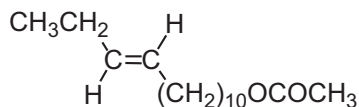


832 tetradec-11-enyl acetate

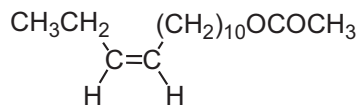
Insect pheromone

See also *The Manual of Biocontrol Agents*, 4th Ed. of *The BioPesticide Manual*, entry: 4:446-4:449

pheromone



(E)- isomer



(Z)- isomer

The (Z)- isomer is the main component of the sex pheromone of the oriental tea tortrix (*Homona magnanima*) and of the blackheaded fireworm (*Rhopobota naevana*); it is also a component of the sex pheromones of other tortrix (*Adoxophyes*) species (see under (Z)-tetradec-9-enyl acetate). A mixture of (E)- and (Z)- isomers constitutes the sex pheromone of the European corn borer (*Ostrinia nubilalis*), the ratio of isomers produced is highly dependent on strain; these isomers, together with the corresponding alcohols, also constitute the sex pheromone of the omnivorous leafroller (*Platynota stultana*). The (E)- isomer (with the corresponding (E)- alcohol) comprises the sex pheromone of the tufted apple bud moth (*Platynota idaeusalis*). The (E)- isomer is also the main component of the sex pheromone of the light brown apple moth (*Epiphyas postvittana*).

NOMENCLATURE: IUPAC name tetradec-11-en-1-yl acetate

Chemical Abstracts name 11-tetradecen-1-ol acetate

Other names Z11-14Ac; E11-14Ac **CAS RN** [20711-10-8] (Z)- isomer; [33189-72-9] (E)- isomer; [26532-95-6] unspecified stereochemistry; [34010-15-6] corresponding (Z)- alcohol; [35153-18-5] corresponding (E)- alcohol **EC no.** 243-982-8 (Z)- isomer

Development codes BAS 280 I (BASF)

PHYSICAL CHEMISTRY: **Composition** Physico-chemical data are for the (Z)- isomer.

Mol. wt. 254.4 **M.f.** C₁₆H₃₀O₂ **Form** Colourless liquid. **B.p.** 117°C/1 mmHg **K_{ow} logP** >4 **S.g./density** 0.875 (20°C) **Solubility** Soluble in common organic solvents. **Stability** Unstable in alkali.

COMMERCIALISATION: **History** A mating disruption device including the pheromone was registered in Japan in 1983. In use since 1985. **Manufacturers** Bedoukian; Shin-Etsu

APPLICATIONS: **Mode of action** Acts by mating disruption. **Uses** The (Z)- isomer is used for control of the European corn borer (*Ostrinia nubilalis*), tea tortrix (*Homona magnanima*), smaller tea tortrix (*Adoxophyes* sp.), and leafrollers such as *Platynota stultana*; also used for control of the blackheaded fireworm (*Rhopobota naevana*) in cranberries. The (E)- isomer is also used for control of the tufted apple bud moth (*Platynota idaeusalis*). The (Z)- isomer is a minor component, used in mixture with the (Z)- isomer of dodec-9-enyl acetate (q.v.), for control of the grape berry moth (*Endopiza viteana*). **Formulation types** CS; Spiral; Tube.

Selected products 'Checkmate OLR-F' (sprayable formulation; (E)- + (Z)- isomers) (Suterra); 'NoMate OLR' (mainly (E)- isomer) (Scentry);

mixtures 'Confuser A' (+ (E,Z)-tetradeca-4,10-dienyl acetate + (Z)-icos-13-en-10-one + (Z)-tetradec-10-enyl acetate + dodec-8-enyl acetate) (apples; Japan; dodec-8-enyl acetate and

tetradec-11-enyl acetate as (Z)- isomers) (Shin-Etsu); 'Confuser P' (+ (Z)-icos-13-en-10-one + 14-methyloctadecene + dodec-8-enyl acetate) (peaches; Japan; dodec-8-enyl acetate as (Z)- isomer) (Shin-Etsu); 'Confuser Z' (+ (Z)-icos-13-en-10-one + (Z)-tetradec-9-enyl acetate + dodec-8-enyl acetate + dodec-9-enyl acetate) (apples; with dodec-11-enyl acetate; dodec-9-enyl acetate as (Z)- isomer) (Shin-Etsu); 'Hamaki-con N' (+ (Z)-tetradec-9-enyl acetate + dodec-9-enyl acetate) (with dodec-11-enyl acetate; dodec-9-enyl acetate as (Z)- isomer) (Shin-Etsu); 'Isomate-C Special' (+ codlemone) (USA, Italy; (Z)- isomer) (Shin-Etsu).

TOXICOLOGICAL & ENVIRONMENTAL REVIEWS: 91/414/EC Annex I status (E)- and (Z)- isomers included, 2008/127/EC.

MAMMALIAN TOXICOLOGY: Oral Acute oral LD₅₀ for rats and mice >5000 mg/kg.

Skin and eye Acute percutaneous LD₅₀ >2000 mg/kg. Non-irritating to skin and eyes (rabbits). Not a skin sensitiser (guinea pigs). **Inhalation** LC₅₀ >5 mg/l.

ECOTOXICOLOGY: Fish LC₅₀ (96 h) for rainbow trout >10 mg/l. **Daphnia** EC/LC₅₀ (48 h) >10 mg/l. **Other aquatic spp.** LD₅₀ (48 h) >10 ppm. **Other beneficial spp.** EC/LC₅₀ (16 h) for bacteria >1000 mg/l.