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LABORATORY ASSESSMENT OF THE EFFICACY OF A
FABRIC TO CONTROL HOUSE DUST MITES

SAMPLE: " sample received 31st July 2017 "

SPONSOR:

SmartfiberAG

Im Weidig 12
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GERMANY

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Report # 2255/0917R

AGRÈMENT
ESSAIS OFFICIELLEMENT
RECONNUS
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AGRÈMENT
CREDIT - IMPÔT
RECHERCHE

GOOD PRACTICES

STUDY TEC N°: 2255/0917
SPONSOR: Smartfiber AG (Germany)

PRODUCT: Sample received 31st July 2017

FACILITIES: T.E.C. 1, rue Jules Védrières, ZAC Maignon - 64600 Anglet - France

DATES: 03/08/2017 to 14/09/2017

REPLICATES: 4

STUDY DIRECTOR: Bruno Serrano / ENSAT engineer

STUDY ENGINEE: Martine Falquier / ENSAR engineer

QUALITY RESPONSIBLE: Bruno Serrano / ENSAT engineer

METHODOLOGY:

This trial has used a methodology adapted from the standard NF G 39-011 which is in the appendix of the proposed methods for biocide registration in the « Guidance on the Biocidal Products Regulation - Volume II Efficacy – Assessment and Evaluation (Parts B&C) – Version 1.0 - February 2017 - ECHA ».

ARCHIVING: 10 years, hard + electronic copies

DIFFICULTIES/DEVIATIONS: None

Bruno Serrano
Date: 20th September 2017



PARTICIPANTS TO THE TRIAL

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Warning

The results described in this report are produced by a laboratory test on the samples provided which have not suffered any damage related to the reality of use or of storage. TEC provides test results only on samples received and may in no event be liable regarding finished products in production or sale.

The trial has been conducted on a laboratory strain of "model" insects and the susceptibility of the local insect's strains can be different in other labs or in the real conditions of use.

As such the results should be taken only as an indication of the potential for activity of the formulations or products under test. Then, these results cannot be considered as confirmation that a formulation or product will work in a clinical or field application. Evidence for such activity can only be obtained from properly constructed and executed clinical or local field trials.

Test variability on bioassays implies that the results of test given by TEC shall only be taken as one of the elements that contribute to the development of a product, but cannot be the sole support of product knowledge leading to its production and marketing/sale, and TEC strongly encourages the client to carry out further studies to consolidate the knowledge of the product's effectiveness.

LABORATORY ASSESSMENT OF EFFICACY OF A FABRIC TREATMENT TO CONTROL HOUSE DUST MITES

1. PURPOSE

The purpose of this study was to assess the effect of an impregnating treatment of fabric on the development of house dust mites' populations (*Dermatophagoides pteronyssinus*) in comparison with a population no exposed to the product.

The trial was done by deposit of dust mites on the fabrics impregnated or not with the active specialities.

Trial duration was 6 weeks, which corresponds to 2 development cycles of the mites.

2. MATERIALS AND METHOD

The methodology was adapted from the standard AFNOR NF G 39-011.

Deviations from the standard:

2.1. Mites strain preparation

Mites used were *Dermatophagoides pteronyssinus* strain originated from a stock culture of I.N.R.A. Bordeaux (France). It was a susceptible strain reared at 25°C and 76%RH for several years in laboratory conditions without any contact with insecticides on a oligidic diet of wheat germ (dried and powdered) and of brown brewers' yeast (Prolabo, debittered, dried and powdered) (1/1 w/w).

The mites were retrieved from the surface of the rearing medium where the mite colony is generally concentrated.

2.2. Number of mites

50+/-5 adult mites of mixed sex were used per experimental unit.

2.3. Food source

The food source type I was used.

2.4. Mortality assessment procedure

The assessment of mite's survival was done using the 'Heating Escape Method' with low temperatures (30 to 40°C) (Bischoff).

Data will show the compared population's evolution between the Treated and the Untreated during the 2 cycles of development. Calculation of efficacy is explained on § 4.1.

2.5. Replicates, Control

4 replicates were conducted the same day, including for the untreated fabric which was the Control.

3. TEST SAMPLE

Experimental sample (received the 31st July 2017).

4. RESULTS

4.1. Presentation

Data are numbers of alive mites.

As it is a comparison between Treated and Untreated batches, the calculation of efficacy was done with the:

POPULATION CONTROL COEFFICIENT = CP

$$CP = \frac{\text{mites alive in Untreated} - \text{mites alive in Treated}}{\text{mites alive in Untreated}} \times 100$$

This data is the product efficacy coefficient.

- the closer to 0 the coefficient will be, the less efficient the treatment will be because the population will develop at the same rate as for the untreated;
- the closer to 100 the coefficient will be, the more efficient the treatment will be by killing the dust mites' population and stopping its expansion process.

The table next page gives the raw data of the different experimental units.

4.2. Comments

The natural evolution of mites' population in Untreated batches ratifies the trial as it confirms the extremely favourable conditions under which the batches are tested: the population on the untreated batches have indeed a development factor more than 18 (more than 900 mites obtained from the original 50).

Result on the efficacy of the sample: 62% population reduction.

5. CONCLUSION

In the conditions of this trial, with the sample provided, the mites strain and the methodology used:

The sample has proved an 62% control of the house dust mite's populations.

RAW DATA

		POPULATION'S REDUCTIONS	
		after 6 weeks	
	Replicate	A	%reduction
Untreated control	1	906	-
	2	874	-
	3	880	-
	4	914	-
	Mean	893,5	-
	sd	19,5	-
Test sample	1	364	59,3
	2	329	63,2
	3	345	61,4
		337	62,3
	Mean	344	61.5
	sd		1,7

A = alive