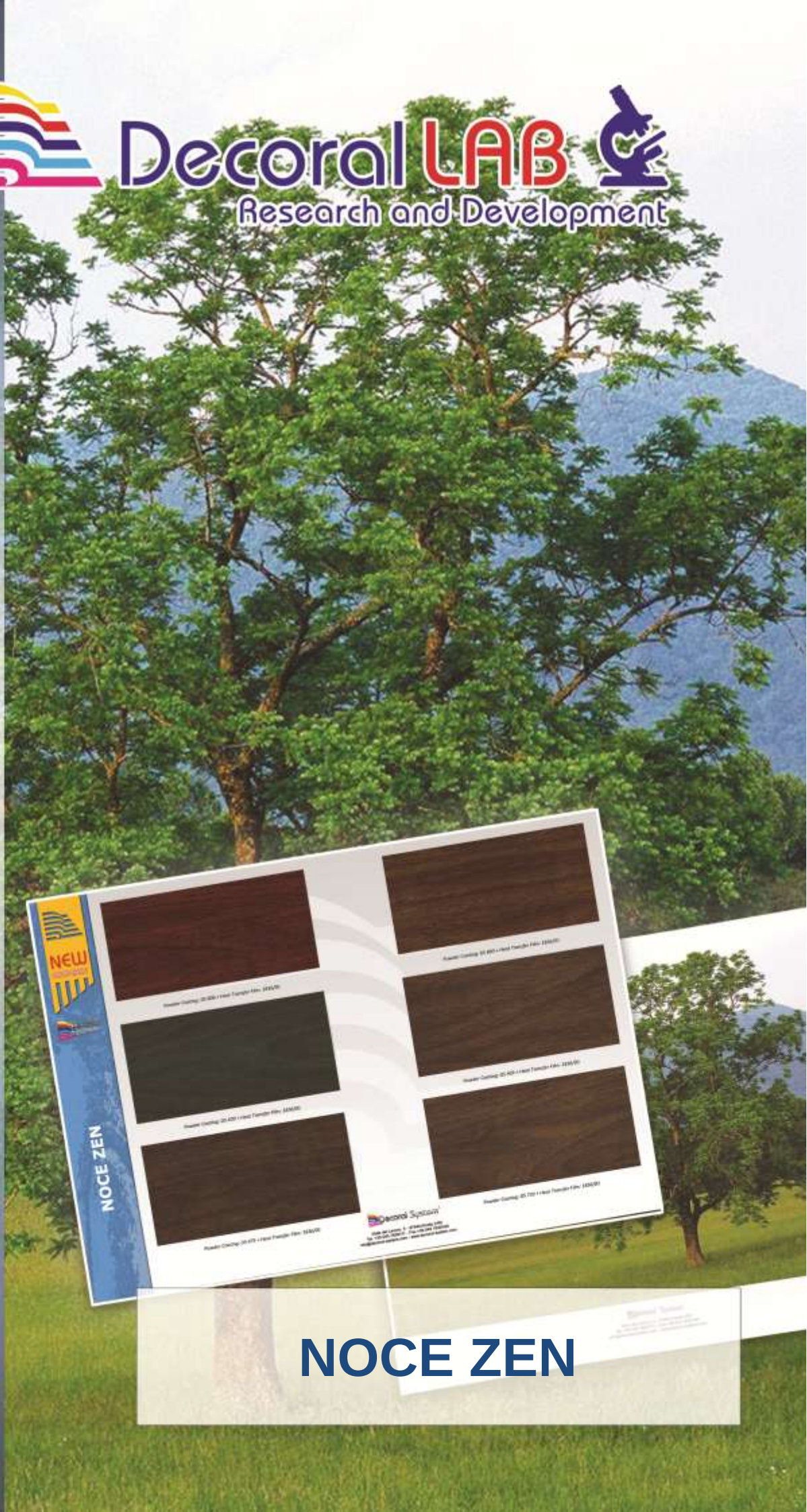
Accelerated Weathering Test

Decoral LAB
Research and Development



NOCE ZEN

MRK 010-0060

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±20W/m^2 (290-800 nm)
- temperatura del pannello nero, 65 ± 5°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°) ed il cambiamento di colore ΔE (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 ± 20 W / m^2 (290-800 nm)
- black panel temperature, 65 ± 5 ° 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°) and Colour Variation ΔE (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 know.

