Accelerated Weathering Test

Decoral LAB
Research and Development

SUGHERO
series

MRK 010-0300

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-298-2013	DS-0702SI	2904/01	298	
TR-IA-299-2013	DS-0725SI	2904/02	299	
TR-IA-300-2013	saltlake-028	2904/01	300	
TR-IA-301-2013	icetouch-007	2904/02	301	
TR-IA-302-2013	DS 421	2904/02	302	
TR-IA-79-2014	DS-0703SI	2904/02	79	

Test Report: Accelerated Weathering Test

Decoral LAB Research and Development

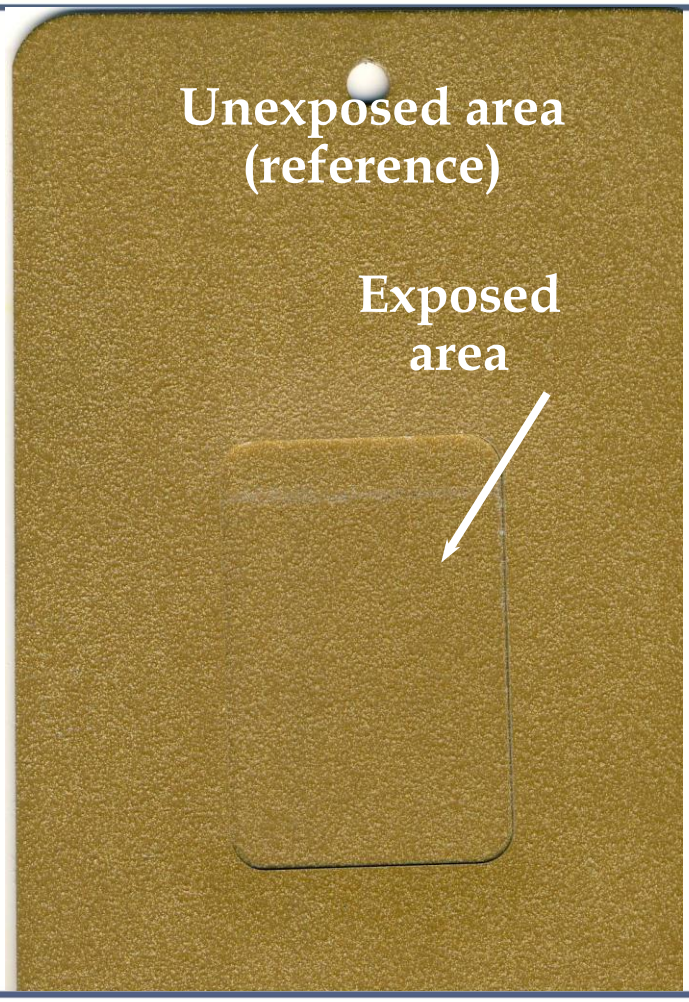
79

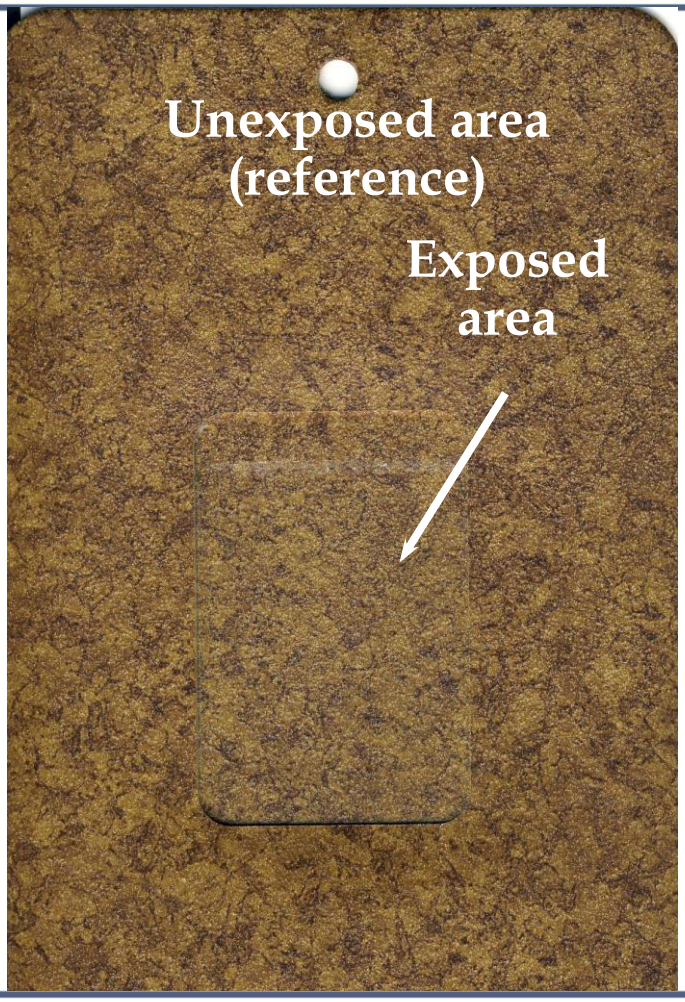
Laboratory Test

No. 405

Device: Solar 3000e

Total duration: 1286h





LAB. ID NUMBER: 34307
POWDER COATING: DS-0703SI
HEAT TRANSFER FILM: --
Colour Variation(ΔE): **1,97**
