

DLG-Test Report 6991

Animat Inc.

Animattress 1-40

Deformability/Elasticity,
Permanent Tread Load, Abrasion



**ANIMAT
ANIMATTRESS 1-40**
✓ Deformability/Elasticity
✓ Permanent Tread Load
✓ Abrasion
DLG Test Report 6991



Overview

A test mark „DLG-APPROVED for individual criteria“ is awarded for agricultural products which have successfully fulfilled a scope-reduced usability testing conducted by DLG according to independent and recognized evaluation criteria. The test is intended to highlight particular innovations and key criteria of the test object. The test may contain criteria from the DLG test scope for overall tests, or focus on other value-determining characteristics and properties of the test subject. The minimum requirements, test conditions and procedures as well as the evaluation bases of the test results will be specified in consultation with an expert group of DLG. They correspond to the recognized rules of technology, as well as scientific and agricultural knowledge and requirements. The successful testing is concluded with the publication of a test report, as well as the awarding of the test mark which is valid for five years from the date of awarding.



**ANIMAT
ANIMATTRESS 1-40**

- ✓ **Deformability/Elasticity**
- ✓ **Permanent Tread Load**
- ✓ **Abrasion**

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The DLG Approved Test “Deformability/Elasticity, Permanent Tread Load, Abrasion” includes technical measurements on test stands of the DLG Test Center. The deformability and elasticity, the abrasion resistance, were measured and a permanent tread load was applied. The test was based on the DLG Testing Framework for elastic stable flooring, as at April 2010. Other criteria were not investigated.

Assessment in brief

The Animat animattress 1-40 tested here, an elastic floor for cubicles in cubicle houses, was investigated with regard to durability and comfort properties on test stands in the DLG Approved Test. The deformability and elasticity, the abrasion resistance, were measured and a permanent tread load was applied. The deformability and elasticity in new condition and following permanent tread load were better than standard.

Table 1:

Overview of results

Test characteristic	Test result	Evaluation *
Deformability and elasticity		
– in new condition	29,0 mm, very good	++
– following endurance test	26,3 mm, very good	++
Permanent tread load		
	no lasting deformation	++
	no noticeable wear	+
Abrasion test		
	good wear resistance	+

* Evaluation range: ++ / + / o / - / -- (o = standard, n.a. = not evaluated)

The Product

Hersteller und Anmelder

Animat Inc., 284 Godin Path, CA J1ROS6 Sherbrooke QC – Kanada

Product:

Animattress 1-40

Contact:

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Description and Technical Data

The Animat Animattress 1-40 tested here, an elastic floor for cubicles in cubicle houses

- thickness approx. 43.0 mm
- Covermat
 - Surface: black
 - Undersite: coppery colour
 - Thickness: ca. 3 mm
 - Shore A hardness: approx. 75
- Mattress underlay made of approx. 40 mm thick PU foam sheet
- seamless installation.

The Method

Deformability and elasticity

The deformability was measured in new condition and following permanent tread load with a round steel foot (diameter of 105 mm and therefore a contact area of 75 cm²) and a penetration force of 2,000 N (corresponding to approx. 200 kg).

Permanent tread load

The permanent tread load was carried out on a test stand with a

round steel foot in the standard test programme with 100,000 alternating loads at 10,000 N (corresponding to approx. 1000 kg). The steel foot is adapted to the natural conditions as an "artificial cow foot". The foot has a diameter of 105 mm and therefore a contact area of 75 cm²; the carrying edge of the hoof is simulated by a 5 mm wide ring on the periphery of the sole that projects 1 mm above the rest of the surface.

Abrasion test

In a standardised abrasion test with 10.000 cycles the top cover was grinded with an emery cloth (granulation 280) and a grinding pressure of 500 N (= 8.1 N/cm² surface pressure). The friction element was cooled continuous with water to prevent an influence of the generated heat during the abrasion test. The size of the grinded area was 61,5 cm².

Detailed account of the test results

Deformability and elasticity

In the ball penetration tests in new condition with a calotte ($r = 120$ mm), penetration depth was 29.0 mm. The resulting calculated bearing pressure of 9.2 N/cm² indicates a very low load on the carpal joints when lying down and getting up.

