EFFICACY STUDY REVIEW

by Kevin J. Sweeney, Entomologist - IB

To: Joe Tavano

Date: August 6, 2(3

EPA Reg. No. or I e Symbol: 1021-1600

Product Name: M(K Insect Repellent Spray 2559

Registrant: MGK

PM 10

Action: 305

Submission No. S(9149 DP # : D288908

Chemical: 25% DI T; 5.0% MGK 264; and 2.5% MGK 326 Type: skin-applied repellent

OPPTS Guideline: 10.3300

GLP?: No

Action requested: eview submitted studies in support of the new label claim: "Repels mosquitoes which ay carry diseases such as West Nile virus, encephalitis, and dengue."

Entomologist's Cc ments and Recommendations:

1. The submitted d a supports the new label claim.

Reviews of submit d studies:

MRID 45851401 M GK Insect Repellent Spray 2559 Product Performance Report

This volume conta s five studies (unpublished and published) to support new label claims for this product. In th e studies, the vectors of West Nile virus (causes encephalitis), Yellow Fever, and dengue were te ed.

#1: Evaluation of T o Mosquito Repellents Against *Culex quinquefasciatus* Mosquitoes by ICR.

This was a laborat y study (arm in cage) with four test subjects and a control. Two test cages were used and mor mosquitoes were added during the study. Biting pressure was about one per second in the contr . A 20% DEET alcohol formulation served as the positive control.

The test showed th the subject repellent provided repellency against the vector of the West Nile virus, *Culex quinq fasciatus*, for up to eight hours based on the results of the First Confirmed Bite Test.

#2 Published articl from the New England Journal of Medicine: Comparative Efficacy of Insect Repellents Against Mosquito Bites Mark Fradin and Jon Day.

Data related to the urrent action showed that a 23% DEET formulation provided more than 4 hours of protection gainst mosquito bites.

#3 Personal Repell cy - Mosquitoes by MGK.

Study demonstrate hat a 25% DEET alcohol based formulation provided 4 hours of protection from *Aedes aegypt* nosquito bites. The cream based formulation tested in this study had DEET and the other activ ngredients on the subject label but the cream/lotion data can not be bridged to spray-on produc due to significant formulation differences.

#4 Personal Repell t- Mosquitoes by MGK

This study showed at a 25% DEET formulation provided about 6 hours of protection against *Aedes aegypti* mos itoes.

#5 Personal Repell t - Mosquitoes by MGK.

This study also sho ed that a 25% DEET formulation provided about 4 hours of protection from *Aedes aegypti* mos itoes.