residual gloss: **85%**

LAB. ID NUMBER: 34308
POWDER COATING: DS-0703SI
HEAT TRANSFER FILM: 2904/02
Colour Variation(ΔE): **2,83**
residual gloss: **100%**

Technical Remarks

Excellent residual gloss and colour variation (ΔE) under the limit in order for outdoor use, after 1286 hours

Technical Opinion:

Suitable for OUTDOOR USE

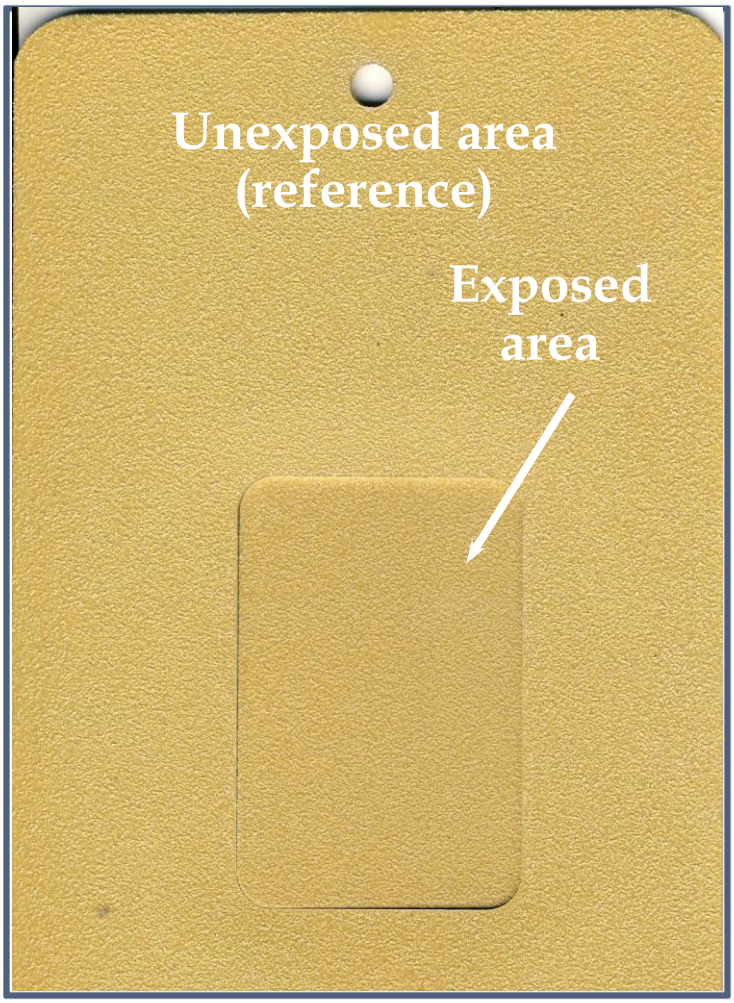
Test was carried on samples prepared according to technical specifications supplied by raw materials manufacturers. However, the resistance against accelerated weathering test is only one of the conditions necessary for the evaluation of the resistance of the finished product. For a final assessment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