ID Test Report	PROD. VERNIC	COD. FILM	PROG. N°	IMMAGINI
TR-IA-208-2013	DS-0806S	1836/01	208	
TR-IA-157-2013	DS-0803S	1836/01	157	
TR-IA-155-2013	DS 409	1836/01	155	
TR-IA-29-2012	DS 403	1836/01	29	
TR-IA-156-2013	DS 475	1836/01	156	
TR-IA-245-2012	DS 733	1836/01	245	

Test Report: Accelerated Weathering Test

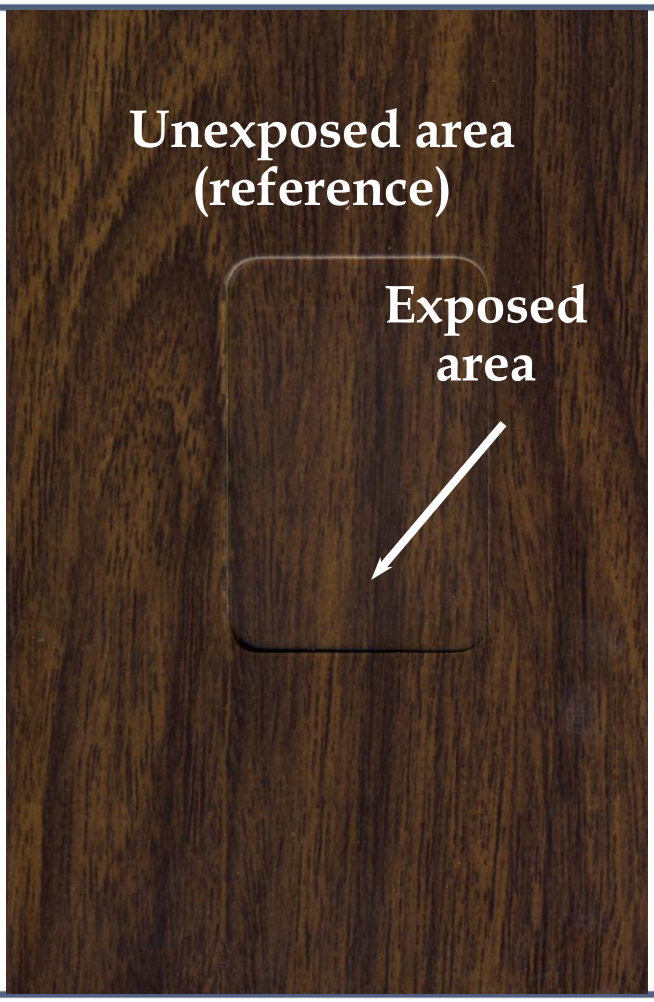
Decoral LAB Research and Development

Laboratory Test

No. 305

Device: Sol 3000RHN

Total duration: 1009h



LAB. ID NUMBER: 25176
POWDER COATING: DS 403
HEAT TRANSFER FILM: 1836/01
colour variation (ΔE): **0,89**
residual gloss: **87%**

Technical Remarks

Excellent residual gloss and very low colour variation (ΔE), after 1009 hours, on both coatings.

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.

