

# DLG Test Report 7061

SAGUSTU International GmbH

## Eldorado Puzzle Mat with Horse Head Profil

Permanent Tread Load, Slip resistance



SAGUSTU INTERNATIONAL  
ELDORADO PUZZLE MAT  
WITH HORSE HEAD PROFILE  
✓ Permanent Tread Load  
✓ Slip resistance  
DLG Test Report 7061

## 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 recognised 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 recognised 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.



The DLG Approved Test “Permanent Tread Load, Slip resistance” includes technical measurements on test stands of the DLG Test Center. The slip resistance was measured and a permanent tread load was applied. The test was based on the DLG Testing Framework for flooring systems for horses, as of August 2019.

Other criteria were not investigated.

## Assessment in brief

The SAGUSTU “Eldorado puzzle mat with horse head profile” tested here, an elastic floor covering for horses, was investigated with regard to durability and comfort properties.

Table 1:

Assessment in brief

| Test characteristic         | Test result  | Evaluation* |
|-----------------------------|--|-------------|
| <b>Permanent Tread Load</b> |  |             |
|                             | no lasting deformation                                       | ++          |
|                             | no noticeable wear   | +           |
| <b>Slip resistance**</b>    |  |             |
| Horsehoof dry/wet           | slide pulling tests good on the dry or wet mat, $\mu > 0,45$ | +           |
| Horseshoe dry/wet           | slide pulling tests good on the dry or wet mat, $\mu > 0,45$ | +           |

\* Evaluation range: ++ / + / ○ / - / -- (○ = standard)

\*\* Evaluation range: + / -

## The Product

### Applicant

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Product:

SAGUSTU “Eldorado puzzle mat with horse head profile”

Contact:

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### Description and Technical Data

The SAGUSTU “Eldorado puzzle mat with horse head profile” is an elastic rubber flooring made of vulcanized solid rubber for horses.

The waterproof puzzle mat was designed for use as a floor covering e.g. for boxes and stable alleys.

- Black rubber mat, thickness approx. 16 mm
- Surface with horse head profile
- Underside with narrow grooves
- Shore A hardness: approx. 70
- Laying as a puzzle mat
- Dimensions of the mat: 1 m x 1 m

## The Method

### Permanent tread load

The permanent tread load is done on a test stand with a round steel foot with 250,000 alternating loads at 5,000 N (corresponding to approx. 500 kg). The steel hoof is an articulated pressure hull with a diameter of 105 mm and a footprint of 75 cm<sup>2</sup>. A 5 mm wide ring on the sole towers over the rest surface as the supporting edge of the hoof horn. In addition, the flooring was investigated for wear, damage or permanent deformation.

### Slip resistance

The slip resistance measurements were done with the mobile DLG ComfortControl test bench by means of the sliding train procedure. Included became an artificial horse's hoof, a tensile body loaded

with 10 kg (a) with closed plastic horseshoe (Polyurethane) with hoof-true Degree of hardness for simulation a barefoot and (b) with horseshoe size 5 overpulled the test item with one speed of 20 mm/s. The registered tensile forces were with the uprising weight in relation

and from this the coefficient of friction  $\mu$  calculated. The measurements were done on dry and wet mat surface. For floor coverings in horse keeping demands the DLG test framework a coefficient of friction of at least  $\mu = 0.45$  both in dry and wet condition.

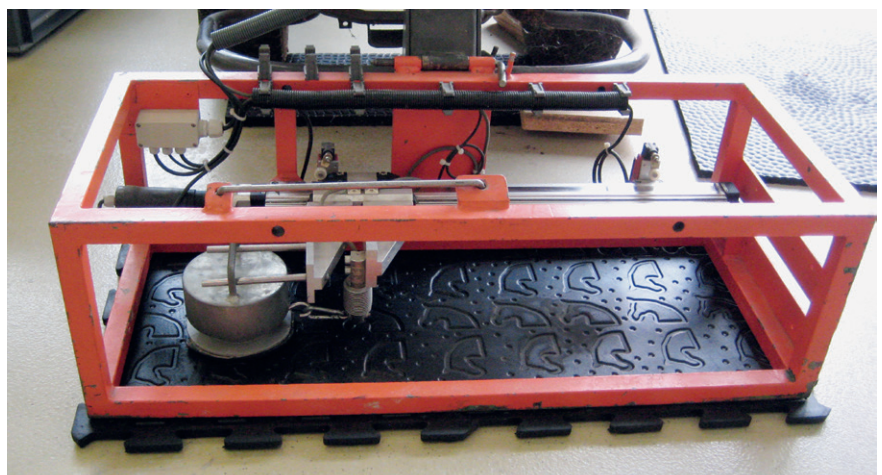


Figure 2:  
Slip resistance measurement

## Detailed account of the test results

### Permanent tread load

No noticeable wear or damage was observed following exposure to permanent tread load on a test stand with 250,000 alternating loads at 5,000 N.

No lasting deformation was observed.

