



TEST REPORT

English translation prepared by ECOLABOR

Report No.: **ECO-P16002-15017-en** Date: 25.01.2016

Company: ISOLENA Naturfaservliese GmbH
Klosterstraße 20
A 4730 Waizenkirchen

Date of order: 10.08.2015

Tested material: Sheep wool thermal insulation fleece

Trade name: „**Isolenawolle**“

Production site: ISOLENA Naturfaservliese GmbH
Klosterstraße 20
A 4730 Waizenkirchen

Sampling: by manufacturer

Date of delivery: 02.02.2015

Content of order: Resistance to insect pests:
Long term test according EAD for clothes moth (*Tineola bisselliella*) and carpet beetle (*Anthrenus flavipes*)

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1 Order

The contract relates to a thermal insulation product made of sheep's wool with the trade name „**Isolenawolle**“, for which the relevant long-term tests for resistance to insect pests were carried out.

2 Sample material

The sample material was taken from the manufacturer in his factory in A 4730 Waizenkirchen and sent to the testing laboratory. The sample material was supplied in the form of a carded insulating fleece with a total weight of approximately 1 kg.

Delivery name: Carded Isolenawolle protected with „**IONIC PROTECT**“.

3 Area of application

The insulating material to be tested is used as heat and sound insulation in ceilings, walls and floors as well as a sound absorption mat.

4 Test program

According to the test order, the following quality characteristics, summarized in Table 1, had to be tested or determined.

The tests were carried out in accordance with EAD 040005-00-1201 "Factory-made thermal and / or acoustic insulation products made of vegetable or animal fibres", version June 2015, briefly described in the test report as "EAD".

Table 1 Overview of the test program

Parameter (Characteristic)	Standard
Resistance to insect pests (long term test)	EAD, Annex C

5 Product description

The tested thermal insulation fleece consists exclusively of sheep's wool, which according to the client was treated with „**IONIC PROTECT**“, an additive against insect feeding. The production of the insulation fleece took place in a carding process. In addition to the feeding protection no other additives are added.

Product name: „**Isolenawolle**“
Treatment: with „**IONIC PROTECT**“

6 Test results

Experimental Procedure

The tests were carried out in accordance with EAD, Annex C. The samples and control samples are kept in contact in a constant climate with the larvae or eggs and adult beetles of the selected test insects in a period of max. 6 months (= 182 days).

The tests were carried out at $(27 \pm 1) ^\circ \text{C}$ and $(70 \pm 10) \% \text{RH}$.

Test program

For the resistance tests, eggs or larvae of the clothes moth (*Tineola bisselliella*) and the carpet beetle (*Anthrenus flavipes*) were used in the following quantities:

Larvae of the clothes moth	20
Clothes moth eggs	30
Carpet beetle larvae	20
Carpet beetle (adult)	20

6.1 Test insect: clothes moth (*Tineola bisselliella*)

6.1.1 Test with larvae (*Tineola bisselliella*)

Table 2 Relevant information for the test - Examination with larvae (*Tineola bisselliella*)

	Name / Parameter	Explanation / Comment
1	Sample material Ident. No	15003-M01
2	Control material Ident No	-
3	Test insects	20 larvae (0,8 – 1,2 mg/larva)
4	Samples / control samples	4 / 4
5	Test environment	26°C / 70 % RH
6	Test period	begin 07.09.2015 end 12.01.2016
7	Population - samples	At the end of the test, all larvae or pupae had died in each of the four samples.
8	Population – control samples	The control samples showed a very mixed population of larvae, pupae and adult insects.
9	Damage - Documentation	No damage could be detected.

6.1.2 Test with eggs (*Tineola bisselliella*)

Table 3 Relevant information for the test - Examination with eggs (*Tineola bisselliella*)

	Name / Parameter	Explanation / Comment
1	Sample material Ident. No	15003-M01
2	Control material Ident No	-
3	Test insects	30 eggs
4	Samples / control samples	4 / 4
5	Test environment	26°C / 70 % RH
6	Test period	begin 07.09.2015 end 12.01.2016
7	Population - samples	In none of the four samples developed larvae or adult insects from the eggs.
8	Population – control samples	The control samples showed a very mixed population of larvae, pupae and adult insects.
9	Damage - Documentation	Not applicable.

6.1.3 Assessment of resistance (*Tineola bisselliella*)

According to the assessment criteria of EAD Annex C, paragraph C.5, the specimen material which was tested is sufficiently resistant to clothing moth damage because no adult insects have developed from the eggs.

6.2 Test insect: carpet beetle (*Anthrenus flavipes*)

6.2.1 Test with larvae (*Anthrenus flavipes*)

Table 4 Relevant information for the test - Examination with larvae (*Anthrenus flavipes*)

	Name / Parameter	Explanation / Comment
1	Sample material Ident. No	15003-M01
2	Control material Ident No	-
3	Test insects	20 larvae (0,8 – 1,2 mg/larva)
4	Samples / control samples	4 / 4
5	Test environment	26°C / 70 % RH
6	Test period	begin 16.09.2015 end 18.01.2016
7	Population - samples	At the end of the test, all larvae or pupae had died in each of the four samples. No excrements could be detected.
8	Population – control samples	The control samples showed a very mixed population of larvae, pupae and adult insects. There were already many larvae of the 2nd generation, with a size of 1 - 2 mm, available.
9	Damage - Documentation	No damage could be detected.

6.2.2 Test with eggs (Anthrenus flavipes)

Table 5 Relevant information for the test - Examination with eggs (Anthrenus flavipes)

	Name / Parameter	Explanation / Comment
1	Sample material Ident. No	15003-M01
2	Control material Ident No	-
3	Test insects	20 beetles The adult carpet beetles were removed after 14 days (after oviposition).
4	Samples / control samples	4 / 4
5	Test environment	26°C / 70 % RH
6	Test period	begin 08.09.2015 end 18.01.2016
7	Population - samples	In none of the four samples developed larvae or imagines from the eggs.
8	Population – control samples	In the control samples an active development of the larvae had taken place. A total of 4 pupae and 2 beetles were found. The larvae had dimensions (body length) to 5 mm.
9	Damage - Documentation	Not applicable.

6.2.3 Assessment of resistance (Anthrenus flavipes)

According to the assessment criteria of EAD Annex C, paragraph C.5, the specimen material which was tested is sufficiently resistant to carpet beetle damage, because no viable larvae or adult beetles have developed from the eggs.

6.3 Test result – Long term test according EAD

The **Long-term tests** carried out in accordance with EAD 040005-00-1201 "Factory-made thermal and / or acoustic insulation products made of vegetable or animal fibres", June 2015 have shown that the tested insulation product with the name „**Isolenawolle**“ which was delivered by ISOLENA Naturfaservliese GmbH, is according to the evaluation criteria under the above-mentioned test conditions

sufficiently resistant to attack by clothing moths and carpet beetles.

A new generation of insect pests could not develop.

7 Reproduction, publication

This present test report, called ECO-P16002-15017-en contains 6 pages with 5 tables.
This test report may only be reproduced in full.

Note:

This test certificate does not replace the required "Technical Approval".

Remark:

The above results are valid for the specimens at the time of testing.

Stainz, 25.01.2016

F. Neumann

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Authorised to sign leader of the test laboratory,
Dipl.Ing.Franz Neubauer