Test Report: Accelerated Weathering Test

Decoral LAB Research and Development

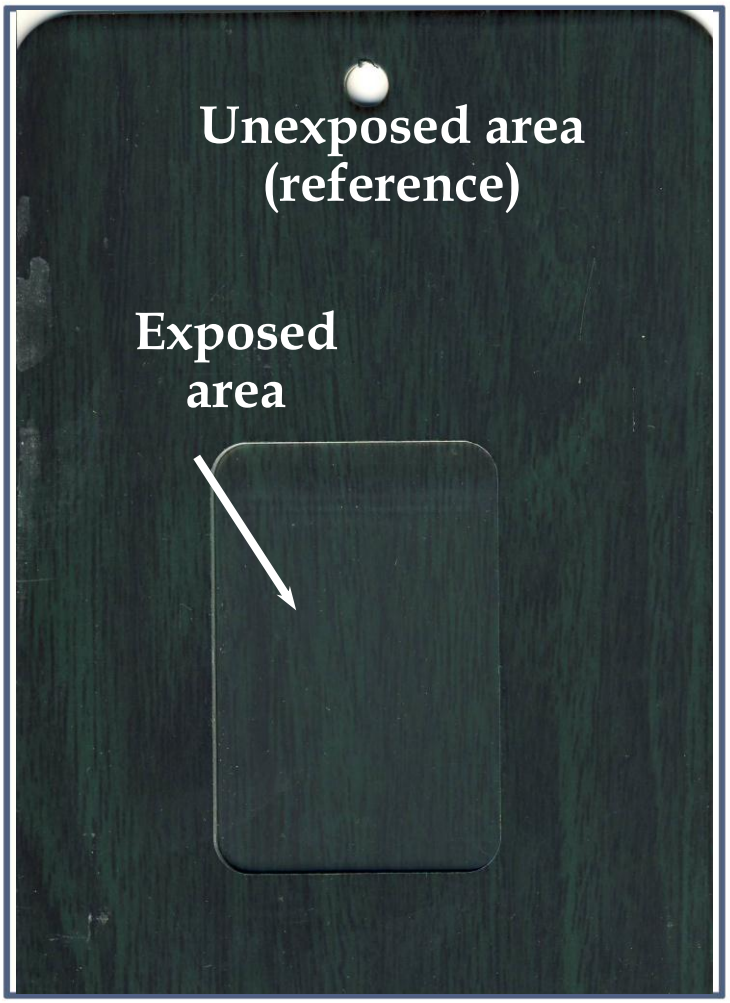
155

Laboratory Test

No. 374

Device: Solar 1500eN

Total duration: 1348h



LAB. ID NUMBER: 29737
POWDER COATING: DS 409
HEAT TRANSFER FILM: 1836/01
Colour variation(ΔE):**1,07**
residual gloss: **51%**

Technical Remarks

Sufficient residual gloss and very low colour variation (ΔE), after 1348 hours on decorated sample.

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.

Test Report: Accelerated Weathering Test

Decoral LAB Research and Development

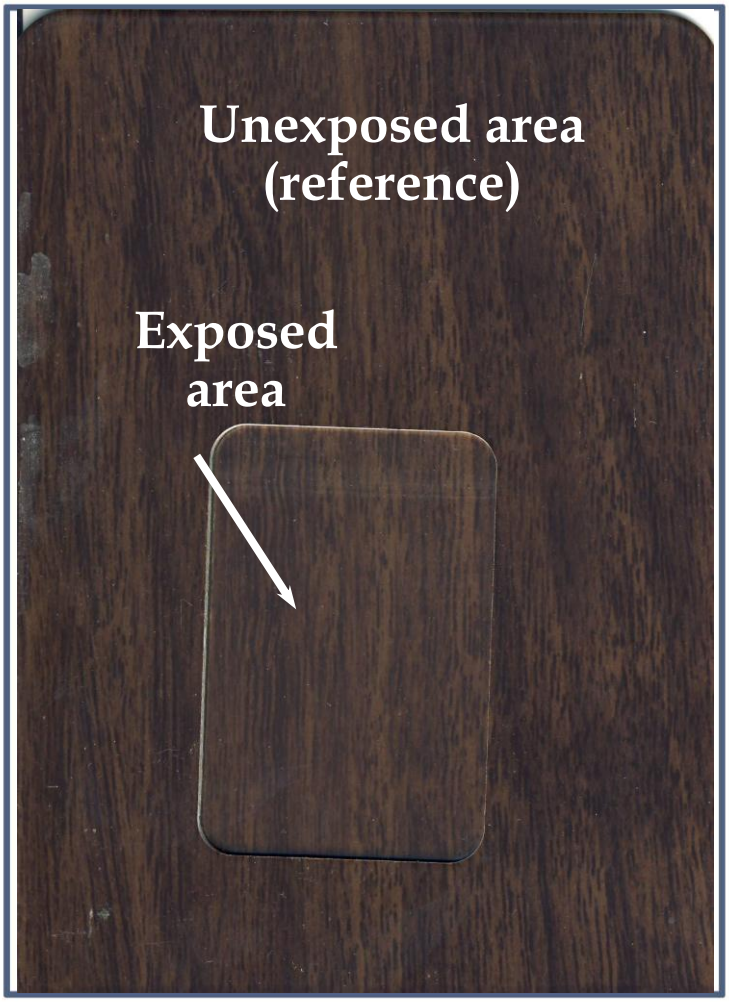
156

Laboratory Test

No. 374

Device: Solar 1500eN

Total duration: 1348h



LAB. ID NUMBER: 29738
POWDER COATING: DS 475
HEAT TRANSFER FILM: 1836/01
Colour variation(ΔE):**1,14**
residual gloss: **95%**

Technical Remarks

Excellent residual gloss and very low colour variation (ΔE), after 1348 hours on decorated sample.

