Instytut Techniki Budowlanej
ZESPÓŁ LABORATORIÓW BADAWCZYCH
akredytowany przez Polskie Centrum Akredytacji
certyfikat akredytacji
nr AB 023

AB 023

DEPARTMENT OF BUILDING MATERIALS ENGINEERING

BUILDING MATERIALS LABORATORY

TEST REPORT NO. LZM00-02626/21/Z00NZM

This report has been issued in three counterparts, two of which were received by the Customer and one remained at ITB.

Customer:	Multy Home Europe Sp. z o.o.
Customer's address:	Całowanie 111B 05-480 Karczew

INFORMATION ON THE PRODUCT

Manufacturer:	Multy Home Europe Sp. z o.o. Całowanie 111B 05-480 Karczew
Name and address of the factory:	Multy Home Europe Sp. z o.o. Całowanie 111B 05-480 Karczew
Product:	Garden and terrace accessories
Reference document:	not applicable
Information on the product and the declared range of application	The Customer's assortment includes: garden accessories, garden tiles, garden edging, deck tiles, plant pots. Garden and terrace accessories are intended for covering terraces, designing paths, etc.
Identification code of the product-type:	The Customer did not provide information on the unique product identification code

Information about the test object

Test object:	Garden and terrace accessories • Sonata 33 cm plant pots (silver), • Roman Stone Terra garden edging (brick), • River Rocks garden tiles (grey), • Railroad Tie garden tiles (brown), • Cosmopolitan deck tiles 30x30 cm (brown).
Date of receipt by the Laboratory:	11 October 2021
Test object acceptance procedure:	TLG (ZLB) Management Procedure no. 18
Test object acceptance protocol No.:	LZM00-02626/21/Z00NZM

Information on the tests

Test start date: 3 November 2021

Test completion date: 18 February 2022

TEST METHOD/PROCEDURE:

PN–EN ISO 4892-3:2013-12E	*Plastics. Methods of exposure to laboratory light sources. Part 3: Fluorescent UV lamps.*
PN-ISO 7724-2:2003	*Paints and varnishes. Colorimetry. Part 2: Colour measurement.*
PN-ISO 7724-3:2003	*Paints and varnishes. Colorimetry. Part 3: Calculation of colour differences*
PN-EN ISO 178:2011+A1:2013-06	*Plastics. Determination of flexural properties.*

1. Scope of the test

The scope of the tests included checking the resistance to ageing under artificial conditions based on:

- the colour difference of samples before and after ageing.,
- changes in flexural strength of samples before and after ageing.

2. Test samples

The following garden and terrace accessories were supplied for the test:

- Sonata 33 cm plant pots, silver (3 pcs.),
- Roman Stone Terra garden edging, brick (3 pcs.),
- River Rocks garden tiles, grey (3 pcs.),
- Railroad Tie garden tiles, brown (3 pcs.),
- Cosmopolitan deck tiles 30x30 cm, brown (3 pcs.).

3. Test methods and results

The uncertainty was determined on the basis of available data including the accuracy of the applied measurement system.

The result and its uncertainty applies to the tested samples only. The value of the uncertainty cannot be directly attributed to the level of properties of a given product because the laboratory has no knowledge about variability of its population, but only about the tested sample. For qualitative tests, it is not possible, at the current level of knowledge, to provide uncertainty regarding the presented results.

3.1 Resistance to ageing under artificial conditions

3.1.1 Ageing cycles

Resistance to ageing under artificial conditions was assessed according to PN-EN ISO 4892-3:2013-12E, with the use of type A fluorescent lamps (UVA-340) emitting light with a wavelength between 300 and 400 nm, with a maximum emission at 343 nm. Ageing was carried out according to cycle 3 under the following conditions:

- 5 h under dry conditions at a light intensity of 0.83 W/m^2 UVA-340 nm, 1 h humidification by sprinkling,
- black thermometer temperature: 50°C,
- exposure time: 42 days (1000 h)
- equipment type: UV-TEST.

Mechanically cut samples from the following elements were subjected to ageing:

- Sonata 33 cm plant pots, silver,
- Roman Stone Terra garden edging, brick,
- River Rocks garden tiles, grey,
- Railroad Tie garden tiles, brown,

- Cosmopolitan deck tiles 30x30 cm, brown.

Durability was determined based on:

- the colour difference of the samples before and after ageing for each garden and terrace accessory,
- changes in flexural strength of samples before and after ageing for the material cut from the Sonata plant pot.

3.1.2 Colour difference

The colour difference for garden accessories was determined for samples subjected to ageing in artificial conditions (see section 3.1.1) compared to samples not subjected to ageing according to PN-ISO 7724-2:2003 and PN-ISO 7724-3:2003, using a spectrophotometer and observing the following measurement conditions:

- measured area and specular component - M/SCI,
- lighting: D65,
- observer: 10°.

The results of the colour difference assessment for particular garden accessories are presented in Table 1.

Table 1. Results of colour change assessment after ageing

No.	Colour components of aged surface	Difference in psychometric lightness ΔL*	Difference in coordinates		Colour difference ΔE^*_{ab}
			Δa*	Δb*	
1	*2*	*3*	*4*	*5*	*6*
Sonata 33 cm plant pots (silver)					
1	L*=51.63; a*=-1.06; b*=-2.68	10.92	-0.57	-1.83	11.08
2	L*=51.47; a*=-1.07; b*=-2.70	12.70	-0.61	-1.95	12.86
3	L*=51.19; a*=-1.06; b*=-2.64	12.76	-0.63	-2.04	12.94
4	L*=51.12; a*=-1.03; b*=-2.80	13.48	-0.56	-1.67	13.59
5	L*=50.38; a*=-1.04; b*=-2.43	11.28	-0.56	-1.26	11.36
				Average value:	**12.37**
Roman Stone Terra garden edging (brick),					
6	L*=28.27; a*=14.90; b*=11.06	-0.13	3.77	2.67	4.62
7	L*=27.99; a*=14.98; b*=10.77	-0.63	2.93	1.65	3.42
8	L*=27.37; a*=14.42; b*=10.85	-0.40	3.45	3.04	4.62
9	L*=28.05; a*=12.74; b*=10.58	0.04	1.81	2.46	3.05
10	L*=28.71; a*=15.34; b*=11.34	1.04	3.81	2.66	4.75
				Average value:	**4.09**