

US EPA ARCHIVE DOCUMENT

**PRODUCT PERFORMANCE / EFFICACY REVIEW**

Mark Suarez, Entomologist - IB

**DATE:** 26 September 2006

**EPA REG. NUMBER:** 2517-IN  
2517-ON

**PRODUCT NAME:** Sergeant's Cyphenothrin + IGR Squeeze-On  
for Dogs [2517-IN]  
Sergeant's Cyphenothrin + Methoprene  
Squeeze-On for Dogs [2517-ON]

**REGISTRANT:** Sergeant's Pet Care Products, Inc.

**PM:** George LaRocca, PM13  
**REVIEWER:** Linda DeLuise

**DECISION #.:** 338118 [2517-IN]  
358246 [2517-ON]

**DP BARCODE:** 305945 [2517-IN]  
307614 "  
319065 [2517-ON]

**ACTION:** R31 [2517-IN]  
R26 [2517-ON]

**ACTIVE INGREDIENT(S):** 129013, Cyphenothrin.....40.0% [2517-IN]  
129032, Pyriproxyfen.....2.0%  
129013, Cyphenothrin.....40.0% [2517-ON]  
105402, s-Methoprene.....2.3%

**TYPE:** Wipe-On (Squeeze-On) for Dogs

**OPPTS GUIDELINE(S):** 810.1000  
810.3000  
810.3300

**MRID:** 46346601  
46039501  
46041303  
46166109  
46298501  
46298502  
42614501  
45086801

<b>MRIDs [cont.]</b>	44948301 44546601
<b>GLP ?:</b>	No.
<b>SITES:</b>	Dogs; Puppies ( $\geq 12$ weeks old)
<b>PESTS:</b>	Fleas (adult); Fleas (eggs); Fleas (larvae); Ticks; Mosquitoes; Mosquitoes (vector of WNV); Mosquitoes (vector of Heartworm); Deer Ticks (vector of Lyme Disease)
<b>STUDY APPLICATION RATE:</b>	variable (generally 100 mg AI/kg)
<b>LABEL APPLICATION RATE:</b>	<p>Cyphenothrin:</p> <p>&lt;15 kg: 1.0mL (&gt;3.43 mg AI/kg)*  15-33kg: 1.5mL (2.38 – 5.14 mg AI/kg)  33-66kg: 3.0mL (2.34 – 4.68 mg AI/kg)  &gt;66kg: 4.5mL (&lt;3.51 mg AI/kg)</p> <p>Pyriproxyfen:</p> <p>&lt;15 kg: 1.0mL (&gt;0.171 mg AI/kg)*  15-33kg: 1.5mL (0.117 – 0.257 mg AI/kg)  33-66kg: 3.0mL (0.117 – 0.234 mg AI/kg)  &gt;66kg: 4.5mL (&lt;0.175 mg AI/kg)</p> <p>s-Methoprene:</p> <p>&lt;15 kg: 1.0mL (&gt;0.197 mg AI/kg)*  15-33kg: 1.5mL (0.134 – 0.296 mg AI/kg)  33-66kg: 3.0mL (0.134 – 0.269 mg AI/kg)  &gt;66kg: 4.5mL (&lt;0.202 mg AI/kg)</p>

\* 40% Cypermethrin w/w, 2.0% Pyriproxyfen w/w, 2.3% s-Methoprene w/w;  
Specific Gravity of the formulation = 1.073 lb/gal

#### **STUDY SUMMARIES:**

The registrant submitted and cited a number of studies in support of two new cyphenothrin-based squeeze-on products for the protection of dogs against fleas, ticks, and mosquitoes. Each of these products contains the adulticide cyphenothrin, in addition to an insect growth regulator (IGR). In the case of 2517-IN, the IGR is pyriproxyfen (i.e., Nylar®); in 2517-ON the IGR is s-Methoprene. The incorporation of an IGR is expected to enhance the effectiveness of the product by negatively affecting the development of immature stages of fleas.

Data Support for 2517-IN

**MRID 42684501.** Rogosheske, S. 1990. Residual Effectiveness of Nylar on Cat Flea Larvae as a Carpet/Premise Spray: Lab Project Number: F-0122-90. Unpublished study prepared by McLaughlin Gormley King Co. 16 p.

In the cited study, carpet samples infested with cat flea, *Ctenocephalides felis*, larva were treated with pyriproxyfen (Nylar®). Although the application resulted in significant reduction in adult emergence, the biology of the parasite is such that the study does not aid in determination of the effectiveness of a spot-on. (The eggs fall off the animal and larvae hatch on the ground. Thus, the length of egg exposure to treated animal hair may not be adequate for the IGR to demonstrate insecticidal activity.)

