

SKZ - Testing GmbH · Friedrich-Bergius-Ring 22 · 97076 Würzburg

ADOPEN PLASTIK San. A.S.  
Mr. Alim Döngel  
Organize Sanayi Bölgesi 2. Etap  
07040 ANTALYA  
TURKEY

Wolfgang Ries  
Tel.: +49 931 4104-126  
Fax: +49 931 4104-271  
w.ries@skz.de

30 April 2019 / km

### Final results of the weathering fastness test Test order no. 126569/17

Dear Mr. Döngel,

Please find below the following results of the final assessment of weathering fastness after artificial weathering of approx. **10,185 hours** (sample 1) and **10,195 hours** (sample 2, 3, 4):

Irradiation energy: **20 GJ/m<sup>2</sup>**

Artificial weathering according to EN 513, procedure **1** (simulation of a **moderate** climate zone **M**) up to an irradiation dose of each **20 GJ/m<sup>2</sup>** in the wave length range between 300 nm and 800 nm.

#### 1. Colourimetric assessment:

The sample colour was measured by means of a spectrophotometer of a wave length area of 360 - 750 nm, standard light type D65, gloss inclusion, 10° normal inspection. The colour distance  $\Delta E^*_{ab}$  was determined according to DIN EN ISO 11664-4. Prior to and after artificial weathering, colour was measured at the same position on the sample to obtain reproducible results despite the structured surface.

Please note that the colourimetric assessment of the structured foils can only be taken as a guide value.

#### 2. Visual assessment

Visual assessment was performed according to DIN EN 20105-A02 and DIN EN 20105-A03 with the grey scale.

Sample 1: **Anthracite Gray P-ST508-20-066-2**

Time of exposure	Dose of irradiation	Colour coordinates			Total colour distance $\Delta E^*_{ab}$
		$\Delta L^*$	$\Delta a^*$	$\Delta b^*$	
1000 h	2 GJ/m <sup>2</sup>	-1.4	0.2	0.5	1.5
2000 h	4 GJ/m <sup>2</sup>	-1.0	0.2	0.4	1.1
3000 h	6 GJ/m <sup>2</sup>	-0.7	0.2	0.2	0.8
4000 h	8 GJ/m <sup>2</sup>	-0.7	0.1	0.1	0.7
5000 h	10 GJ/m <sup>2</sup>	-0.7	0.2	0.1	0.7
6000 h	12 GJ/m <sup>2</sup>	-0.7	0.2	0.1	0.7
7000 h	14 GJ/m <sup>2</sup>	-0.8	0.2	0.0	0.8
8000 h	16 GJ/m <sup>2</sup>	-0.9	0.2	0.1	0.9
9000 h	18 GJ/m <sup>2</sup>	-1.1	0.2	0.2	1.1
10185 h	20 GJ/m <sup>2</sup>	-1.1	0.2	0.3	1.2

Sample 1: **Anthracite Gray P-ST508-20-066-2**

Time of exposure	Dose of irradiation	Grey scale value		Remark
		A 02	A 03	
1000 h	2 GJ/m <sup>2</sup>	4 - 5	4 - 5	darker, plaque
2000 h	4 GJ/m <sup>2</sup>	4 - 5	4 - 5	darker, plaque
3000 h	6 GJ/m <sup>2</sup>	4 - 5	4 - 5	darker, plaque
4000 h	8 GJ/m <sup>2</sup>	4 - 5	4 - 5	darker, plaque
5000 h	10 GJ/m <sup>2</sup>	4 - 5	4 - 5	darker, plaque
6000 h	12 GJ/m <sup>2</sup>	4 - 5	4 - 5	darker, plaque
7000 h	14 GJ/m <sup>2</sup>	4 - 5	4 - 5	more red, plaque
8000 h	16 GJ/m <sup>2</sup>	4 - 5	4 - 5	more red, plaque
9000 h	18 GJ/m <sup>2</sup>	4 - 5	4 - 5	more red, plaque
10185 h	20 GJ/m <sup>2</sup>	4 - 5	4 - 5	darker, more red, plaque

Sample 2: **Sand Gray**

Time of exposure	Dose of irradiation	Colour coordinates			Total colour distance $\Delta E^*_{ab}$
		$\Delta L^*$	$\Delta a^*$	$\Delta b^*$	
1000 h	2 GJ/m <sup>2</sup>	-0.5	-0.1	0.1	0.5
2000 h	4 GJ/m <sup>2</sup>	-0.5	-0.3	0.2	0.6
3000 h	6 GJ/m <sup>2</sup>	-0.3	-0.4	-0.1	0.5
4000 h	8 GJ/m <sup>2</sup>	-0.2	-0.5	-0.3	0.6
5000 h	10 GJ/m <sup>2</sup>	-0.3	-0.6	-0.2	0.7
6000 h	12 GJ/m <sup>2</sup>	-0.2	-0.6	-0.2	0.7
7000 h	14 GJ/m <sup>2</sup>	-0.1	-0.7	-0.3	0.8
8000 h	16 GJ/m <sup>2</sup>	-0.2	-0.7	-0.3	0.8
9000 h	18 GJ/m <sup>2</sup>	-0.2	-0.8	-0.3	0.9
10195 h	20 GJ/m <sup>2</sup>	-0.2	-0.9	-0.2	0.9

