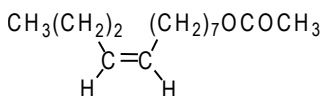


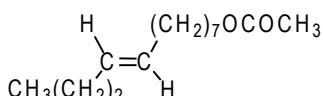
4:395 (Z)-dodec-8-enyl acetate plus (E)-dodec-8-enyl acetate plus (Z)-dodec-8-enol

Oriental fruit moth sex pheromone

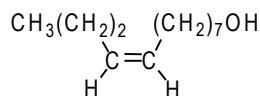
The Pesticide Manual Fifteenth Edition entry number: 306



[Z]- isomer



[E]- isomer



[Z]-dodec-8-enol

NOMENCLATURE: **Approved name:** (Z)-dodec-8-enyl acetate plus (E)-dodec-8-enyl acetate plus (Z)-dodec-8-enol. **Other names:** *Grapholitha molesta* sex pheromone; oriental fruit moth sex pheromone; Z8-12Ac; E8-12Ac; Z8DDA. **Development code:** BAS 284 I. **CAS RN:** [28079-04-1] (Z)-dodec-8-enyl acetate; [38363-29-0] (E)-dodec-8-enyl acetate; [40642-40-8] (Z)-dodec-8-enol.

SOURCE: Female *Grapholitha molesta* (Busck) emit several volatile components shown to be attractive to males. Originally extracted from the terminal segments of virgin females.

PRODUCTION: Manufactured for use in crop protection.

TARGET PESTS: Oriental fruit moth (*Grapholitha [Cydia] molesta*). Also effective against the macadamia nut borer (*Cryptophlebia ombrodelta* (Lower)), the koa seedworm (*C. illepidia* Butler) and the plum fruit moth (*Cydia funebrana* (Treitschke)).

TARGET CROPS: Orchard fruit, such as apples, pears, quinces and other pome fruit; peaches, nectarines, plums, prunes, cherries, apricots and other stone fruit; almonds, macadamias and other tree nut crops.

BIOLOGICAL ACTIVITY: **Mode of action:** Males locate females by following a plume of air rich in the odour of a complete pheromone blend emitted by the females. Evaporation of the pheromone blend given above from traps attracts male moths to traps. Permeation of the canopy of an orchard with vapours of the pheromone is used to disrupt location of females by males and decrease mating. **Efficacy:** The combination of the three components has given more effective disruption than the use of the (Z)-dodec-8-enyl acetate alone. Some products contain only one component. Very low rates are required to cause mating disruption. The pheromone blend is volatile and distributes throughout the crop easily. **Key reference(s):** T C Baker; W Meyer & W L Roelofs. 1981. Sex pheromone dosage and blend specificity of response by oriental fruit moth, *Environ. Entomol.*, **30**, 269.

COMMERCIALISATION: Formulation: Sold in slow-release devices. Consep sells a sprayable formulation and offers ‘Checkmate SF’, a dual dispenser containing the oriental fruit moth and peach tree borer pheromones. **Tradenames:** ‘Isomate-M’ (Shin-Etsu) and (Biocontrol), ‘Isomate OFM rosso’ (Shin-Etsu), ‘Isomate OFM Plus’ (long life formulation) (Biocontrol), ‘Confusalin’ (Bayer CropSciences) and (Calliope), ‘RAK 5’ and ‘Quant G.m.’ (BASF), ‘Checkmate OFM’ and ‘Checkmate OFM-F’ (Consep), ‘Hercon Disrupt OFM’ (Hercon), ‘MEC.OFM’ (Suterra), ‘SPLAT OFM’ (ISCA).

APPLICATION: The controlled-release dispensers contain synthetic pheromones that are chemically similar to the natural pheromone produced by *Grapholitha molesta*. The dispenser is composed of two parallel polymer tubes, one of which contains an aluminum wire and enables the positioning of the dispenser in the field and the other filled with the specific pheromone mixture. The slow-release devices are placed within the orchard at a height specified by the manufacturer prior to the flight of over-wintering adults. It is usual to allow 500 dispensers per hectare (‘Checkmate OFM’). For ‘Isomate OFM rosso’, use 600 dispensers per hectare, plus additional dispensers to reinforce protection at the orchard edges. The pheromone diffuses out of the dispenser and disperses throughout the orchard. The products should be reapplied as necessary based on insect monitoring and field scouting programmes, although the maximum applied per hectare should not exceed 150 g per year. Apply spray formulations directly to the foliage in sufficient water to cover the crop uniformly, but not to run-off. ‘SPLAT OFM’ (Specialized Pheromone & Lure Application Technology) is a formulation that has been designed to dispense, optimise and modulate the semiochemical release in mating disruption pest management programmes. The product can be applied by hand, caulking gun, metered backpack sprayer, tractor or aircraft.

PRODUCT SPECIFICATIONS: Manufactured for use in crop protection. **Purity:** The pheromone components are >90% chemically pure. **Shelf-life:** Stored in their original packaging at 5 °C, the products will normally keep for 2 years. When the products are refrigerated for use the following season, store them at room temperature for one month prior to field application.

COMPATIBILITY: The products can be used with all crop protection agents that do not repel the oriental fruit moth.

MAMMALIAN TOXICITY: Oriental fruit moth pheromone blend has shown no adverse toxicological effects on manufacturers, formulators or field workers. Considered to be non-toxic. **Acute oral LD₅₀:** rats >15 000 mg/kg ((Z)- and (E)-dodec-8-enyl acetate). **Acute dermal LD₅₀:** rabbits >15 000 mg/kg ((Z)- and (E)-dodec-8-enyl acetate). **Skin and eye:** Irritating to skin.

ENVIRONMENTAL IMPACT AND NON-TARGET TOXICITY: Oriental fruit moth pheromone blend is a natural insect pheromone that is specific to the oriental fruit moth. There is no evidence that it has caused any adverse effects on non-target organisms or had any adverse environmental impact. **Approved for use in organic farming:** Yes.