Elasticity was measured following a permanent tread load exerted by a steel foot (contact area: 75 cm²) with 100,000 alternating loads at 10,000 N. Following the endurance test, the penetration depth of the calotte decreased from 29.0 mm to 26.3 mm. The bearing pressure increased from 9.2 N/cm² to 10.1 N/cm² (see Fig. 2).

This means that deformability and elasticity slightly decrease.

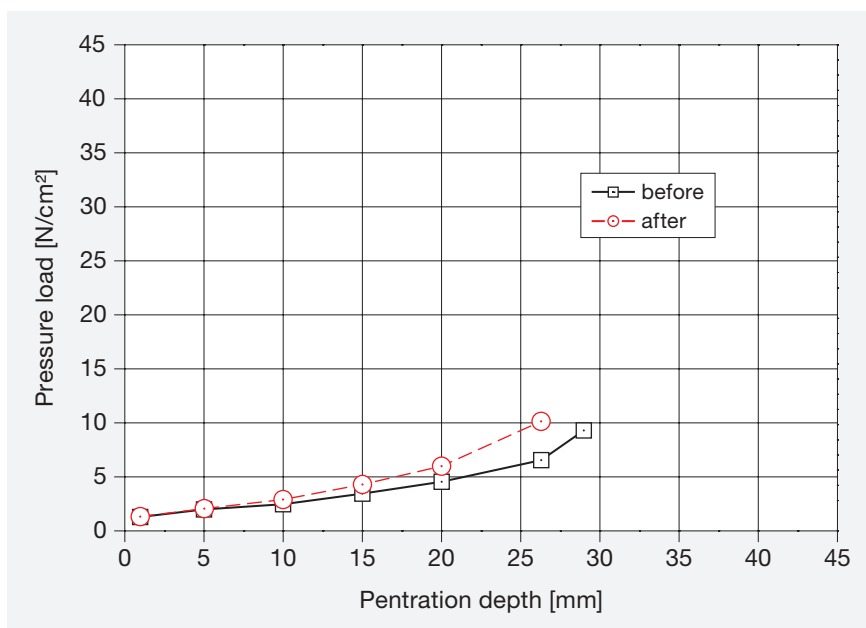


Figure 2:
Deformability as a function of bearing pressure

Permanent tread load

No noticeable wear on the surface or the foam of the mat was observed following exposure to permanent tread load on a test stand with 100,000 alternating loads at 10,000 N. No lasting deformation was observed.