Sample 2: **Sand Gray**

Time of exposure	Dose of irradiation	Grey scale value		Remark
		A 02	A 03	
1000 h	2 GJ/m <sup>2</sup>	4 - 5	4 - 5	darker, more gloss
2000 h	4 GJ/m <sup>2</sup>	4 - 5	4 - 5	darker, more gloss
3000 h	6 GJ/m <sup>2</sup>	4 - 5	4 - 5	darker, more gloss
4000 h	8 GJ/m <sup>2</sup>	4 - 5	4 - 5	darker, more gloss
5000 h	10 GJ/m <sup>2</sup>	4 - 5	4 - 5	darker, more gloss
6000 h	12 GJ/m <sup>2</sup>	4 - 5	4 - 5	darker, more gloss
7000 h	14 GJ/m <sup>2</sup>	4 - 5	4 - 5	darker, more green, more gloss
8000 h	16 GJ/m <sup>2</sup>	4 - 5	4 - 5	more blue, more green, more gloss
9000 h	18 GJ/m <sup>2</sup>	4 - 5	4 - 5	more blue, more green, more gloss
10195 h	20 GJ/m <sup>2</sup>	4 - 5	4 - 5	more blue, more green, more gloss

Sample 3: **Dark Oak**

Time of exposure	Dose of irradiation	Colour coordinates			Total colour distance $\Delta E^*_{ab}$
		$\Delta L^*$	$\Delta a^*$	$\Delta b^*$	
1000 h	2 GJ/m <sup>2</sup>	-0.7	0.0	0.8	1.1
2000 h	4 GJ/m <sup>2</sup>	-0.7	-0.2	0.7	1.0
3000 h	6 GJ/m <sup>2</sup>	-0.5	-0.4	0.5	0.8
4000 h	8 GJ/m <sup>2</sup>	-0.3	-0.6	0.2	0.7
5000 h	10 GJ/m <sup>2</sup>	-0.4	-0.7	0.4	0.9
6000 h	12 GJ/m <sup>2</sup>	-0.3	-0.9	0.4	1.0
7000 h	14 GJ/m <sup>2</sup>	-0.3	-1.0	0.4	1.1
8000 h	16 GJ/m <sup>2</sup>	-0.4	-1.1	0.6	1.3
9000 h	18 GJ/m <sup>2</sup>	-0.5	-1.2	0.6	1.4
10195 h	20 GJ/m <sup>2</sup>	-0.5	-1.2	0.8	1.5

**Sample 3: Dark Oak**

Time of exposure	Dose of irradiation	Grey scale value		Remark
		A 02	A 03	
1000 h	2 GJ/m <sup>2</sup>	4 - 5	4 - 5	more yellow, more gloss
2000 h	4 GJ/m <sup>2</sup>	4 - 5	4 - 5	more yellow, more gloss
3000 h	6 GJ/m <sup>2</sup>	4 - 5	4 - 5	more yellow, more gloss
4000 h	8 GJ/m <sup>2</sup>	4 - 5	4 - 5	more yellow, more gloss
5000 h	10 GJ/m <sup>2</sup>	4 - 5	4 - 5	more yellow, more gloss
6000 h	12 GJ/m <sup>2</sup>	4 - 5	4 - 5	more yellow, more gloss
7000 h	14 GJ/m <sup>2</sup>	4 - 5	4 - 5	more yellow
8000 h	16 GJ/m <sup>2</sup>	4 - 5	4 - 5	more yellow
9000 h	18 GJ/m <sup>2</sup>	4 - 5	4 - 5	more yellow
10195 h	20 GJ/m <sup>2</sup>	4 - 5	4 - 5	more yellow

Sample 4: **Golden Oak**

Time of exposure	Dose of irradiation	Colour coordinates			Total colour distance $\Delta E^*_{ab}$
		$\Delta L^*$	$\Delta a^*$	$\Delta b^*$	
1000 h	2 GJ/m <sup>2</sup>	-0.5	0.2	1.2	1.3
2000 h	4 GJ/m <sup>2</sup>	-0.4	0.1	1.0	1.1
3000 h	6 GJ/m <sup>2</sup>	-0.3	0.0	0.7	0.8
4000 h	8 GJ/m <sup>2</sup>	0.0	-0.1	0.4	0.4
5000 h	10 GJ/m <sup>2</sup>	-0.3	-0.1	0.6	0.7
6000 h	12 GJ/m <sup>2</sup>	-0.2	-0.1	0.6	0.6
7000 h	14 GJ/m <sup>2</sup>	-0.1	-0.2	0.5	0.6
8000 h	16 GJ/m <sup>2</sup>	-0.2	-0.2	0.7	0.8
9000 h	18 GJ/m <sup>2</sup>	-0.3	-0.2	0.8	0.9
10195 h	20 GJ/m <sup>2</sup>	-0.3	-0.2	1.1	1.2



Sample 4: **Golden Oak**

Time of exposure	Dose of irradiation	Grey scale value		Remark
		A 02	A 03	
1000 h	2 GJ/m <sup>2</sup>	4 - 5	4 - 5	more red, more gloss
2000 h	4 GJ/m <sup>2</sup>	4 - 5	4 - 5	more red, more gloss
3000 h	6 GJ/m <sup>2</sup>	4 - 5	4 - 5	more red, more gloss
4000 h	8 GJ/m <sup>2</sup>	4 - 5	4 - 5	more red, more gloss
5000 h	10 GJ/m <sup>2</sup>	4 - 5	4 - 5	more red, more gloss
6000 h	12 GJ/m <sup>2</sup>	4 - 5	4 - 5	more red, more gloss
7000 h	14 GJ/m <sup>2</sup>	4 - 5	4 - 5	lighter, more yellow
8000 h	16 GJ/m <sup>2</sup>	4 - 5	4 - 5	more yellow
9000 h	18 GJ/m <sup>2</sup>	4 - 5	4 - 5	more yellow
10195 h	20 GJ/m <sup>2</sup>	4 - 5	4 - 5	more yellow

If you have any questions, don't hesitate to contact me.

Best regards

**SKZ** - Testing GmbH

i. A.



Wolfgang Ries

Deputy Group Manager Testing Profiles and Sealants