

# Accelerated Weathering Test



**Decoral LAB**  
Research and Development



**DELUXE**  
series



MRK-010-0132



# TEST DI INVECCHIAMENTO ACCELERATO:

## Invecchiamento accelerato

Tutti i campioni vengono sottoposti all'irraggiamento di lampade allo xenon ed a cicli umido/secco mediante speciali apparecchiature (Q-Sun, SolarBox). Tali apparecchiature vengono utilizzate in conformità agli standard internazionali imposti dalla norma ISO 11341 rispettando le seguenti impostazioni:

- intensità luminosa,  $550 \pm 20 \text{ W/m}^2$  (290-800 nm)
- temperatura del pannello nero,  $65 \pm 5^\circ\text{C}$
- ciclo umido 18 minuti
- ciclo secco 102 minuti

Alla fine dei test, che normalmente hanno una durata minima di 1000 ore, viene valutata la variazione di brillantezza (EN ISO 2813, con angolo di incidenza  $60^\circ$ ) ed il cambiamento di colore  $\Delta E$  (metodo CIELAB ISO 7724/3) rispetto ai valori di partenza. Questo permette di stabilire, in maniera parametrizzata, l'invecchiamento delle varie superfici testate. La corretta conduzione dei test viene verificata attraverso l'utilizzo di campioni in bianco ad invecchiamento noto.









Figure: apparecchiature per l'invecchiamento accelerato.  
Pictures: equipment for the Accelerated Weathering Test

## Accelerated Weathering Test

All samples are exposed to radiation of Xenon lamps and to wet/dry cycles by special equipment (Q-Sun, SOLARBOX). Such equipment is used in accordance with international standards imposed by norm ISO 11341, i.e. complying with the following settings:

- light intensity,  $550 \pm 20 \text{ W / m}^2$  (290-800 nm)
- black panel temperature,  $65 \pm 5^\circ\text{C}$
- wet cycle 18 minutes
- dry cycle 102 minutes.

At the end of the test, whose minimum duration is 1000 hours, Residual Gloss (EN ISO 2813, with an angle of incidence  $60^\circ$ ) and Colour Variation  $\Delta E$  (CIELAB method - ISO 7724 / 3) are measured comparing pre-test values. In this way it is possible to evaluate the aging of surfaces using standard indexes. The accuracy of the test is verified through the use of samples in white, whose aging behaviour is known.

ID Test Report	PROD. VERNIC	COD. FILM	PROG. N°	IMMAGINI
TR-IA-91-2013	DS-0834S	2602/04	91	
TR-IA-92-2013	DS-0834S	2505/10	92	
TR-IA-94-2013	DS-0821S	2515/01	94	
TR-IA-95-2013	DS-0821S	2507/22	95	
TR-IA-97-2013	DS-0875S	2801/04	97	
TR-IA-98-2013	DS-0875S	1401/11	98	



Laboratory  
Test

No. 364



Device:  
QSun 3000



Total duration:  
863h

Unexposed area  
(reference)

Exposed  
area



LAB. ID NUMBER: 29623  
POWDER COATING: DS-0821S  
HEAT TRANSFER FILM: --  
colour variation ( $\Delta E$ ): **0,37**  
residual gloss: **98%**

Unexposed area  
(reference)

Exposed  
area



LAB. ID NUMBER: 29625  
POWDER COATING: DS-0821S  
HEAT TRANSFER FILM: 2515/01  
colour variation ( $\Delta E$ ): **1,3**  
residual gloss: **97%**

#### Technical Remarks

Good residual gloss and very low colour variation ( $\Delta E$ ), after 863 hours.

Technical Opinion:

**Suitable for  
OUTDOOR USE**

Test was carried on samples prepared according to technical specifications supplied by raw materials manufacturers. However, the resistance against accelerated weathering test is only one of the conditions necessary for the evaluation of the resistance of the finished product. For a final assessment see further analysis on natural exposure in Florida.





Laboratory  
Test

No. 364



Device:  
QSun 3000



Total duration:  
863h

Unexposed area  
(reference)

Exposed  
area



Unexposed area  
(reference)

Exposed  
area



LAB. ID NUMBER: 29623  
POWDER COATING: DS-0821S  
HEAT TRANSFER FILM: --  
colour variation ( $\Delta E$ ): **0,37**  
residual gloss: **98%**

LAB. ID NUMBER: 29626  
POWDER COATING: DS-0821S  
HEAT TRANSFER FILM: 2507/22  
colour variation ( $\Delta E$ ): **1,2**  
residual gloss: **103%**

#### Technical Remarks

Good residual gloss and very low colour variation ( $\Delta E$ ), after 863 hours.

