

**Report
No. NOVOSTRAT 20190426**

**Examination of Compressive Creep Properties
of Polyethylene Cushioning Material
“Planklite 226 HRC”**

for

**NOVOSTRAT Sp. z o.o.
Ul. Skłodowskiej 1
PL - 59-830 Olszyna**

Project No. 7468

Dortmund, 26 April 2019

General Information

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Test Execution

Location: D - 44319 Dortmund
from: 11 March 2019
until: 23 April 2019
Test Engineers: Mr. Günter Winkler, Mr. Michael Jostmann

Customer

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Test Specimens

Description: 5 Pieces of PE-Foam Plank Material Planklite 226 HRC

Delivery Date: 7 March 2019
State of Delivery: without damages or impairments
Identification: (7468 #1 - 7468 #5)

1. Scope

Samples of polyethylene cushioning material 226 HRC with closed cell structure had to be subjected to Compressive Creep Tests in order to evaluate the static creep resistance of the polyethylene cushioning materials. Samples of one foam density were available to evaluate constant compression creep curves of the flexible cellular material by measuring the deformation versus time under constant load according to ASTM D 3575 Suffix BB.

In order to produce documentary evidence of the creep properties of a defined material and defined test conditions (constant static load of 2 psi, 1000 hrs duration, at constant temperature of 20 +/- 2 °C) a minimum of four test samples had to be tested. Actually five test samples were tested.

2. Test Specimens

The tests were run with the following flexible cellular materials manufactured by NOVOSTRAT Sp.Z o.o., PL - 59-830 Olszyna:

- Polyethylene Foam Plank "Planklite 226 HRC" with Nominal Density: 33.0 – 33.4 g/l
- Apparent densities of the test pieces are approximately 33.2 g/l
- Approx. thickness 56 mm
- Area of the square samples: approximately 140 mm x 140 mm
- Static load on top of the samples: 27.56 kg

3. Test Procedure

The tests were run using a creep tester and a digital calliper attached to the movable plate of the tester to do the deformation measurements. Prior to the tests and during the test period the specimens were conditioned at 20 °C +/- 2 °C. Following the laboratory tests the results were transferred into compressive creep versus time curves.

Top load calculation:

$$\begin{aligned} 2 \text{ psi} &= 0,137895 \text{ bar} \\ 0,137895 \text{ bar} &= 0,140614 \frac{\text{kg}}{\text{cm}^2} \\ 140 \text{ mm} \times 140 \text{ mm} &= 19600 \text{ mm}^2 \rightarrow 196 \text{ cm}^2 \\ 196 \text{ cm}^2 \times 0,140614 \frac{\text{kg}}{\text{cm}^2} &= \mathbf{27.56 \text{ kg}} \end{aligned}$$

4. Test Specifications

ASTM D 3575 Suffix BB

5. Test Results

The results of the compressive creep tests are summarized in Fig. 1 to Fig. 6 (Appendix).
PE-Foam Type "Planklite 226 HRC"

Less than 5.6 % compression creep after 1000 h at 2 psi (at 20 +/- 2 °C)

Nominal Density 33.0 – 33.4 g/l less than 5.6 % deformation Average: 4.74 %

Maximum: 5.59 %

Apparent Density of the Samples tested: 33.2 g/l

Dortmund, 26 April 2019

Test Engineers:



Mr. Günter Winkler



Mr. Michael Jostmann

6. Appendix

6 Figures: Fig. 1 to Fig. 6

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