*MRID 42684501 was not considered in support of the registration of 2517-IN.*

**MRID 44546601.** Anderson, K.; Solberg, J. 1998. Product Performance/Efficacy Reports: Evercide Pet and Plant Spray 2648: Lab Project Number: E-3459-97: 10-223-1085: 10-223-1185. Unpublished study prepared by McLaughlin Gormley King Co. 120 p.

From DER dated 27 June 2000 [No electronic copy available; these are the conclusions]:

“The data presented in EPA Accession (MRID) Number 44546601, having been obtained from standard laboratory and kennel testing conducted according to requirements of 95-9(a) subpart (1)-(3) on p. 263 and meeting the standards of 95-9(b)(2)(i) on p. 264 of the Product Performance Guidelines, are adequate to support the claims for killing adult fleas on contact by direct spray as summarized under Tab A in the previously mentioned volume, where a similar formulation was sprayed into a plastic pail onto *CTENOCEPHALIDES FELIS* adults on white terry cloth at 2 different area rates with 99% mortality in both cases. In a similar manner, the data summarized under Tab B in the volume are adequate to support the claims for killing ticks on contact by direct spray, where the same similar formulation is sprayed onto *RHIPICEPHALUS SANGUINEUS* on filter paper in a glass crystallizing dish with the result that 100% mortality occurred at a standard dosage of 1.0 ml. Additionally, data summarized under Tab C of the volume are adequate to support the claims for killing of fleas for 14 days and ticks for up to 7 days following trigger spray or pump spray application of a similar formulation (with lower concentration of active ingredients) to dogs of mixed sexes and weights and haircoat length as well as breeds at a rate sufficient to wet the coat to saturation, with the result that cat flea mortality was maintained at 100% for 14 days and mortality of American dog tick, *DERMACENTOR VARIABILIS*, was 100% at 3 days but fell to a marginally acceptable 81% at 7 days. Furthermore, data summarized under Tab d of the volume are adequate to support the claims for killing of fleas for 23 days and ticks for 9 days following trigger spray or pump spray application of the same similar formulation as in Tab C to cats of mixed sexes and haircoat length as well as weights at an average rate of 10.75 grams product per kilogram of pet body weight, with the result that cat flea mortality was maintained at 93% or above for 23 days and mortality of brown dog tick was maintained at or above 92% for 9 days. We will accept a claim for rapid knockdown and kill of fleas on dogs following application of the subject product at a rate sufficient to saturate the animal's coat, based on the fact that that the similar

formulation resulted in 100% mortality of cat fleas at 1 hour after spraying. Finally, we will accept the claim for killing [controlling] deer ticks and other ticks [Ixodid] species that may carry and transmit Lyme disease, on the basis of the fact that both the American dog tick and the brown dog tick are Ixodid ticks plus we have previously accepted similar formulations of permethrin and pyrethrins in combination that were effective against deer tick. -- RL Vern L. McFarland, IB”

*The cited MRID could not be considered in support of the subject formulations because the test formulations were not similar to those under consideration. The test formulations contained permethrin and pyrethrins, not cyphenothrin, pyriproxyfen, or s-methoprene.*

**MRID 44948301.** Schlekau, J. 1999. Product Performance/Efficacy Reports: Nylar Concentrate 2607: Lab Project Number: TL-3095: TL-3096: TL-3097. Unpublished study prepared by McLaughlin Gormley King Co. 61 p.

In the cited study, carpet samples infested with cat flea, *Ctenocephalides felis*, larva were treated with a shampoo or direct spray containing pyriproxyfen (Nylar®). Although the application resulted in significant reduction in adult emergence and notable residual activity for the duration of the study (>90, for 6 to 13 months) months, the biology of the parasite is such that the study does not aid in determination of the effectiveness of a spot-on. (The eggs fall off the animal and larvae hatch on the ground. Thus, the length of egg exposure to treated animal hair may not be adequate for the IGR to demonstrate insecticidal activity.)

*MRID 42684501 was not considered in support of the registration of 2517-IN.*

**MRID 45086801.** Donahue, W.; Meola, S.; Palma, K. et al. 2000. Nylar 50 (percent) Concentrate: Product Performance/Efficacy Reports. Unpublished study prepared by McLaughlin Gormley King. 79 p.

