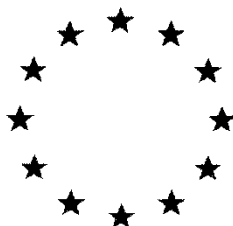


European Commission



Renewal Assessment Report
prepared according to the Commission Regulation (EU) N° 1107/2009

Aluminium Silicate Calcined
(Kaolin Calcined)

Volume 3 – B.3 (AS)

Rapporteur Member State: Greece
Co-Rapporteur Member State: France

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B.3. DATA ON APPLICATION

Highlighted Text: Information added by the evaluator (will be black in the final RAR).

B.3.1. USE OF THE ACTIVE SUBSTANCE

Aluminium Silicate (Kaolin) is intended to be used in agriculture as a physical barrier against insect pests, mainly on fruit trees and vines.

B.3.2. FUNCTION

Insect repellent.

Kaolin greatly reduces insect damage to crops by creating a particle film that has repellent and irritant effects on pests. It is also thought to camouflage crops from migrating insects by changing the wavelength of light reflected from the crop surface.

Kaolin also provides horticultural benefits for plants by allowing photosynthesis to occur while reflecting harmful IR and UV radiation. Studies have shown that kaolin-treated trees actually increase their rate of carbon fixation.

B.3.3. EFFECTS ON HARMFUL ORGANISMS

Kaolin has contact action and acts as a physical repellent barrier against insect pests and excess sunlight.

The kaolin particles form a physical barrier that acts as a repellent to certain insect pests, e.g. pear psylla.

Kaolin greatly reduces insect damage to crops by creating a particle film that has repellent and irritant effects on pests. It is also thought to camouflage crops from migrating insects by changing the wavelength of light emitted from the crop surface.

Kaolin is totally inert and therefore not absorbed by or translocated in either the crop or the pest.

B.3.4. FIELD OF USE ENVISAGED

Aluminium Silicate is intended to be used in field as foliar spray.

B.3.5. HARMFUL ORGANISMS CONTROLLED AND CROPS OR PRODUCTS PROTECTED OR TREATED

Aluminium Silicate has a repellent effect against:

- *Brachycaudus schwartzi* and *Hyalopterus amygdali* on apricot tree
- *Brachycaudus amygdalinus*, *Hyalopterus pruni* and *Brachycaudus persicae* on almond tree
- *Myzus cerasi* on cherry tree
- *Corylobium avellanae* and *Myzocallis coryli* on hazel tree
- *Rhagoletis completa* on walnut tree
- *Myzus persicae* on peach tree
- *Dysaphis pyri*, *Aphis pomi* and *Rhopalosiphum insertum* on pome tree (apple, pear, quince and nashi)
- *Melanaphis pyrararia* and *Anuraphis farfarae* on pear tree, quince tree and nashi tree
- *Dysaphis plantaginea*, *Psylla pyrisuga*, *Psylla mali*, *Psylla costalis*, *Cacopsylla pyricola* and *Cacopsylla pyri* on apple tree
- *Brachycaudus schwartzi*, *Hyalopterus pruni* and *Brachycaudus helichrysi* on plum tree

- *Empoasca vitis* and *Frankliniella occidentalis* on grapevine (wine and table)
- *Hyalesthes obsoletus* on lavender and lavandin

B.3.6. MODE OF ACTION

No biochemical or physiological effects are known for kaolin upon insects.

Immediately after application, a white film of kaolin coats the surface of the crop and provides a physical barrier to the pest. This white film acts as a deterrent to the pest. Insects do appear irritated when in contact with kaolin. Some scientists have speculated that particles may cause a water imbalance or be irritating (mechanical abrasion) to insects.

Disguising plant hosts by altering the red/blue light reflection through the white coating of particles on plants has also been suggested as a mode of action. SEM photographs have shown that the tarsi pads of some insects become coated with kaolin particles upon walking on treated plants. Coating the chemo-receptors of insects prevents them from recognizing the hosts and often prevents them from ovipositing or feeding. In choice tests, insects almost always choose an untreated plant to one coated with kaolin. In no choice tests some insects do not even alight upon a kaolin treated plant, while some insects will alight, but their behaviour is modified. Often they do not feed (eventually starve) or oviposit and act irritated or agitated.

It is expected that these different modes of actions all interact in various degrees to repel insect pests.

Kaolin also provides horticultural benefits for plants by allowing photosynthesis to occur while reflecting harmful IR and UV radiation. Studies have shown that kaolin-treated trees actually increase their rate of carbon fixation.

B.3.7. INFORMATION ON THE OCCURRENCE OR POSSIBLE OCCURRENCE OF THE DEVELOPMENT OF RESISTANCE AND APPROPRIATE MANAGEMENT STRATEGIES

Kaolin has no toxic mode of action and therefore cannot induce resistance in pest populations.

Kaolin is not expected to cause resistance like conventional chemical insecticides. Kaolin is not killing the insects through a specific target site so there will be extremely limited selection pressure. Insects are very unlikely to be selected on the basis of modified behaviour and/or morphological attributes that avoid the repellent barrier effects of kaolin. In conclusion, there is very little risk of target pests developing resistance to kaolin.

B.3.8. REFERENCES RELIED ON

Data Point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Data protection claimed Y/N	Justification if data protection is claimed	Owner	Previous evaluation