



Certificate of Physical and Chemical Analysis

Product name: Pherobank *Diabrotica virgifera*
Product number: 50076
Type of formulation: Active compounds impregnated in natural rubber sleeve stopper
Name of producer: Pherobank BV
Country of origin: The Netherlands
Sample lot number: representative sample

Content:

Diabrotica virgifera pheromone 0.07% w/w (0.5 mg/lure, 0.71 g/kg)
UV filters plus antioxidants 0.17% w/w
Inert materials (natural rubber) 99.76% w/w

Physical description of the pheromone dispenser:

Red Natural rubber sleeves. Dimensions: 9.1 mm outside diameter, 18.8 mm total height.
Weight: 0.7 gram.

Packaging description:

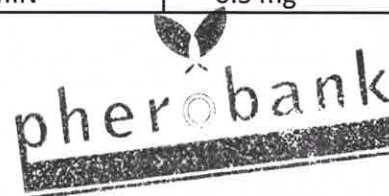
Sealed airtight laminated sachets, or containers.

ID active compound(s):

1) 8-methyl-2-decyl propionate CAS No: [81931-28-4]

Concentration of active ingredient found per pheromone dispenser:

SAMPLE	TEST	SPECIFICATIONS	TEST RESULTS
sample 1	pheromone content	0.5 mg MIN	0.5 mg
sample 2	pheromone content	0.5 mg MIN	0.5 mg
sample 3	pheromone content	0.5 mg MIN	0.5 mg



Wijk bij Duurstede, 27 May 2021

Signature Quality Assurance



Addendum: Protocol for the chemical analysis of pheromone evaporators.

Choice of solvent

Dichloromethane; because this solvent is able to extract chemical compounds absorbed into the rubber. The gc-ms response factor of unsaturated linear acetates compared to the internal standard tridecyl acetate was measured. In this case a response factor of 1 was assumed.

Part 1, equipment

All glassware and tools were cleaned by water and soap and subsequently flushed with distilled acetone and dried in an oven at 60 Celsius for 4 hours. Oven dried items were allowed to return to room temperature before use.

GC-analyses were performed on a Hewlett Packard GC-MS.

GC part: Agilent 7890A Gas Chromatograph
Column: AT-5 (5% Phenyl, 95% Methyl Silicone), 30 m, 0.25 mm id, 0.25 µm film thickness
Carrier gas: Helium, constant flow mode at 1.70 ml/min
Detector: MSD 5975C
Injector: split/splitless injector operating in splitless mode, temperature: 240 °C
Oven temperature: 50 °C for 2 minutes, then with 20 °C/minute to 280 °C, at 280 °C isotherm for 6.5 minutes. Total runtime 20 minutes.

Part 2, chemicals

Dichloromethane was distilled prior to use.

For dichloromethane a specific gravity of 1.325 gram/ml at 25 Celsius was applied.

A 0.1 mg/ml internal standard of tridecyl acetate in dichloromethane was prepared by weighing exactly 100 mg tridecyl acetate into a bottle of 1 litre. To this bottle 1.325 kilogram (1.00 litre) of dichloromethane was added.

Part 3, Quantification of pheromones in rubber evaporators, general method.

One pheromone lure was put into a 40 ml vial.

To this vial 5 ml of internal standard solution (0.5 mg tridecyl acetate) was added by weighing (6.625 grams).

To this vial 10 ml (graduated cylinder) of dichloromethane was added.

The vial was closed and shaken for 24 hours.

After this period of stirring an aliquot was taken and analysed by gc-ms.

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