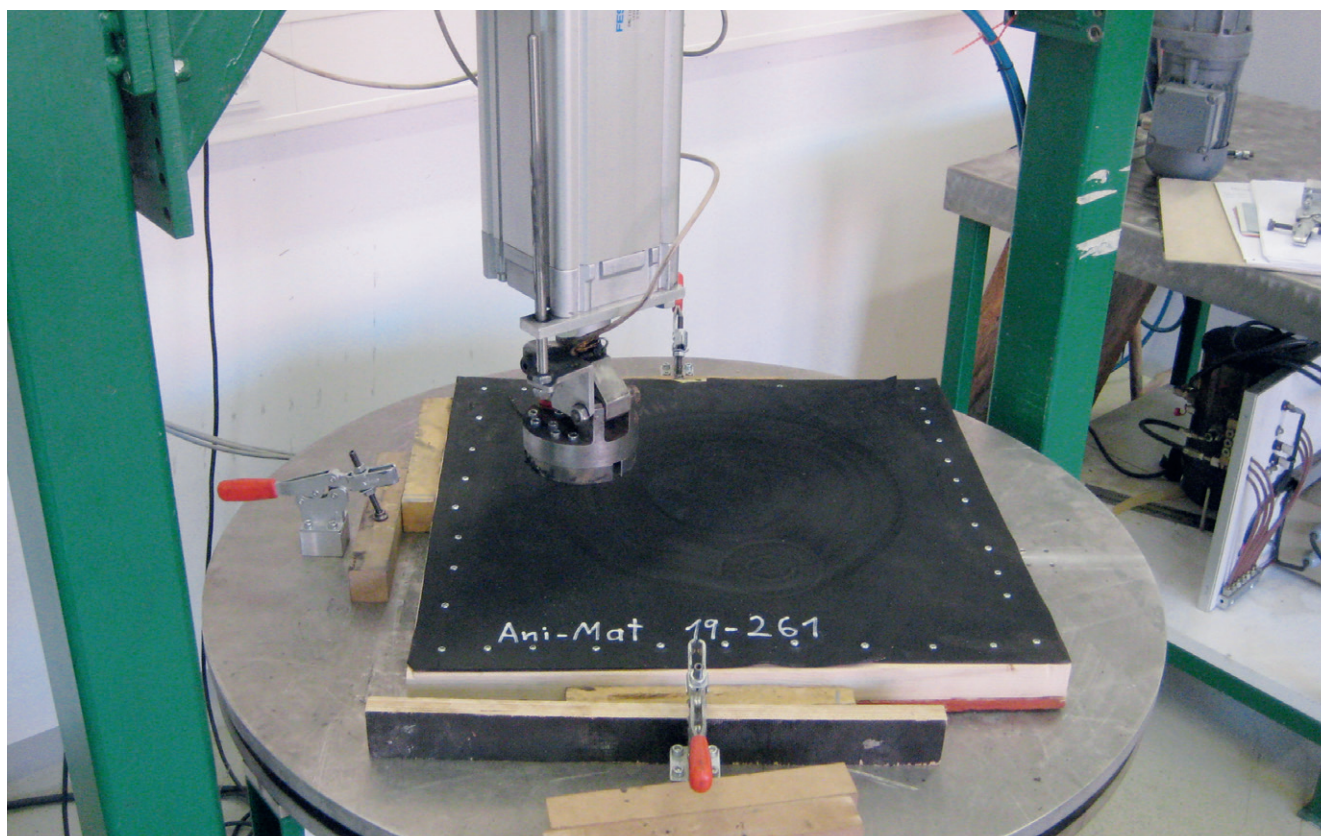
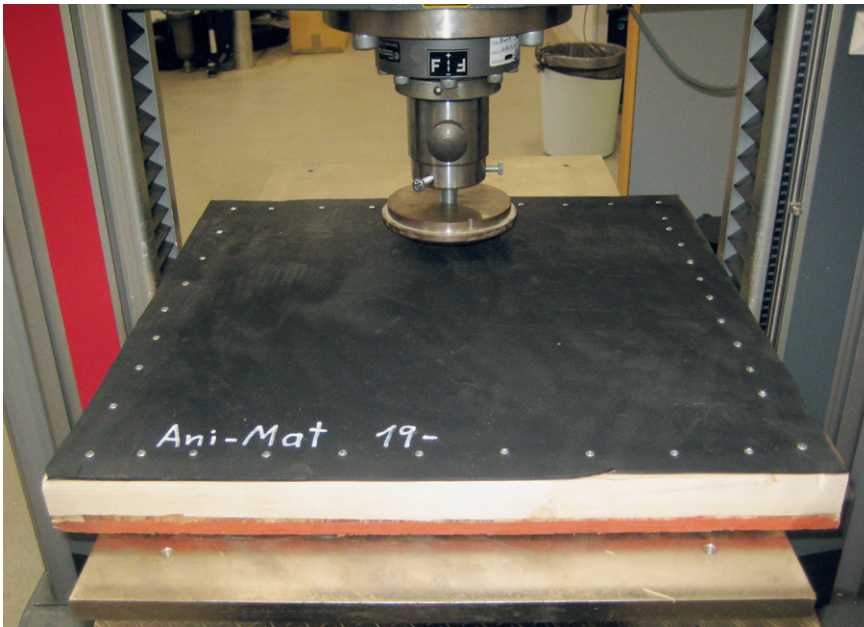


