APPLICATIONS

Mode of action Insecticide and acaricide which kills larvae, nymphs and adults by contact and/or stomach action; also shows some ovicidal action. See J. Drabek *et al.* (*Recent Adv. Chem. Insect Control II*, 1990, p. 170). Converted by light, or *in vivo* to the corresponding carbodiimide, which is an inhibitor of mitochondrial respiration. **Uses** Insecticide and acaricide effective against phytophagous mites (Tetranychidae, Tarsonemidae), Aleyrodidae, Aphididae and Jassidae on cotton, various field and fruit crops, ornamentals and vegetables. Also controls some leaf-feeding pests in cole crops (*Plutella xylostella*), soyabeans (*Anticarsia gemmatalis*) and cotton (*Alabama argillacea*). Is safe on adults of all beneficial groups (Anthorcoridae, Coccinellidae, Miridae) and on adults and immature stages of predatory mites (*Amblyseius andersoni, Typhlodromus pyri*), spiders (Erigoridae, Lycosidae), *Chrysopa carnea*. Non-selective to immature stages of Heteroptera (Anthocoridae, Miridae). Compatible with the biological control of Aleyrodidae and mites in glasshouses.. **Formulation type** SC; WP.
Principal tradename 'Pegasus' (Ciba-Geigy), 'Polo' (Ciba-Geigy).

ANALYSIS

Product analysis by glc. **Residues** determined by glc. Details available from Ciba-Geigy AG.

MAMMALIAN TOXICOLOGY

Acute oral LD_{50} for rats 2068 mg/kg. **Skin and eye** Acute percutaneous LD_{50} for rats > 2000 mg/kg. Non-irritant to eyes and skin (rats). **Inhalation** LC_{50} (4 h) for rats 0.558 mg/l air. **NOEL** (90 d) rats 4, dogs 1.5 mg/kg daily.

ECOTOXICOLOGY

Birds Acute oral LD_{50} for bobwhite quail and mallard ducks > 1500 mg/kg. Eight-day dietary LC_{50} for bobwhite quail and mallard ducks > 1500 mg/kg. No acute hazard under field conditions. **Fish** LC_{50} (96 h) for carp 0.0038, rainbow trout 0.0007, bluegill sunfish 0.0013 mg/l. **Bees** Toxic to honeybees; LD_{50} (48 h) (oral) 2.1 µg/bee; (contact) 1.5 µg/bee. No significant hazard under field conditions. **Daphnia** EC_{50} (48 h) < 0.5 mg/l.

ENVIRONMENTAL FATE

Animals Study of the adsorption, distribution and excretion in rats demonstrated that the major portion of the dose was excreted with the faeces. The compound is degraded to yield its corresponding carbodiimide, which in turn reacts with nucleophiles like water and fatty acids to form urea and fatty acid derivatives. **Plants** In plants, diafenthiuron shows a complex metabolism pattern in all crops investigated, *i.e.* cotton, tomatoes and apples. Uptake of residue activity by plants from soil is low.
Soil and water Diafenthiuron and its main metabolites show a strong sorptivity to soil particles. Degradation in soils proceeds rapidly: DT_{50} < 1 h to 1.4 d.