

New Farms s.r.l.

Blister Sand-Filled Honeycomb Stall Mat

Joint assessment/acid resistance

DLG Test Report 6179 F



Applicant/Manufacturer

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Brief description

Black Blister sand-filled honeycomb stall mat

- made of rubber for deep-bedding stalls for cows and bovine animals
- with 35 square holes, approx. 20 x 20 cm, that are filled with sand. Straw chaff should be spread over the surface to a depth of approx. 5 cm.
- length approx. 154 cm, width approx. 114 cm, height approx. 11 cm
- weight approx. 50 kg for each mat
- shore hardness A: approx. 75

The mats are fastened to the designated fastening points on the floor using 12 bolts plus washers and dowels.



Figure 2:
Blister mat installed



Figure 3:
Blister mat installed, with straw chaff litter (litter removed so that mat is visible)

Test results and individual assessments

Acid resistance

The test samples of the Blister mat were analysed in a static immersion test according to DIN EN ISO 175:2000 (effect of liquid chemicals on plastics). For this purpose, 30 x 30 mm samples of the mat were completely immersed in the respective test medium for a period of 24 hours and 28 days at a room temperature of 20°C. In the 28-day experiment, the test solutions were changed weekly.

The weight, dimensions and Shore hardness (Shore A) were measured before and after immersion.

Assessment of acid resistance*

The material used in the Blister mat was resistant to the tested media. The Blister mat appears to be suitable for the described purpose as it exhibits material resistance to the tested media.

| Resistance to acids relevant to use in stables | | |
|--|---------------------------------|-------------|
| – Feed acids | no discernable material changes | + resistant |
| – Excrement acids | | |
| – Disinfectants | | |

* Evaluation range: + = resistant; ○ = partially resistant; – = not resistant

In addition, the surface was assessed with regard to visual changes such as loss of gloss, colour

changes and appearances of swelling or degradation.

Table 1:
Tested media and results – acid resistance

| Tested media | Concentration | Result after exposure time of 24 hours | Result after exposure time of 28 days | Assessment |
|------------------------|--|--|---------------------------------------|------------|
| Feed acid mix | | | | |
| | concentrate, pH 2 | no change | no change | resistant |
| Excrement acids | | | | |
| – Uric acid | saturated solution (0.4%) | no change | no change | resistant |
| – Sulfurous acid | 5–6% SO ₂ | no change | no change | resistant |
| – Ammonia | 32% solution | no change | no change | resistant |
| Disinfectants | | | | |
| – Stable disinfectant | 2% solution of a product based on formic acid and glyoxylic acid | no change | no change | resistant |
| – Peracetic acid | 3000 ppm | no change | no change | resistant |