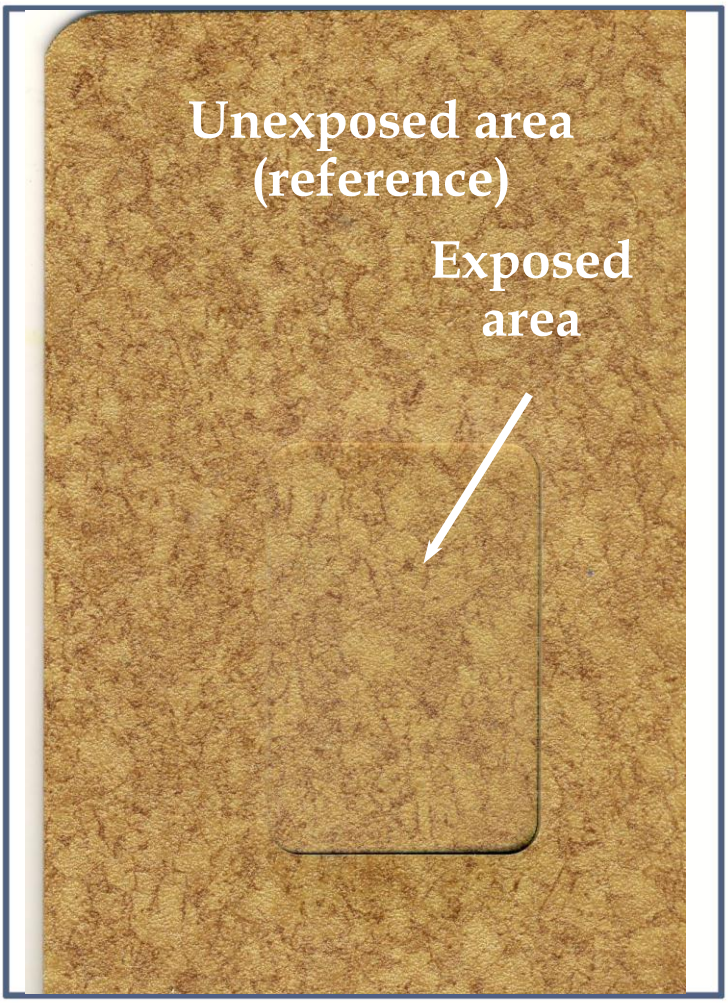
Test Report: Accelerated Weathering Test

Decoral LAB Research and Development

298

Laboratory Test	No. 389	Device: QSun 3000	Total duration: 944h





LAB. ID NUMBER: 32638
POWDER COATING: DS-0702SI
HEAT TRANSFER FILM: --
colour variation (ΔE): **0,52**
residual gloss: **103%**

LAB. ID NUMBER: 32639
POWDER COATING: DS-0702SI
HEAT TRANSFER FILM: 2904/01
colour variation (ΔE): **2,41**
residual gloss: **103%**

Technical Remarks

Excellent residual gloss and very low colour variation (ΔE), after 944 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.

