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Testing of the light fastness of ceramic tiles according to DIN 51094

Report no. C123137
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THE SIZE SINTERED CERAMICS, S.A..
Castellón, 19 November 2012

Instituto de Tecnología Cerámica

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1. Background

On 10 October 2012, the Instituto de Tecnología Cerámica (ITC) received a number of samples of unglazed ceramic tiles, supplied by the company THE SIZE SINTERED CERAMICS, S.A., identified with the following references:

- Nieve
- Nero
- Basalt Black
- Basalt Grey
- Phedra
- Cement
- Iron Corten

2. Tests conducted

The determination was requested of the light fastness of the above tiles by exposure to radiation of a mercury vapour lamp according to standard DIN 51094.

The methods used to perform these tests are briefly set out below.

Testing was carried out by the procedure described in the following standard:

- *DIN 51094:1996. Testing of the light fastness and colour fastness of ceramic tiles for walls and floors.*

This test enables the light fastness of ceramic tiles to be evaluated with relation to changes in colour under the action of artificial light, where the sample to be tested is subjected for 28 days to the action of ultraviolet rays.

The samples received (5 of each model), measuring about 3 cm x 6 cm, were half-covered with metal foil impermeable to light (Figure 1).

These samples must remain for 28 days at a distance of about 500 mm from the lamp, the power of the lamp being between about 300 W and 400 W, making sure that tile surface temperature does not exceed 30 ºC during the test.

This test was conducted using an accelerated aging chamber (Figure 2) that, according to the manufacturer's specifications, meets the requirements of this standard.

Light fastness is visually evaluated by comparing the irradiated surface with the non-irradiated surface.

Figure 1 Photograph of the tiles before the test.

Figure 2 Photographs of the mercury vapour lamp exposure chamber used.

3. Results

The variation of the characteristics of the tested tiles was visually controlled. The following photograph shows a test piece of each model after 28 days of light exposure.

Figure 3 Appearance of the tiles after 28 days of light exposure.

In this photograph, it may be observed that there were no noticeable visual differences between the irradiated part (top half of the tiles) and the non-irradiated part (bottom half of the tiles).

It may be concluded that, after the received samples had been tested according to standard DIN 51094, they exhibited no noticeable change with regard to their visual characteristics.

Report no. C123137, issued at the request of the company THE SIZE SINTERED CERAMICS, S.A.., consists of a title page and 4 pages.

Castellón, 19 November 2012

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