From DER dated 27 June 2000:

“CONCLUSIONS & RECOMMENDATIONS The data presented in EPA Accession (MRID) Number 450868-01, having been compiled from standard laboratory and kennel testing conducted according to requirements of § 95-9(a)(1) to (3) on p. 263 and meeting the standard of § 95-9, subpart (b)(2)(i) on p. 264 of the Product Performance Guidelines are adequate to support claims of inhibiting the hatch of larval fleas, killing of flea eggs, inhibiting the hatch of flea eggs and adversely affecting the physiological health of fleas when the subject product is diluted to produce end use products having a active ingredient [pyriproxyfen] concentration of 0.01% and 0.025% as a dip and 0.025% and 0.05% as a shampoo in the testing reported in the portion under Tab 1; are adequate to demonstrate the physiological effects of extremely low concentrations of active ingredient on the molecular structure of flea eggs exposed to pyriproxyfen in glass vials having a deposit of 0.25 mg/cm<sup>2</sup> as reported in the portion under Tab 2, to the extent that pyriproxyfen prevented cellular differentiation and no blastoderm had formed in eggs that were collected even more than 50 hours after exposure; are adequate to demonstrate the inhibition of egg hatch and emergence of adult fleas when eggs were exposed to either

residues of 1.1 mg/cm<sup>2</sup> on filter paper or the same deposit on aliquots of dog hair, which were prepared by using a standard dilution of 0.007% a.i. solution, or when exposed to dog hair that had been treated with pyriproxyfen as a 0.125% spray, all of which were reported under Tab 3; and are adequate to demonstrate the following physiological effects on adults and eggs of the cat flea, *Ctenocephalides felis*, when adult fleas of both sexes were exposed to 1.1 mg AI/cm<sup>2</sup> on treated filter paper: histological studies of unfed fleas demonstrated that pyriproxyfen exposure caused depletion of fat body reserves and death by starvation, and fed fleas exposed to pyriproxyfen-treated dog hair also appeared to die of starvation, while eggs deposited by females in these tests were largely empty shells; additionally, studies on flea eggs suggested that pyriproxyfen was less effective as an ovicide than fenoxycarb, that pyriproxyfen exposure of newly laid eggs did not prevent hatching, but 10 minute exposure of the eggs killed 50% of fleas that developed to larval stage. These new findings, all of which were reported under Tab 4, indicated that pyriproxyfen had an unusual latent effect in which short-term exposure of flea eggs early in embryogenesis was often lethal to flea larvae that hatched from the egg 3 days later. In contrast, a longer-term (2-hour) exposure of eggs to pyriproxyfen produced embryocidal effects. Thus, these data are collectively adequate to demonstrate the effectiveness of pyriproxyfen formulations of various dilutions against cat flea in egg, larval and adult stages when the subject product, which is a manufacturing use concentrate, is used to prepare end use products. Specific claims are dependent upon concentration, frequency of application and various other factors which are beyond the scope of this review and will need to be handled on an individual case-by-case basis. It will be necessary for either the registrant or their customers who purchase this product for use in formulating their own end use products to provide labeling outlining the types of claims which are applicable to their formulation(s).--RL Vern L. McFarland, IB”

**MRID 46166109.** Cruthers, L. 2003. Efficacy Evaluation of a Cyphenothrin Spot On Against Adult Cat Fleas (*Ctenocephalides felis*), Adult Brown Dog Ticks (*Rhipicephalus sanguineus*), American Dog Ticks (*Dermacentor variabilis*), Nymphal Deer Ticks (*Ixodes scapularis*), and Adult *Aedes aegypti* Mosquitoes on Dogs. Project Number: 0307. Unpublished study prepared by Professional Laboratory and Research and Thomas A. Miller, 342 p.

When applied at a rate of 100 mg/kg, the tested Cyphenothrin Spot-on was greater than 90% effective (based on comb counts) against adult cat fleas, *Ctenocephalides felis*, and nearly 90% effective against American dog ticks, *Dermacentor variabilis*, between test days 3 and 30.

On Test Day 37, this formulation was only ~81% and ~75% effective against adult fleas and ticks. The efficacy against adult fleas was less than ~47% on Test Days 44 and 51 and less than ~69% effective against adult ticks at these same times.

On Test Day 7, this cyphenothrin spot-on formulation was 100% effective against adult fleas at 1, 2 and 3 hours post-infestation and ~83, 89, and 95% effective respectively, against adult American dog ticks at these same time points. The majority of the dead fleas and ticks were found in the pans beneath the dog cages at 1 hour post-infestation on Test Day 7.

Hair removed from dogs treated with this cyphenothrin spot-on formulation killed ~98% of the nymphal deer ticks on Test Day 10 and ~81% of the nymphal deer ticks on

Test Day 38. This cyphenothrin spot-on formulation reduced the net percent mosquito landings by ~28%, 19% and 0% on Test Days 9, 30 and 51, respectively. Net percent mosquito mortality (really dead + moribund) was ~96%, 100% and 0% on Test Days 9, 30 and 51, respectively and the net percent reduction in blood-feeding was ~91%, 83% and 6% on Test Days 9, 30 and 51, respectively.

