GLUKON GmbH

GLUKON® farm Spray Adhesive

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CONTINUOUS MONITORING

DLG Test Report 7554

www.DLG-Test.de

Overview

The DLG QUALITY SEAL for operating equipment and consumables encompasses products, which are subjected to extensive testing of their value-determining and advertised characteristics. The tested criteria and the requirements to be fulfilled are specified by independent commissions and are designed – over and above legal requirements – to prove the product's fitness for purpose, its advertised characteristics and practical requirements. Testing contents and requirements are developed further by the responsible specialist departments of the DLG e.V. in line with the applicable legislation, as well as with technical and scientific progress. Successful testing is concluded with the assignment of the DLG QUALITY SEAL. The approved products are then published.

The DLG quality seal test included technical measurements in the laboratory. The test basis was the test program for spray adhesives for silage films and asparagus films made of low-density polyethylene (PE-LD) with and without recycled content, as of July 2025.

Other criteria were not examined.

Assessment in brief

The GLUKON® farm spray adhesive tested here was examined in the DLG quality seal test in the laboratory and in practice for mechanical, physical, chemical and other properties.

Table 1:
Overview of results

DLG QUALITY PROFILE	REQUIREMENT	Evaluation*
glued silage film – climate change test	≥ -15 %	✓
glued silage film – heat ageing	≥ -15 %	✓
glued silage film – acid storage	≥ -15 %	✓
glued silage film – gas permeability	≤ 250 cm³/m² in 24 h	✓
glued asparagus film – climate change experiment	≥ -25 %	✓
glued asparagus film – heat ageing	≥ -25 %	✓

* Evaluation range: requirements fulfilled (✓) / requirements not fulfilled (✗)

The product

Applicant

GLUKON GmbH
Wegkamp 1, 24589 Dätgen, Germany

Product:
GLUKON® farm Spray Adhesive

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Description

GLUKON® farm for gluing silo and asparagus films made of PE, PP and PA.

GLUKON® farm is applied to both sides of the overlapping (approx. 50 cm) films. After approx. 60 seconds, the films can be glued together or minor film repairs can be carried out.

- Apply using a spray can or pressure vessel and spray lance
- Bonding of the films due to low contact pressure
- Spray type: web spray
- Flash-off time: approx. 60 seconds, depending on ambient temperature/humidity
- To be processed within 4 hours

Technical data

- Description:
  Solvent-based, sprayable adhesive and contact adhesive
- Colour: transparent yellowish
- Solids content: approx. 27 %
- Temperature resistance:
  resistant from approx. -20 °C to approx. 65 °C
- Shear strength: > 80 psi
- Coverage per 13 kg:
  Pressure vessel approx. 100 m² (application on both sides), can approx. 3 m²
- The hardened adhesive is non-flammable.

Detailed account of the test results

Suitability

Based on laboratory and practical test results, GLUKON® farm spray adhesive is suitable for gluing silage films and asparagus films.

Gluing silage film

Test sample: Silo film (white/white) with central adhesive seam (approx. 10 cm overlap), approx. 1.0 m long and 0.4 m wide, thickness approx. 150 µm

- The yield stress was 13.8 MPa.
- The elongation was 4.1 %.
- The tear elongation was 567 %.

After climate change stress
(50 cycles from -20 °C to 65 °C)

- Requirement for change in yield stress, elongation and tear elongation: ≥ -15 %
- Change in yield stress -7.7 %
- Change in elongation +24.4 %
- Change in tear elongation +5.9 %

The adhesive remained stable despite changes in climate.

After heat stress
(storage for 90 days at 60 °C)

- Requirement for change in yield stress, elongation and tear elongation: ≥ -15 %
- Change in yield stress -5.8 %
- Change in elongation +14.6 %
- Change in tear elongation +4.5 %

The adhesive demonstrated good resistance to heat stress.

After acid storage
(ten days in a mixture of 3 % lactic acid, 1.5 % acetic acid and 0.5 % butyric acid)

- Requirement for change in yield stress, elongation and tear elongation: ≥ -15 %
- Change in yield stress: -0.3 %
- Change in elongation: +9.8 %
- Change in tear elongation: +1.1 %

The adhesive remained stable during storage in an acidic environment.

Gas permeability

The oxygen permeability in the area of the adhesive seam was 82.3 cm^3/m^2 in 24 hours, which was lower than the maximum permissible value of 250 cm^3/m^2 in 24 hours.

Gluing asparagus film

Test sample: Asparagus film (white/black) with adhesive seam in the middle (approx. 10 cm overlap), approx. 1.0 m long and 0.4 m wide, thickness approx. 150 µm.

- The yield stress was 13 MPa.
- The elongation was 12.0 %.
- The tear elongation was 538 %.

After climate change stress
(50 cycles from -20 °C to 65 °C)

- Requirement for change in yield stress, elongation and tear elongation: ≥ -25 %
- Change in yield stress: +1.3 %
- Change in elongation: +14.2 %
- Change in tear elongation: -20.8 %

The adhesive remained stable despite changes in climate.

After heat stress
(storage for 90 days at 60 °C)

- Requirement for change in yield stress, elongation and tear elongation: ≥ -25 %
- Change in yield stress: +2.7 %
- Change in elongation: +17.5 %
- Change in tear elongation: -15.9 %

The adhesive demonstrated good resistance to heat stress.

The method

Suitability

The suitability of GLUKON® farm spray adhesive was assessed on the basis of laboratory results and practical tests carried out at three farms (one silage film farm, two asparagus film farms).

Strength

Important parameters for the strength of a bonded film are yield stress, elongation and tear elongation.

Yield stress, elongation and tear elongation are evaluated in accordance with DIN EN ISO 527-3:2019-02 at +23 °C (test speed 500 mm/min; test specimen Type 2).

Deformations are measured between the clamping jaws, in new condition and after exposure to climate change, heat stress and acid storage.

- Acid storage: 10 days storage in mixed acid consisting of 3 % lactic acid, 1.5 % acetic acid, 0.5 % butyric acid
- Climate change: 50 cycles from -20 °C to 65 °C
- Heat stress: 90 days at 60 °C

Gas permeability

Gas permeability is tested in the glued area in accordance with DIN 53380-3:2021-11 using oxygen at +23 °C and 0.2 bar.

Continuous monitoring test

Product quality is checked annually by a DLG monitoring test in accordance with the testing regulations. In addition, the manufacturer is obliged to carry out self-monitoring measures during production.

Summary

The criteria tested in the present DLG quality seal test evaluate the mechanical, physical, chemical and ageing properties of GLUKON® farm spray adhesive on the basis of laboratory and practical tests.

The tested GLUKON® farm spray adhesive has met the requirements of the test framework with regard to the criteria examined.

Further information

Testing agency

DLG TestService GmbH,
Gross-Umstadt location, Germany

The tests are conducted on behalf of DLG e.V.

DLG test framework

Test program for spray adhesive for silage films and asparagus films made of low-density polyethylene (PE-LD) with and without recycled content

Department

Farm inputs

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Dr. Harald Reubold*

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DLG. An 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 the general public across disciplines and national borders. As an open and independent organisation, our network of experts collaborate with farmers, academics, consultants, policymakers and specialists in administration in the development of future-proof solutions for the challenges facing the agriculture and the food industry.

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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