Figure 3:
Permanent tread load



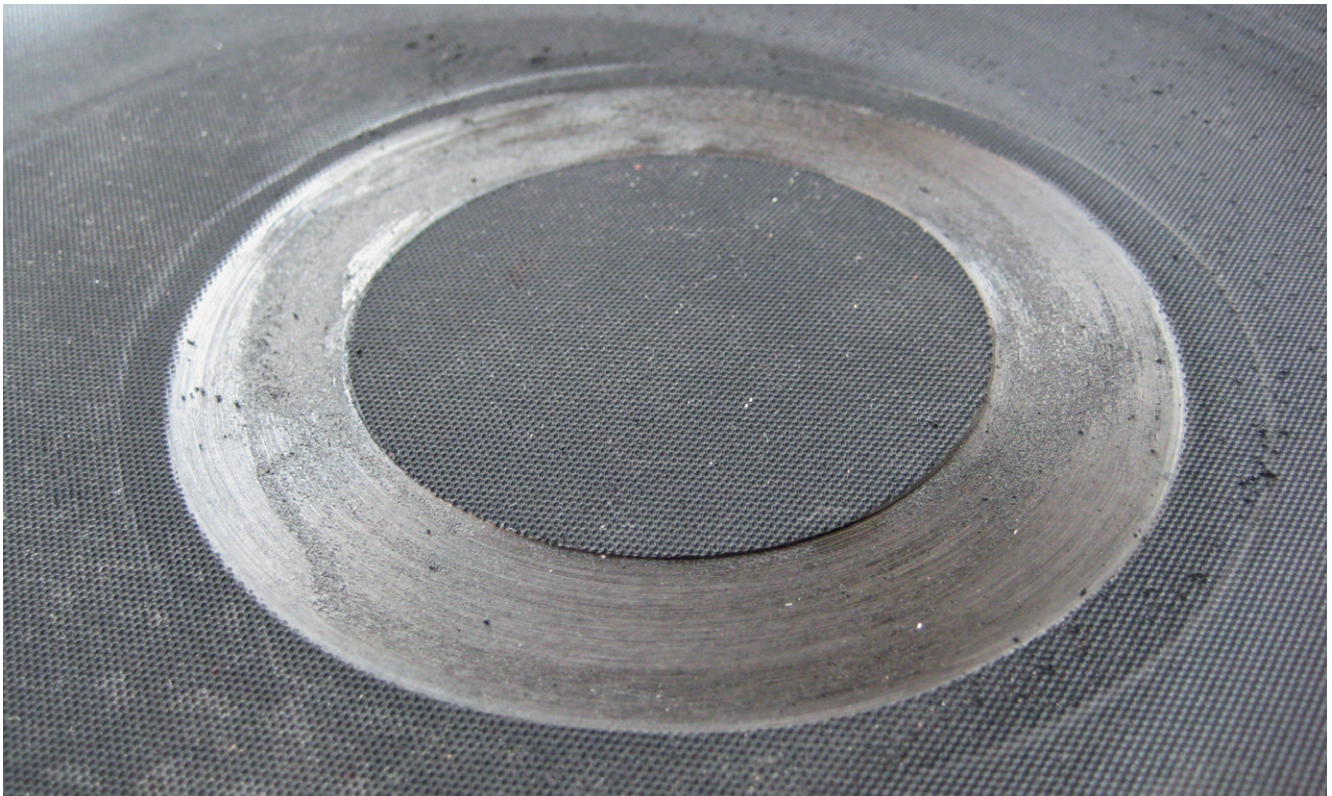
Abrasion test

The abrasion depth after 10,000 cycles amounted to 0.5 mm, this corresponds to approximately 16% of the rubber thickness.

Of the ground surface 1.4 grams were rubbed off.

The abrasion depth and the slight grit implicate a good wear resistance of the rubber mat.

*Figure 4:
Measuring the deformability*



*Figure 5:
Test sample after abrasion test*

Summary

Based on test-stand investigations, the criteria tested in this DLG Approved Test evaluate the comfort and durability properties of the Animat Animmattress 1-40 for use in the resting area of high cubicles in cubicle houses.

The tested cow mattress met the requirements of the Testing Framework with respect to the investigated criteria.

More information

Testing agency

DLG TestService GmbH, Standort Groß-Umstadt

Die Prüfungen werden im Auftrag des DLG e.V. durchgeführt.

DLG test framework

DLG Approved Test “Elastic Stable Flooring”
(as at 04/2010)

Department

Indoor operations

Division head

Dr. Michael Eise

Test engineer(s)

Dr. Harald Reubold*

* Author

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Founded in 1885 by the German engineer Max Eyth, DLG (Deutsche Landwirtschafts-Gesellschaft – German Agricultural Society) is an expert organisation in the fields of agriculture, agribusiness and the food sector. Its mission is to promote progress through the transfer of knowledge, quality standards and technology. As such, DLG is an open network and acts as the professional voice of the agricultural, agribusiness and food sectors.

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For more than 130 years, our mission has also been to promote dialogue between academia, farmers and

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