### Slip resistance

The slide pulling tests showed a good slip resistance on the dry or wet mat surface in new condition with the closed plastic horseshoe and the horseshoe number 5.

The measured friction coefficients ( $\mu$ ) surpassed the minimal value of  $\mu = 0.45$ .

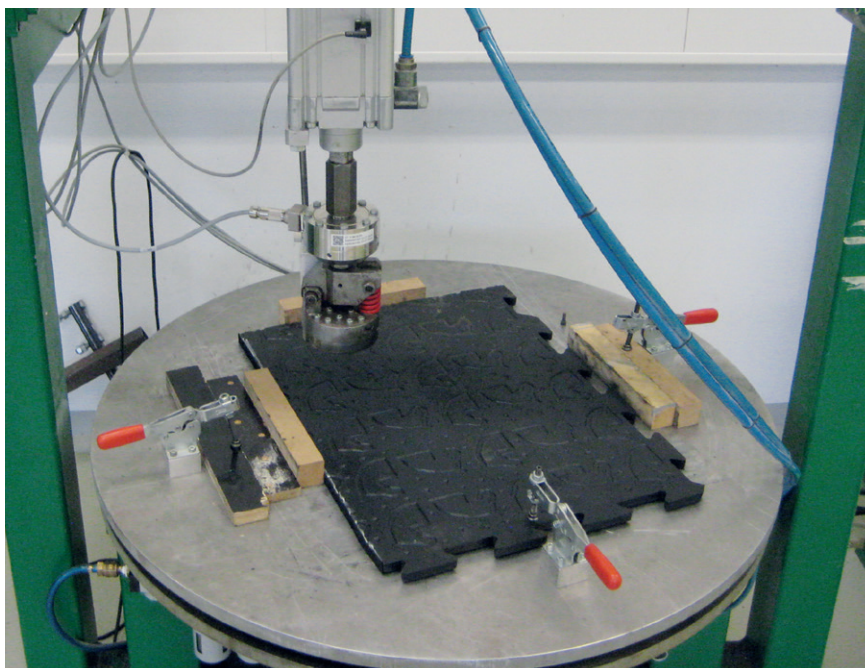


Figure 3:  
Permanent tread load

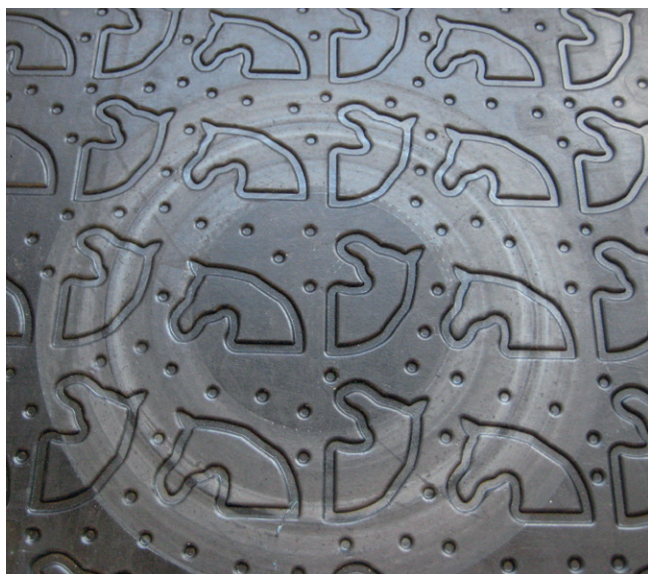


Figure 4:  
Surface of the mat –  
after permanent tread load test



Figure 5:  
Underside of the mat –  
after permanent tread load test

## Summary

Based on test-stand investigations, the criteria tested in this DLG Approved Test evaluate the comfort and durability properties of SAGUSTU “Eldorado puzzle mat with horse head profile” for use in horse keeping.

The tested rubber mat met the requirements of the DLG Testing Framework with respect to the investigated criteria.

## Further information

### Testing agency

DLG TestService GmbH, Gross-Umstadt location  
The tests are conducted on behalf of DLG e.V.

### DLG test framework

Floor systems in horse keeping,  
as of August 2019

### Department

Betriebsmittel

### Division head

Dr. Michael Eise

### Test engineer(s)

Dr. Harald Reubold \*

\* Author

## DLG – the open network and professional voice

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.

As one of the leading organisations in the agricultural and food market, DLG organises international trade fairs and events in the specialist areas of crop production, animal husbandry, machinery and equipment for farming and forestry work as well as energy supply and food technology. DLG's quality tests for food, agricultural equipment and farm inputs are highly acclaimed around the world.

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

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### Leaders in the testing of agricultural equipment and input products

The DLG Test Center Technology and Farm Inputs and its test methods, test profiles and quality seals hold a leading position in testing and certifying equipment and inputs for the agricultural industry. Our test methods and test profiles are developed by an independent and impartial commission to simulate in-field applications of the products. All tests are carried out using state-of-the-art measuring and test methods applying also international standards.

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