

Claims

1. A liquid formulation for controlling arthropod infestation that comprises:
 - i) electret particles selected from carnauba wax, beeswax, Chinese wax, shellac wax, spermaceti wax, candelilla wax, castor wax, ouricury wax and rice bran wax and having a volume mean diameter of 10 to 40 μm and capable of adhering to eukaryote tissue, the particles being suspended within a liquid of the liquid formulation;
 - ii) encapsulated within and dispersed on the surface of the electret particles at least one chemical agent that has activity on arthropods; and
 - iii) a surfactant.

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~~2. A liquid formulation as claimed in claim 1, the formulation being selected from an aqueous formulation and an oleaginous formulation.~~

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~~3. A liquid formulation according to claim 1 or claim 2, wherein the at least one active chemical agent is selected from an arthropoicidal chemical and an arthropod pheromone.~~

~~4. A liquid formulation according to any one of the preceding claims, wherein the electret particles have a volume mean diameter of 10 to 30 μm .~~

~~5. A liquid formulation according to any one of the preceding claims, wherein the at least one chemical agent is effective against infesting arthropods of social insects of economic importance to man, infesting arthropods of species of use in the manufacture of clothing material, arthropods that infest crop and ornamental plants or arthropods that infest domestic and farm animals.~~

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~~6. A liquid formulation according to claim 5, wherein the at least one chemical agent is selected from pyrethroids, organophosphates, carbamates, spinosans, GABA inhibitors, neonicotinoids, anthranilamides, formononetins, essential oils and insect growth regulators, and~~

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7. A liquid formulation according to claim 6, wherein the at least one chemical agent is effective against infesting arthropods of bees.

8. A liquid formulation according to claim 6, wherein the at least one chemical agent is effective against infesting arthropods of silkworm moth.

9. A liquid formulation according to claim 6, wherein the at least one chemical agent is selected from: *c*-cypermethrin, λ -cyhalothrin, (cyano-(3-phenoxyphenyl)methyl)-3-(2,2-dibromoethyl)-2,2-dimethylcyclopropane-1-carboxylate (deltamethrin), and *r*-fluralinolate, chlorpyrifos (diethoxy-sulfonylidene-(3,5,6-trichloropyridin-2-yl)oxy-*P*(5)-phosphane), malathion (diethyl-2-dimethoxyphosphinothioyl-sulfanylbutanedioate), coumaphos (3-chloro-7-diethoxyphosphinothioxy-4-methylcoumarin), and stirofos ((*E*)-2-chloro-1-(2,4,6-trichlorophenyl)ethenyl)-dimethyl phosphate), spinosad, fenoxil (5-amino-1-[2,6-dichloro-4-(trifluoromethyl)phenoxy]-4-(trifluoromethylsulfinyl)-pyrazole-3-carbonitrile), imidacloprid (N-[1-[(6-chloro-3-pyridyl)methyl]-4,6-dihydroimidazol-2-yl]nitramide), 7-hydroxy-3-(4-methoxyphenyl)chromone, tea tree oil, thyme oil, menthol, and methoxyfenozide (N-terbutyl-N'-(3-methoxy-*o*-toluoyl)-3,5-xylolhydrazide).

10. A liquid formulation according to claim 9, wherein the at least one chemical agent is selected from thyme oil, thymol and deltamethrin.

11. A liquid formulation according to claim 5, wherein the arthropodeidal chemical is amitraz (N-(2,4-dimethylphenoxy)-N'-(2,4-dimethylphenoxy)iminomethyl)-N-methylmethanimidamide).

12.2. A liquid formulation according to any one of the preceding claims 1, wherein the eukaryotic tissue is selected from leaves, stems, fruiting bodies and flowers, from animal tissue selected from skin, hair, fur, horns, feathers, nails, claws and beaks, and from arthropod tissue selected from the

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arthropod cuticle including exoskeleton parts selected from the head, thorax, abdomen, legs, wings and feet (tarsi).

~~13.3~~ Use of electret particles in the manufacture of a liquid formulation according to ~~any one of the preceding claims 1 or claim 2.~~

~~14.4~~ A process for producing electret particles usable in a liquid formulation according to any one of claims 1 to ~~12~~, comprising the steps of:

- i) adding at least one chemical agent selected from an arthropodicidal chemical and an arthropod pheromone to electret particles;
- ii) fusing the chemical agent loaded particles of i) together to form a solid matrix;
- iii) treating the solid matrix of ii) to form millimetre-sized particles suitable for milling; and
- iv) milling the particles of iii) to form particles having a volume mean diameter of from 10 to 40 μm .

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~~15.5~~ A process according to claim ~~14~~, comprising the further steps of adding a flow agent to the milled particles.

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~~16.6~~ A process for producing electret particles usable in a liquid formulation according to any one of claims 1 to ~~12~~, comprising the steps of:

- i) independently spraying liquid electret forming materials and at least one liquid chemical agent into a collecting chamber;
- ii) cooling the chamber to a temperature at which the electret material solidifies or begins to solidify; and
- iii) forming particles of chemical agent loaded electret material having, a volume mean diameter in the range of from 10 to 15 μm .

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