Test Report: Accelerated Weathering Test

Decoral LAB Research and Development

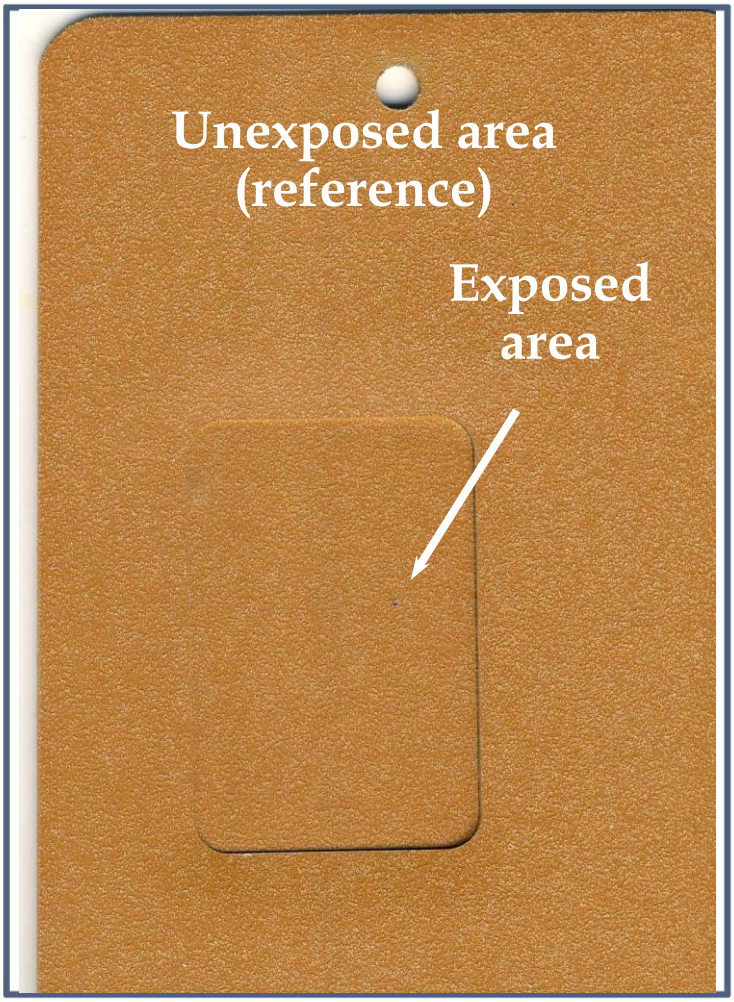
299

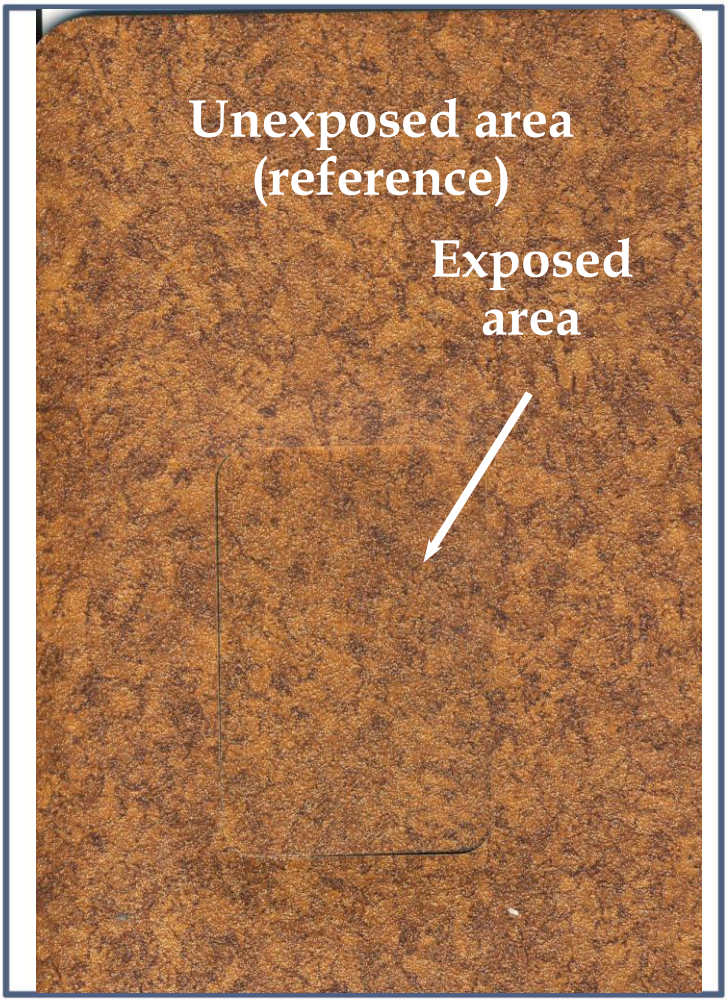
Laboratory Test

No. 389

Device: QSun 3000

Total duration: 944h





LAB. ID NUMBER: 32640
POWDER COATING: DS-0725SI
HEAT TRANSFER FILM: --
colour variation (ΔE): **1,17**
residual gloss: **98%**

LAB. ID NUMBER: 32641
POWDER COATING: DS-0725SI
HEAT TRANSFER FILM: 2904/02
colour variation (ΔE): **0,53**
residual gloss: **98%**

Technical Remarks

Excellent residual gloss and very low colour variation (ΔE), after 944 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.

