheet

3 Test and assessment information

3.1 Tests

3.1.1 Exposure to fluorescent UV lamps (ISO 4892-3 A1)

Laboratory technician: Stefan Vermeer and Nachiket Deshmane

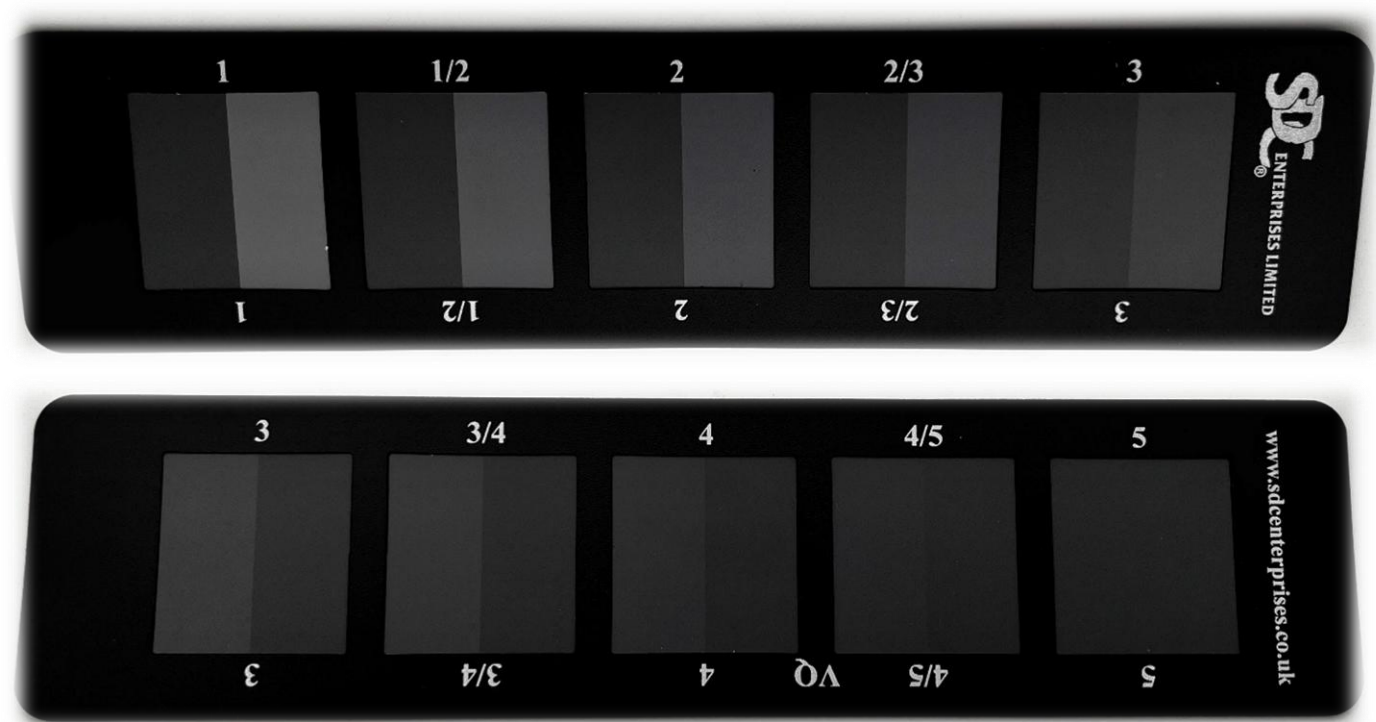
Start date: 16-07-2026 and 27-07-2026

Test method	ISO 4892-3 cycle A1
Device	M2LAB-021
Test conditions	Step 1 : 8 hours exposure to UV-A $0.76 \pm 0.02 \text{ W/m}^2/\text{nm}$ at $60^\circ\text{C} \pm 3^\circ\text{C}$
-	Step 2 : 4 hours exposure to condensation at $50^\circ\text{C} \pm 3^\circ\text{C}$
Panels rotation	Twice a week
Type of temperature sensor	Uninsulated black panel temperature sensor
Location of temperature sensor	Black panel mounted in specimen exposure area
Calibration date temperature sensor	15-04-2026
Radiometer	UC Universal Calibrator with UC10/UV sensor
Calibration date irradiance sensor	20-08-2026
Mounting of samples	In standard frame, no backing
Deviations from the standard	None

3.2 Assessments

3.2.1 Grey scale for assessing staining (ISO 105A02) after 250, 500, 750 and 1000 hours

Fastness grade	CIELab difference (tolerance)
5	0 (± 0.2)
4-5	0.8 (± 0.2)
4	1.7 (± 0.3)
3-4	2.5 (± 0.35)
3	3.4 (± 0.4)
2-3	4.8 (± 0.5)
2	6.8 (± 0.6)
1-2	9.6 (± 0.7)
1	13.6 (± 1.0)