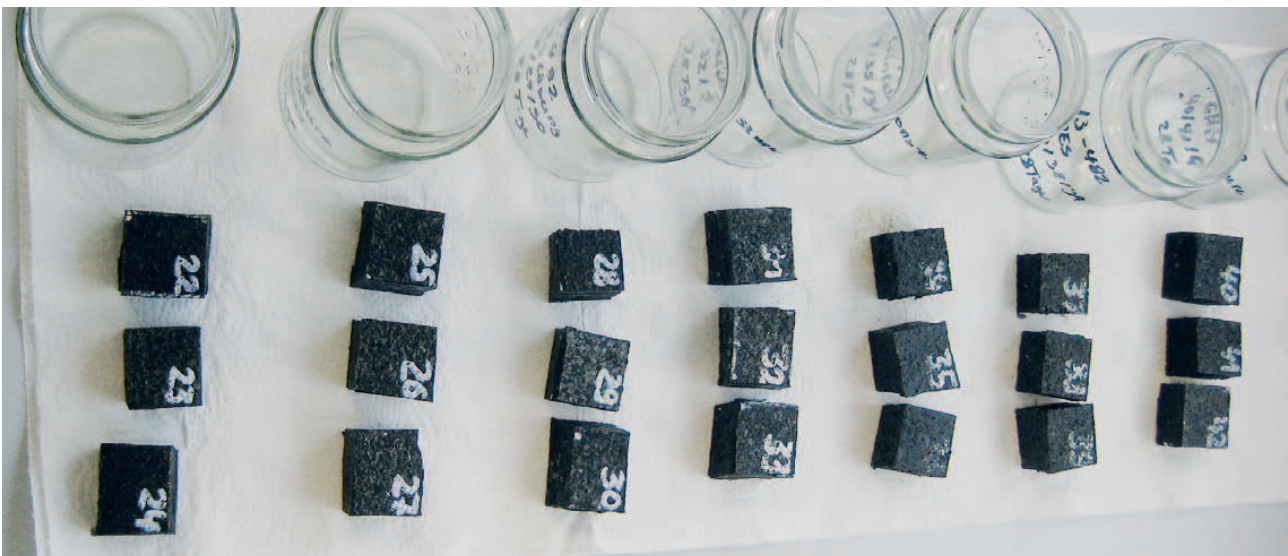


Figure 4:
Test samples after acid-resistance test

Joint assessment

In three farms that had installed only the Blister mat, a total of 105 cows were examined after the second trimester of lactation for externally visible injuries in the joint areas (joint assessment).

The assessment took into account the left and right sides of the body and concentrated on the 10 positions exposed when lying down (see Figure 6). The joint assessment was carried out by the same person in each case. Two farms used straw chaff as litter on the Blister sand-filled mat; one farm used pellets made of grain husks. The findings were recorded according to the scheme shown in Table 2.

The percentage distribution of the findings observed in the 105 animals that were examined is shown in the following diagram (Figure 7). 96.4% of the assessed positions were normal. No severe changes, such as changes in size in the area of the bursa (open), or lameness were observed.

Slight changes, such as bald patches, were registered in 2.6% of assessed body regions. Only 1.0% of the assessed positions exhibited moderate changes such as skin abrasion. The observed findings were concentrated primarily on the ankle joint (tarsus). Findings were not observed or were only observed occasionally on the ankles, knee or wrist joint (carpus).

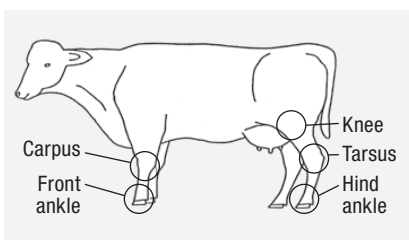


Figure 6:
The joints shown here were examined

Evaluation of joint assessment**

96.4% of the assessed joints were normal ++

** Evaluation range:
+++ / ++ / + / 0 / - / -- (0 = standard)



Figure 5:
Assessment of the joints at a real-life farm

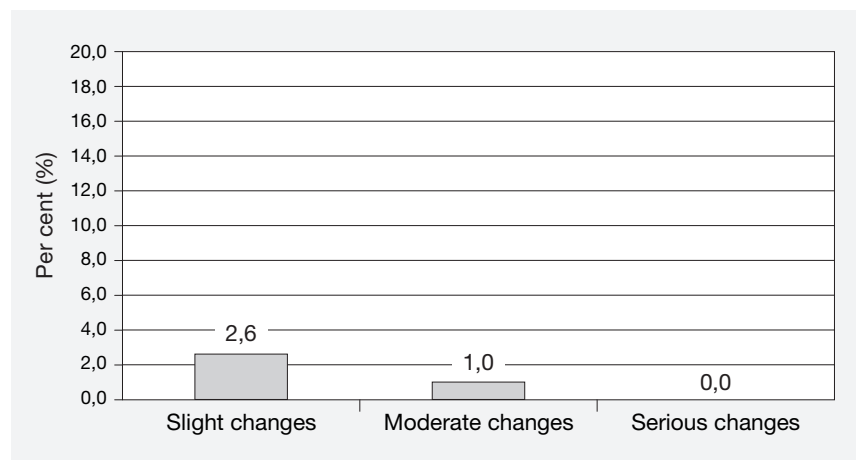


Figure 7:
Percentage distribution of the observed findings

Table 2:
Findings of the joint assessment

| Finding | Classification |
|--|------------------|
| No particular finding | no changes |
| Bald patches < 2 cm | slight changes |
| Bald patches > 2 cm | slight changes |
| Skin abrasions < 2 cm | moderate changes |
| Skin abrasions > 2 cm | moderate changes |
| Size changes in the area of the bursa, covered | moderate changes |
| Size changes in the area of the bursa, open | serious changes |
| Involving the joint | serious changes |

The DLG Focus Test included measurements at the laboratory of the DLG Test Center and examinations at three real-life farms. Acid resistance was analysed in the laboratory, and joints were assessed at the real-life farms.

Other criteria were not investigated.

The test was based on the DLG testing framework for elastic stable flooring, as at April 2010.

Test execution

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ENTAM – European Network for Testing of Agricultural Machines, is the association of European test centres. ENTAM's objective is the Europe-wide distribution of test results for farmers, agricultural equipment dealers, and producers.

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