

QCIDE® A NATURAL INSECTICIDE FOR CONTROL OF FLYING INSECTS

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Abstract Qcide is a natural plant extract from a chemotype of *Eucalyptus cloeziana* that is being developed as an insecticide for a number of applications including control of flying insect pests. The primary active compound tasmanone, is a member of the beta-triketone class of compounds that occur in a number of Myrtaceous plant species. Initial testing suggests that beta-triketones have a novel mode of insecticidal action with potential to address the increasing problem of resistance to existing insecticide classes. Qcide has been initially formulated as an oil-in-water emulsion (EW), alone and in combination with pyrethrins, primarily for control of flying insects in a range of public health and consumer product applications. Qcide has been tested as a direct spray in small chamber studies against *Aedes aegypti* and *Musca domestica* to determine knockdown (KD) and mortality. Other groups have also shown that Qcide is active against a resistant strain of *Aedes aegypti*. Qcide is a novel natural insecticide which has the potential for use in resistance management programs for control of public health pests. Qcide used alone against *Ae. aegypti* achieved 100% mortality at 24 hours after treatment at rates as low as 12.5mg/mL with KD50 and KD90 of approximately 600 and 1080 seconds. KD50 and KD90 at the highest rate of 100mg/mL were 225 and 420 seconds respectively confirming good knockdown activity against this important mosquito species. The activity of Qcide against the larger insect *M. domestica* was understandably less with Qcide rates of up to 200mg/mL required to achieve consistent 100% mortality at 24 hours. Qcide/pyrethrins/PBO combinations demonstrated that control of *M. domestica* could be significantly improved. In particular, noticeable reductions in both KD50 and KD90 were obtained when Qcide at 50g/L and 100g/L concentrations were combined with pyrethrins/PBO indicating that Qcide may significantly improve the performance of existing products as well as allow reduction in required rates of pyrethrins/PBO while still maintaining high levels of control.

Key words *Aedes aegypti*, *Musca domestica*