4 Results

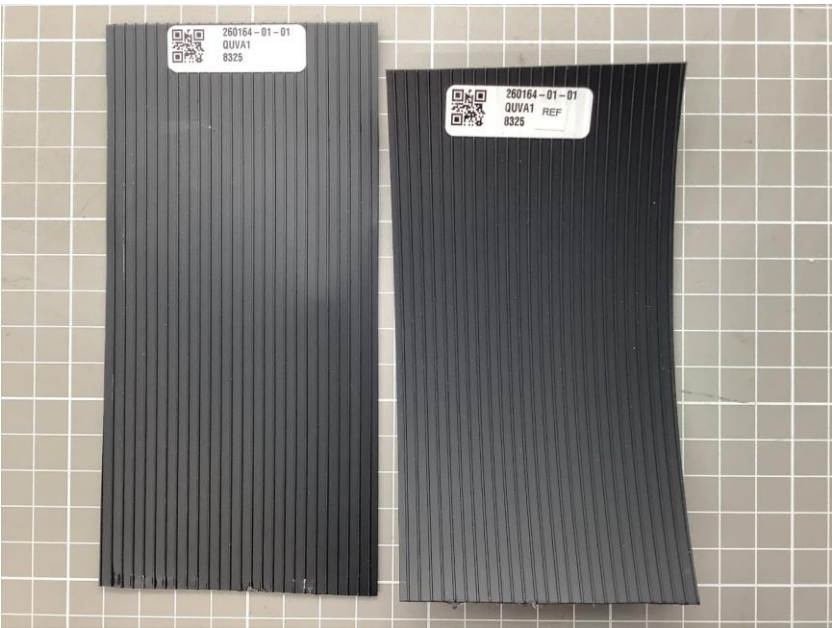
4.1 Exposure to fluorescent UV lamps (ISO 4892-3 A1) samples

4.1.1 Grey scale for assessing staining (ISO 105A02) after 250 hours

Laboratory technician: Nachiket Deshmane and Stefan Vermeer

Test date: 27-07-2026 and 06-08-2026

	260164-01-01	260164-01-02	260164-01-03
Fastness grade	5	5	5



4.1.2 Grey scale for assessing staining (ISO 105A02) (2) after 500 hours

Laboratory technician: Nachiket Deshmane and Stefan Vermeer

Test date: 06-08-2026 and 17-08-2026

	260164-01-01	260164-01-02	260164-01-03
Fastness grade	5	5	5



4.1.3 Grey scale for assessing staining (ISO 105A02) (3) after 750 hours

Laboratory technician: Stefan Vermeer
Test date: 17-08-2026 and 27-08-2026

	260164-01-01	260164-01-02	260164-01-03
Fastness grade	5	5	5

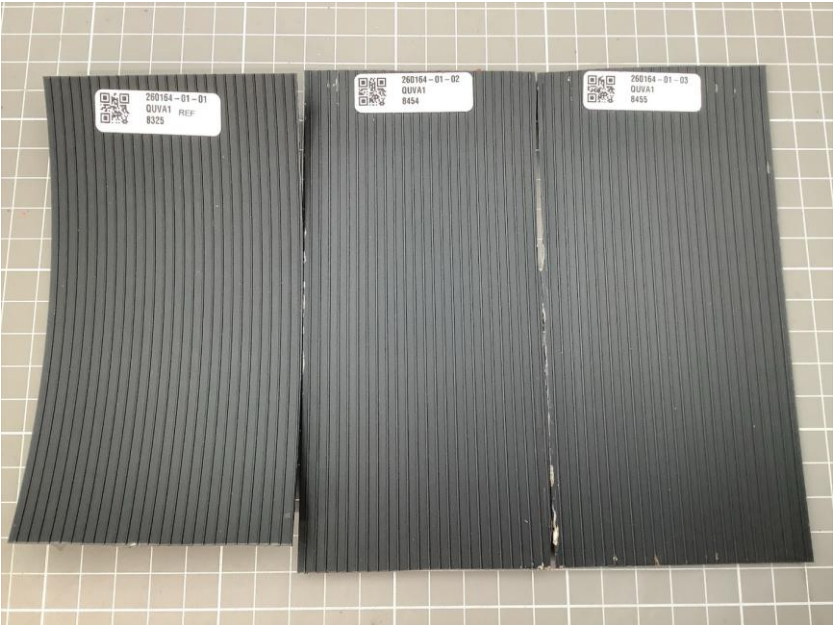


4.1.4 Grey scale for assessing staining (ISO 105A02) (4) after 1000 hours

Laboratory technician: Stefan Vermeer

Test date: 27-08-2026 and 07-09-2026

	260164-01-01	260164-01-02	260164-01-03
Fastness grade	5	5	5



5 Conclusion

After 1000 hours of exposure to fluorescent UV lamps according to ISO 4892-3 cycle A1, all three plastic samples maintained a colour fastness grade of 5 according to ISO 105-A02. Thus, no visible colour change was observed throughout the test period.

M2LAB B.V.

Drawn by

A handwritten signature in black ink, appearing to be 'Stefan Vermeer'.

Stefan Vermeer
Laboratory technician

Approved by

A handwritten signature in black ink, appearing to be 'Nachiket Deshmane'.

Nachiket Deshmane
Laboratory manager

6 Liability

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M2LAB BV hereby declares to have no financial or legal interests in the outcome of the executed inspection.

The operational work has been performed with the greatest possible degree of care which also sought to maximize representativeness of the study. Observations are in many cases snapshots, making certain derogations or details might not have been noticed with the result that the conclusions of the inspection are not complete.

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Changes in report:

Rev. number

1 Amendment on request of:

Amendment:

- None