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Firat Plastik Kaucuk San. Ve TIC. A.S.
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23 March 2015 / km

**Final results of the weathering fastness test
Test order no. 109439/14 (S-climate)**

Dear Mr. Suner,

Please find below the following results of the final assessment of the weathering fastness test after artificial weathering of approx. **9,244** hours:

Irradiation energy: approx. 18 GJ/m²

Artificial weathering according to DIN EN 513, **procedure 2 (simulation of a severe climatic zone S)** up to an irradiation dose of 18 GJ/m² 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 ΔE^*_{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.

Sample 1: "0"

Time of exposure	Dose of irradiation	Colour coordinates			Total colour distance Delta E
		Delta L*	Delta a*	Delta b*	
1000 h	2 GJ/m ²	0.9	0.4	-0.8	1.3
2000 h	4 GJ/m ²	1.3	0.3	0.4	1.4
3000 h	6 GJ/m ²	1.5	0.4	-0.3	1.6
4000 h	8 GJ/m ²	1.5	0.4	-0.3	1.6
5000 h	10 GJ/m ²	1.6	0.4	-0.4	1.7
6000 h	12 GJ/m ²	1.6	0.4	-0.4	1.7
7000 h	14 GJ/m ²	1.7	0.4	-0.2	1.8
8000 h	16 GJ/m ²	1.7	0.4	0.0	1.8
9244 h	18 GJ/m ²	1.7	0.4	-0.1	1.7

Sample 2: "1"

Time of exposure	Dose of irradiation	Colour coordinates			Total colour distance Delta E
		Delta L*	Delta a*	Delta b*	
1000 h	2 GJ/m ²	1.0	0.4	-0.6	1.2
2000 h	4 GJ/m ²	1.5	0.4	0.1	1.6
3000 h	6 GJ/m ²	1.6	0.4	-0.2	1.7
4000 h	8 GJ/m ²	1.6	0.4	-0.3	1.7
5000 h	10 GJ/m ²	1.7	0.4	-0.4	1.8
6000 h	12 GJ/m ²	1.8	0.4	-0.3	1.9
7000 h	14 GJ/m ²	1.9	0.4	-0.1	1.9
8000 h	16 GJ/m ²	1.9	0.4	0.0	1.9
9244 h	18 GJ/m ²	1.8	0.5	-0.1	1.9

Sample 3: “2”

Time of exposure	Dose of irradiation	Colour coordinates			Total colour distance Delta E
		Delta L*	Delta a*	Delta b*	
1000 h	2 GJ/m ²	0.7	0.5	-0.7	1.1
2000 h	4 GJ/m ²	1.0	0.5	-0.1	1.1
3000 h	6 GJ/m ²	1.0	0.6	-0.3	1.2
4000 h	8 GJ/m ²	0.9	0.6	-0.5	1.2
5000 h	10 GJ/m ²	1.0	0.6	-0.4	1.2
6000 h	12 GJ/m ²	1.1	0.6	-0.3	1.3
7000 h	14 GJ/m ²	1.1	0.6	-0.2	1.3
8000 h	16 GJ/m ²	1.1	0.6	-0.1	1.3
9244 h	18 GJ/m ²	1.1	0.6	0.0	1.3

2. Visual assessment

- Visual assessment was performed according to ISO 105-A02 with the grey scale.

Sample 1: “0”

Time of exposure	Dose of irradiation	Grey scale value		Remark
		A 02	A 03	
1000 h	2 GJ/m ²	4 - 5	-	lighter
2000 h	4 GJ/m ²	4 - 5	-	lighter, duller
3000 h	6 GJ/m ²	4 - 5	-	lighter, duller
4000 h	8 GJ/m ²	4 - 5	-	lighter, duller
5000 h	10 GJ/m ²	4 - 5	-	lighter, duller
6000 h	12 GJ/m ²	4	-	lighter, duller
7000 h	14 GJ/m ²	4	-	lighter, duller
8000 h	16 GJ/m ²	4	-	lighter, duller
9244 h	18 GJ/m ²	4	-	lighter, duller

Sample 2: "1"

Time of exposure	Dose of irradiation	Grey scale value		Remark
		A 02	A 03	
1000 h	2 GJ/m ²	4 - 5	-	lighter
2000 h	4 GJ/m ²	4 - 5	-	lighter, duller
3000 h	6 GJ/m ²	4 - 5	-	lighter, duller
4000 h	8 GJ/m ²	4 - 5	-	lighter, duller
5000 h	10 GJ/m ²	4 - 5	-	lighter, duller
6000 h	12 GJ/m ²	4	-	lighter, duller
7000 h	14 GJ/m ²	4	-	lighter, duller
8000 h	16 GJ/m ²	4	-	lighter, duller
9244 h	18 GJ/m ²	4	-	lighter, duller

Sample 3: "2"

Time of exposure	Dose of irradiation	Grey scale value		Remark
		A 02	A 03	
1000 h	2 GJ/m ²	4 - 5	-	lighter
2000 h	4 GJ/m ²	4 - 5	-	lighter, duller
3000 h	6 GJ/m ²	4 - 5	-	lighter, duller
4000 h	8 GJ/m ²	4 - 5	-	lighter, duller
5000 h	10 GJ/m ²	4 - 5	-	lighter, duller
6000 h	12 GJ/m ²	4 - 5	-	lighter, duller
7000 h	14 GJ/m ²	4 - 5	-	lighter, duller
8000 h	16 GJ/m ²	4	-	lighter, duller
9244 h	18 GJ/m ²	4	-	lighter, duller

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

Best regards

SKZ - TeConA GmbH

i. A.



Wolfgang Ries