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.

Test Report: Accelerated Weathering Test

Decoral LAB Research and Development

157

Laboratory Test

No. 374

Device: Solar 1500eN

Total duration: 1348h

LAB. ID NUMBER: 29739
POWDER COATING: DS-0803S
HEAT TRANSFER FILM: 1836/01
Colour variation(ΔE):**1,77**
residual gloss: **90%**

Technical Remarks

Excellent residual gloss and very low colour variation (ΔE), after 1348 hours on decorated sample.

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.

Test Report: Accelerated Weathering Test

Decoral LAB Research and Development

208

Laboratory Test

No. 383

Device: QSun 3000

Total duration: 1235h

LAB. ID NUMBER: 31813
POWDER COATING: DS-0806S
HEAT TRANSFER FILM: 1836/01
Colour variation(ΔE):**1,7**
residual gloss: **97%**

Technical Remarks

Excellent residual gloss and very low colour variation (ΔE), after 1235 hours on decorated sample.

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.

Test Report: Accelerated Weathering Test

Decoral LAB Research and Development

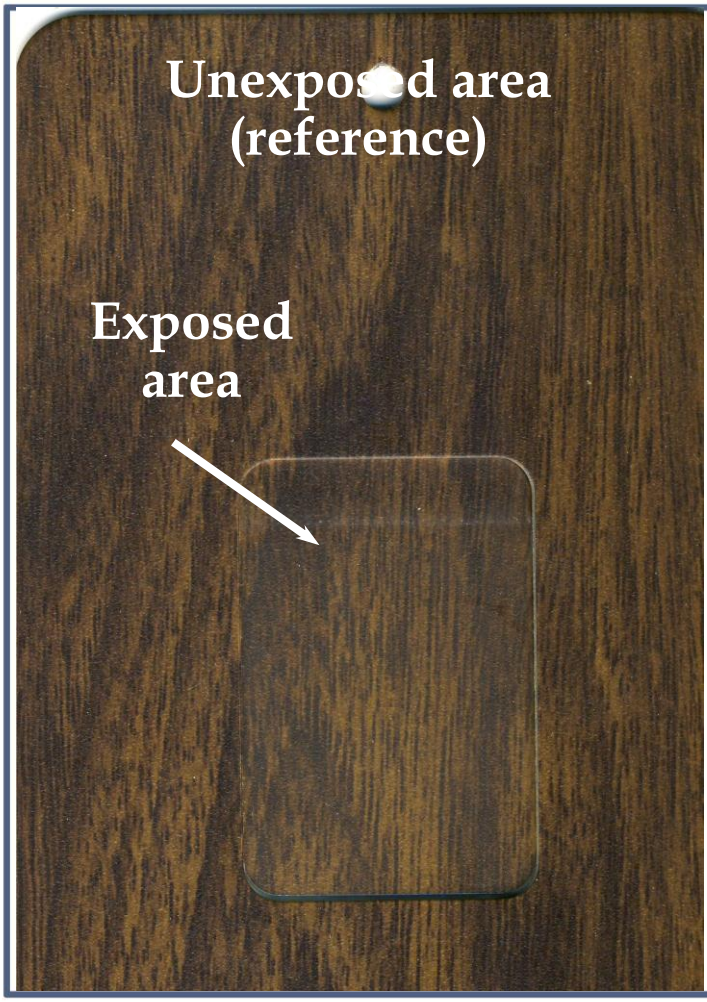
245

Laboratory Test

No. 340

Device: Solar 3000RH

Total duration: 1026h



LAB. ID NUMBER: 26897
POWDER COATING: DS 733
HEAT TRANSFER FILM: 1836/01
colour variation (ΔE): **1,93**
residual gloss: **70%**

Technical Remarks

Good residual gloss and very low colour variation (ΔE), after 1026 hours on decorated sample.

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.