

DLG Test Report 6268F

G. Spelsberg GmbH & Co. KG

Empty Enclosure Series TK PC

Resistance to Ammonia



DLG FOKUS
TEST

04/15

Resistance
to Ammonia



Test Center
Technology and Farm Inputs

www.DLG-Test.de

Overview

The Focus Test is a utility value test conducted by the DLG for product differentiation and special highlighting of innovations in machinery and technical products used predominantly in agriculture and forestry, in vegetable, fruit and wine growing, and in landscape care and municipal applications. In this test, the focus is on testing individual quality criteria of a product, such as durability, performance or quality of work.

The scope of the test can include criteria from the testing framework of a Signum Test, the DLG's comprehensive utility value test for technical products, and concludes with the publication of a test report and the awarding of the test mark.



The DLG FokusTest "Resistance to ammonia" includes technical investi-

gations in the laboratory and the NH₃ climatic chamber at the DLG Test Center Technology and Farm Inputs in Groß-Umstadt.

Brand-new samples of all installed materials were tested.

Testing was based on version 2.0/2012 of the DLG test specification for the investigation of resistance to ammonia.

Other criteria were not investigated.

The Product

Manufacturer and Applicant

G. Spelsberg GmbH + Co. KG
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Product:

Empty Enclosure Series TK PC

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Description and Technical Data

The materials tested here are components of the empty enclosure series TK PC (Series TK PC 55 to TK PC 3625) for industrial use. The empty enclosure is also installed in animal housings and can therefore be exposed to elevated levels of ammonia in the housing environment.

Table 2:

Technical properties (according to manufacturer)

Empty Enclosure Series TK PC	
Rated insulation voltage	690 V
Length	52–361 mm
Width	50–254 mm
Height	35–165 mm

Assessment – Brief Summary

The brand-new materials tested in this DLG FokusTest were investigated with regard to their resistance to ammonia.

The tested materials met the requirements with respect to the investigated criterion.

Table 1:

Overview of results

Test characteristic	Test result	Evaluation*
Resistance to ammonia		
– Box/Cover grey with sealing	resistant	+
– Cover blue – transparent with sealing	resistant	+
– Screw U	resistant	+
– Screw A	resistant	+

* Evaluation range: + / o / – (resistant / partially resistant / not resistant)

The Method

Resistance to ammonia

The materials' resistance to ammonia was investigated in a laboratory test according to the DLG test standard for agricultural use. The DLG laboratory test for resistance to NH₃ can determine the test samples' suitability for withstanding the effects of stable air over a usage period of at least 20 years.

The test was performed in a fumigation chamber with the following climate conditions:

Test duration	1500 h
Air temperature	70 °C
Relative humidity	70 %
Ammonia concentration	750 ppm

To evaluate the resistance to NH₃, the test samples were investigated visually, gravimetrically and/or by measuring the material strength, in each case before and after the climate test. The shore hardness of

the plastic materials was in the region of 90, even on the Shore D scale. This data was therefore not included in the evaluation. Testing was performed on at least two samples of each material.

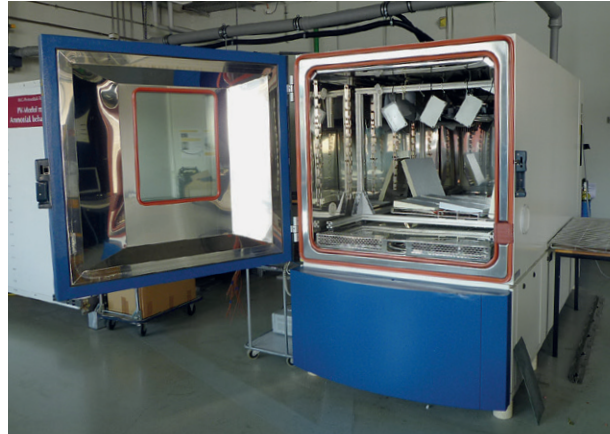


Figure 2: Test setup – looking into the climate chamber

The Test Results in Detail

Resistance to ammonia

In the test, all tested components and materials were found to be resistant.

There was no impairment of either the visual or functional prop-

erties of the materials following fumigation in the ammonia-containing environment. All deviations in the measured parameters were within measurement uncertainty or the limits of evaluation.

It can therefore be assumed that the materials are sufficiently resistant in atmospheres containing NH₃, as it would be encountered in the exhaust air from a pigsty, for example.

Table 3: Difference [%] in measurements before and after exposure to NH₃

Material	Visual assessment	Differences				Evaluation
		Weight	Width	Height	Thickness	
Box/Cover grey with sealing	no changes	0,2%	-0,5%	0,7%	–	resistant
Cover blue – transparent with sealing	no changes	0,2%	–	–	0,9%	resistant
Screw U	no changes	1,5%	–	0,1%	< 0,1%	resistant
Screw A	no changes	2,3%	–	0,4%	3,8%	resistant

Summary

The brand-new materials tested in this DLG FokusTest were investigated with regard to their resistance to ammonia in the laboratory and the NH₃ climatic chamber at the

DLG Test Center Technology and Farm Inputs in Groß-Umstadt. All of the tested materials met the requirements with respect to the investigated criterion.

The entire component can therefore be classified as resistant to stable air that contains ammonia.

Further information

Further test results for stable equipment are available for download at: www.dlg-test.de/stalleinrichtungen

The relevant DLG committees have published instruction leaflets on a variety of topics. These are available free of charge in PDF format at: www.dlg.org/merkblaetter.html

Test execution

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Testzentrum
Technik und Betriebsmittel,
Max-Eyth-Weg 1,
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DLG Testing Framework

DLG test specification
"Resistance to ammonia",
version 2.0/2012

Field

Animal Housing Installations

Project manager

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Test engineer(s)

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The DLG

In addition to conducting its well-known tests of agricultural technology, farm inputs and foodstuffs, the DLG acts as a neutral, open forum for knowledge exchange and opinion-forming in the agricultural and food industry.

Around 180 full-time staff and more than 3,000 expert volunteers develop solutions to current problems. More than 80 committees, working groups and commissions form the basis for expertise and continuity in technical work. Work at the DLG includes the preparation of technical information for the agricultural sector in the form of instruction leaflets and working documents, as well as contributions to specialist magazines and books.

The DLG organises the world's leading trade exhibitions for the agriculture and food industry. In doing so, it helps to discover modern products, processes and services and to make these transparent to the public.

Obtain access to knowledge advancement and other advantages, and collaborate on expert knowledge in the agricultural industry! Please visit http://www.dlg.org/membership_agriculture.html for further information.

The DLG Test Center Technology and Farm Inputs

The DLG Test Center Technology and Farm Inputs in Groß-Umstadt sets the benchmark for tested

agricultural technology and farm inputs and is the leading provider of testing and certification services for independent technology tests. With the latest measurement technology and practical testing methods, the DLG's test engineers carry out testing of both product developments and innovations.

As an EU-notified test laboratory with multiple accreditations, the DLG Test Center Technology and Farm Inputs provides farmers and practitioners with important information and decision-making aids, in the form of its recognised technology tests and DLG tests, to assist in the planning of investments in agricultural technologies and farm inputs.

15-344
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