Efficacy Review

Date: January 15, 2010

Efficacy Reviewer: Clayton Myers, Ph.D., Entomologist, RD-IB
myers.clayton@epa.gov
703-347-8874

1-15-10

Risk Manager Rev.: Rosanna Louie

Products: 6 Sergeant's Pet Care Products, cyphenothrin, 20-30%

EPA Reg. #:
2517-RGN
2517-REO
2517-RGR
2517-RGE
2517-REI
2517-RET

A.I.'s: Cyphenothrin (20-30%), Pyriproxyfen (2.0%), S-Methoprene (2.3%)

Decision #s:
420081
420089
420099
420078
420093
420086

DP #s:
370291
370302
370279
370298
370284
370306

Submission: R310, New Products, RD Science Review

MRIDs: Submitted: 47849701

GLP: No

MRID 47849701

Title: Efficacy Evaluation of Sergeant's 20% and 30% Cyphenothrin Squeeze-ons against Fleas (*Ctenocephalides felis*), Ticks (*Rhipicephalus sanguineus*, *Dermacentor variabilis*, and *Amblyomma americana*) on Dogs.

Guideline: OPPTS 810.3300

Materials and Methods: The applicant has submitted flea and tick efficacy data for new products containing either 20% or 30% Cyphenothrin, in response to prior problematic pet incidents. The study was conducted in the laboratory using dogs of various weights, with 4 treatment groups (dosed according to dog weight class) plus a control with 6 dogs in each group. This was a non-GLP study

Study Summary of the Results:

1. Flea efficacy was excellent through 3 weeks but fell off by week 4. However, overall flea burdens were reduced by 90% and a number of treated dogs were free of fleas.
2. Tick efficacy was adequate through 4 weeks under all dosing regimens.

Entomologist's Observations/Discussion:

Dosing regimes of active ingredient were appropriate for the listed weight classes of dogs, given the limitations of the study. While the replication, testing of ticks at every time interval, and dosing variability within dog weight classes would typically be considered inadequate for such an efficacy study, the protocols and data are acceptable given the circumstances under which the study was conducted (i.e., to register new products that will provide significant interim mitigation of health risks to pets).

Efficacy against American Dog Ticks, Brown Dog Ticks, and Lone Star ticks is adequately supported for 4 weeks after treatment.

Efficacy against fleas is less adequate at 4 weeks after treatment in comparison to 3 weeks, but it is recommended that given the reduced rates of a.i., and the inherent risk mitigation being accomplished by these registrations, that the 4 week claims and use directions be retained. This risk is obviously less of a concern with the products containing pyriproxyfen or s-methoprene, as those active ingredients are more active against flea eggs and larvae and are well-known to confer good flea efficacy.

Additionally, it is typically required that dosing regimens be extended to account for exceptionally large dogs (i.e. up to 150 lbs) in order to support open-ended dosing instructions (e.g., application rates for dogs '61 lbs and higher'), to ensure that exceptionally large dogs are being dosed with an adequate efficacious amount of material. However, given that these registration applications are in response to incidents associated with over-dosing of animals, it is recommended that the open-ended dosing claims be allowed as proposed. While this may raise

an efficacy risk due to the risk of occasional under-dosing of exceptionally large animals, it helps to mitigate the pet safety risk concerns associated with over-dosing of smaller animals.

Overall Review of Label Claims and Directions:

Based upon submitted efficacy data, label claims and use directions are supported for fleas and ticks (except for deer ticks, *Ixodes scapularis*). Because efficacy was not demonstrated against deer ticks, claims are not supported for deer ticks or related claims for ticks 'that may transmit Lyme disease.' Any general tick claims must be qualified to exclude deer ticks unless a decision is made to allow the claim conditionally.

Label claims against mosquitoes and the associated public health claims against potential mosquito vectored diseases are also not supported by this submission or by any of the data cited in this submission.

The efficacy reviewer defers to the RM reviewer and product manager regarding claims against Deer Ticks, Ticks that may transmit Lyme Disease, and Mosquitoes as to whether these claims must be removed from the labels or could be allowed conditionally with subsequent submission of acceptable efficacy data.