Technical Opinion:

**Suitable for  
OUTDOOR USE**

Test was carried on samples prepared according to technical specifications supplied by raw materials manufacturers. However, the resistance against accelerated weathering test is only one of the conditions necessary for the evaluation of the resistance of the finished product. For a final assessment see further analysis on natural exposure in Florida.



Laboratory  
Test

No. 364



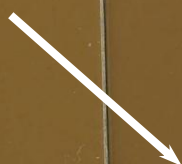
Device:  
QSun 3000



Total duration:  
863h

Unexposed area  
(reference)

Exposed  
area



LAB. ID NUMBER: 29627  
POWDER COATING: DS-0875S  
HEAT TRANSFER FILM: --  
colour variation ( $\Delta E$ ): **0,28**  
residual gloss: **93%**

Unexposed area  
(reference)

Exposed  
area



LAB. ID NUMBER: 29629  
POWDER COATING: DS-0875S  
HEAT TRANSFER FILM: 2801/04  
colour variation ( $\Delta E$ ): **1,47**  
residual gloss: **107%**

#### Technical Remarks

Good residual gloss and very low colour variation ( $\Delta E$ ), after 863 hours.

Technical Opinion:

**Suitable for  
OUTDOOR USE**

Test was carried on samples prepared according to technical specifications supplied by raw materials manufacturers. However, the resistance against accelerated weathering test is only one of the conditions necessary for the evaluation of the resistance of the finished product. For a final assessment see further analysis on natural exposure in Florida.





Laboratory  
Test

No. 364



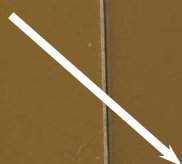
Device:  
QSun 3000



Total duration:  
863h

Unexposed area  
(reference)

Exposed  
area



LAB. ID NUMBER: 29627  
POWDER COATING: DS-0875S  
HEAT TRANSFER FILM: --  
colour variation ( $\Delta E$ ): **0,28**  
residual gloss: **93%**

Unexposed area  
(reference)

Exposed  
area



LAB. ID NUMBER: 29630  
POWDER COATING: DS-0875S  
HEAT TRANSFER FILM: 1401/11  
colour variation ( $\Delta E$ ): **1,13**  
residual gloss: **99%**

#### Technical Remarks

Good residual gloss and very low colour variation ( $\Delta E$ ), after 863 hours.

Technical Opinion:

**Suitable for  
OUTDOOR USE**

Test was carried on samples prepared according to technical specifications supplied by raw materials manufacturers. However, the resistance against accelerated weathering test is only one of the conditions necessary for the evaluation of the resistance of the finished product. For a final assessment see further analysis on natural exposure in Florida.



Laboratory  
Test

No. 364



Device:  
QSun 3000



Total duration:  
863h

**Unexposed area  
(reference)**

**Exposed  
area**



LAB. ID NUMBER: 29619  
POWDER COATING: DS-0834S  
HEAT TRANSFER FILM: --  
colour variation ( $\Delta E$ ): **0,88**  
residual gloss: **95%**

**Unexposed area  
(reference)**

**Exposed  
area**



LAB. ID NUMBER: 29621  
POWDER COATING: DS-0834S  
HEAT TRANSFER FILM: 2602/04  
colour variation ( $\Delta E$ ): **2,7**  
residual gloss: **99%**

#### Technical Remarks

Good residual gloss and very low colour variation ( $\Delta E$ ), after 863 hours.

Technical Opinion:

**Suitable for  
OUTDOOR USE**

Test was carried on samples prepared according to technical specifications supplied by raw materials manufacturers. However, the resistance against accelerated weathering test is only one of the conditions necessary for the evaluation of the resistance of the finished product. For a final assessment see further analysis on natural exposure in Florida.





Laboratory  
Test

No. 364



Device:  
QSun 3000



Total duration:  
863h

**Unexposed area  
(reference)**

**Exposed  
area**



LAB. ID NUMBER: 29619  
POWDER COATING: DS-0834S  
HEAT TRANSFER FILM: --  
colour variation ( $\Delta E$ ): **0,88**  
residual gloss: **95%**

**Unexposed area  
(reference)**

**Exposed  
area**



LAB. ID NUMBER: 29622  
POWDER COATING: DS-0834S  
HEAT TRANSFER FILM: 2505/10  
colour variation ( $\Delta E$ ): **1,66**  
residual gloss: **97%**

#### Technical Remarks

Good residual gloss and very low colour variation ( $\Delta E$ ), after 863 hours.

Technical Opinion:

**Suitable for  
OUTDOOR USE**

Test was carried on samples prepared according to technical specifications supplied by raw materials manufacturers. However, the resistance against accelerated weathering test is only one of the conditions necessary for the evaluation of the resistance of the finished product. For a final assessment see further analysis on natural exposure in Florida.