Test Report: Accelerated Weathering Test

Decoral LAB Research and Development

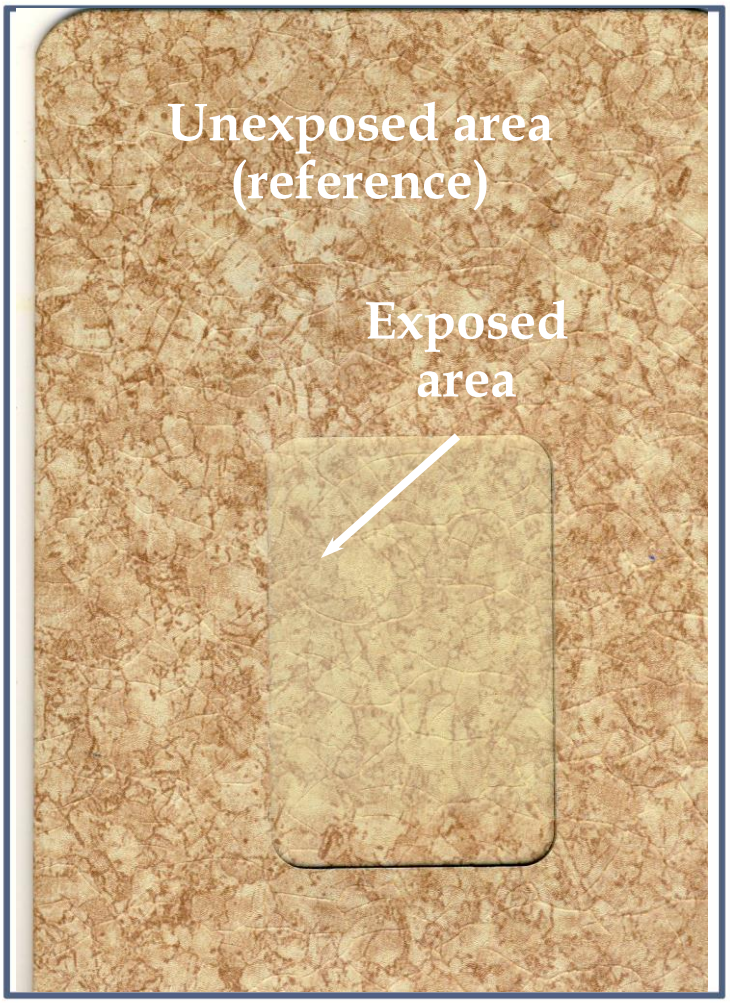
300

Laboratory Test

No. 389

Device: QSun 3000

Total duration: 944 h



LAB. ID NUMBER: 32644
POWDER COATING: saltlake-028
HEAT TRANSFER FILM: 2904/01
Colour Variation(ΔE): **6,31**
residual gloss:**74%**

Technical Remarks

Good residual gloss but colour variation isn't acceptable for outdoor use.

Technical Opinion:

NOT 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

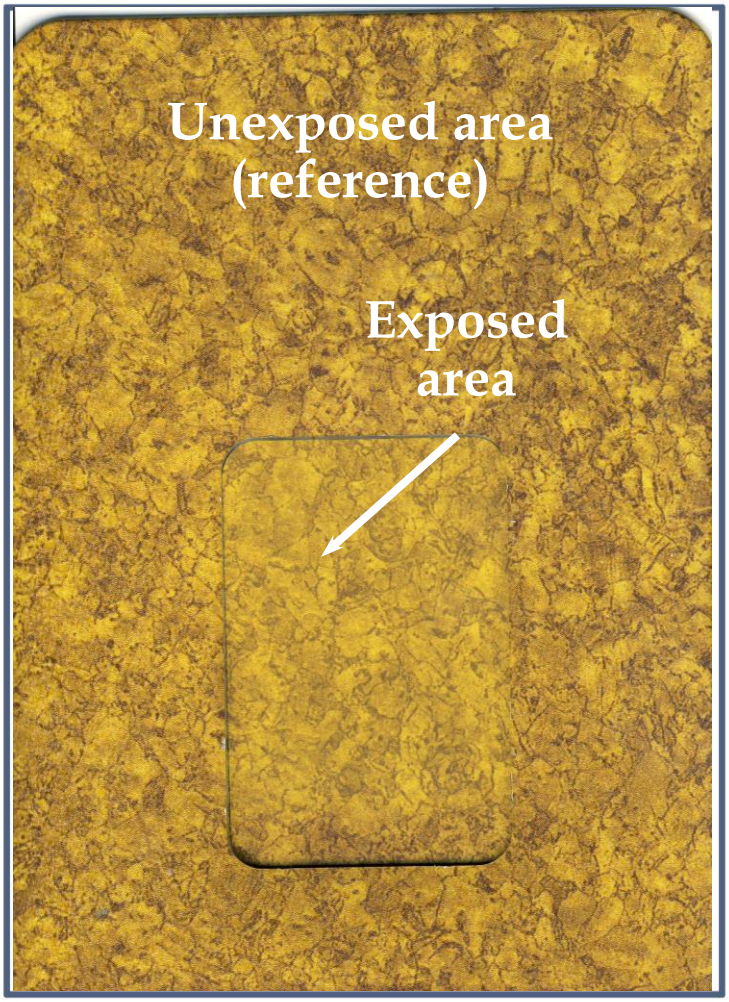
301

Laboratory Test

No. 389

Device: QSun 3000

Total duration: 944 h



LAB. ID NUMBER: 32645
POWDER COATING: icetouch-007
HEAT TRANSFER FILM: 2904/02
Colour Variation(ΔE): **10,47**
residual gloss:**75%**

Technical Remarks

Good residual gloss but colour variation isn't acceptable for outdoor use.

Technical Opinion:

NOT 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

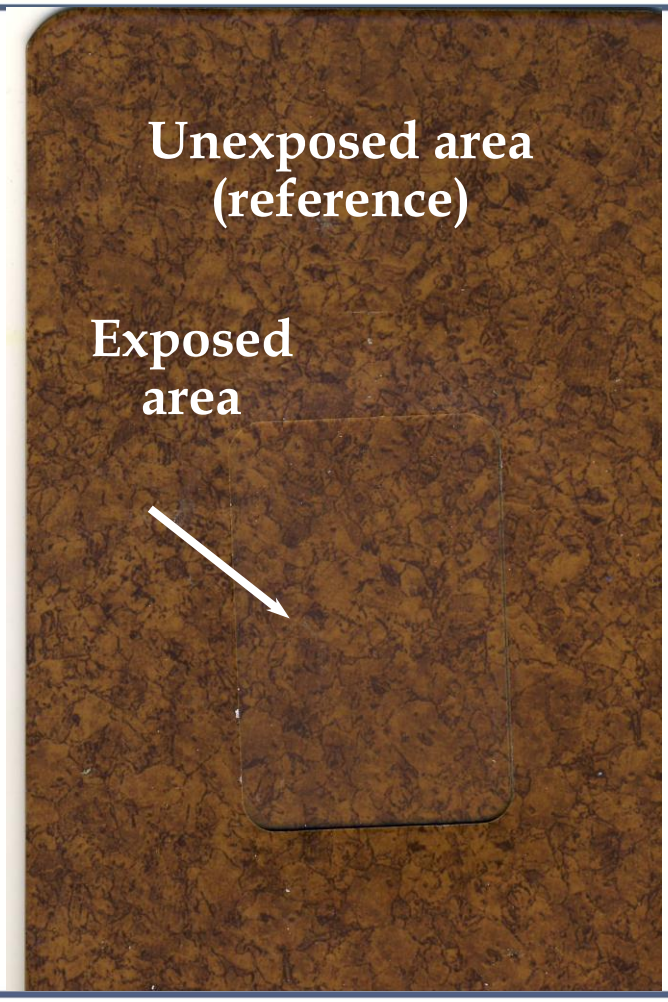
302

Laboratory Test

No. 389

Device: QSun 3000

Total duration: 944h



LAB. ID NUMBER: 32646
POWDER COATING: DS 421
HEAT TRANSFER FILM: 2904/02
colour variation (ΔE): **2,03**
residual gloss: **101%**

Technical Remarks

Excellent residual gloss and very low colour variation (ΔE), after 944hours.

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.