*The study dose rate is substantially greater than the label dose rate. The dose rate used in the study was 100 mg AI/kg. The label dose rate is >5.14mg AI/kg, except for dogs less than 0.5 kg. Thus, the study does not support the desired registration.*

**MRID 46298501.** Miller, T. 2003. Effect of Shampoo After Treatment with Cyphenothrin Squeeze-on on Efficacy against Adult Cat Fleas (*Ctenocephalides felis*), Adult Brown Ticks (*Rhipicephalus sanguineus*) on Dogs: Analysis of Data and Conclusions. Project Number: MS/20D. Unpublished study prepared by Sharp Veterinary Hospital and Vetoquinol N.A., Inc. 15 p.

A squeeze-on formulation containing cyphenothrin was applied once to two groups of dogs that were infested and were subsequently re-infested with adult fleas (*Ctenocephalides felis*) and ticks (*Rhipicephalus sanguineus*). The dose rate was 100 mg/kg. Flea and tick counts were performed at 1 and 2 days after treatment and at 1 and 2 or 3 days after re-infestation. The treated dogs were bathed with low detergent shampoos 12 days after treatment and wetted with water on the 19<sup>th</sup> day. No significant effect of shampoo on the residual efficacy of the spot-on was observed. Efficacy, at 90% or better compared with untreated controls, was shown against fleas for up to 16 days and against ticks for 30 days. The data appear to support claims against adult fleas for up to 30 days, if the dog is not washed or wetted.

*The study dose rate is substantially greater than the label dose rate. The dose rate used in the study was 100 mg AI/kg. The label dose rate is >5.14mg AI/kg, except for dogs less than 0.5 kg. Thus, the study does not support the desired registration.*

**MRID 46298502.** Miller, T. 2003. Competitive Efficacy Evaluation of a Cyphenothrin Spot-On Against Adult Cat Fleas (*Ctenocephalides felis*), Adult Brown Dog Ticks (*Rhipicephalus sanguineus*) and Against Feeding by *Aedes albopictus* and *Culex quinquefasciatus* Adult Mosquitoes on Dogs. Project Number: MS13D. Unpublished study prepared by Sharp Veterinary Hospital and Vetoquinol N.A., Inc. 25 p.

Squeeze-on formulations containing cyphenothrin, fipronil, or phenothrin were applied once a group of dogs that were infested and were subsequently re-infested with adult fleas (*Ctenocephalides felis*), ticks (*Rhipicephalus sanguineus*), and mosquitoes (*Aedes albopictus* and *Culex quinquefasciatus*). The dose rate was approximately 100 mg/kg. Flea and tick counts were performed at 1 and 2 days after treatment and at 1 and 2 or 3 days after re-infestation. Efficacy, at 90% or better compared with untreated controls, was shown against fleas and ticks for up to 37 days. For mosquitoes, feeding was reduced by >90%, compared to controls, through 22 DAT. The data appear to support claims against adult fleas for up to 30 days, if the dog is not washed or wetted.

*The study dose rate is substantially greater than the label dose rate and the formulation contains 2.3% s-Methoprene, which is not in the formulation of the registration being sought. The dose rate used in the study was 100 mg Cyphenothrin/kg. The label dose rate is >11.012 mg Cyphenothrin/kg, except for dogs less than 1 kg. Thus, the study does not support the desired registration.*

Data Support for 2517-ON

**MRID 46039501.** Cruthers, L. 2003. Efficacy Evaluation of a Permethrin Squeeze-On Against Adult Cat Fleas (*Ctenocephalides Felis*), Adult Brown Dog Ticks (*Rhipicephalus Sanguineus*), Nymphal Deer Ticks (*Ixodes Scapularis*) and Adult *Aedes aegypti* Mosquitoes on Dogs. Project Number: 0243. Unpublished study prepared by Professional Laboratory and Research. 79 p.

The cited study was not applicable to the registration desired. The study examined the efficacy of 45% permethrin formulations against various pet parasites.

*MRID 46039501 was not considered in support of the registration of 2517-ON.*

**MRID 46041303.** Miller, T. 2003. Dose Titration of an S-Methoprene Spot-On (sic) Dogs: Final Report, Statistical Analyses and Conclusions. Unpublished study prepared in cooperation with Auburn University. 19 p.

The primary objective was to determine the dose rate of s-methoprene in a spot-on formulation that would provide one month of residual flea ovisterilant activity on dogs: Regression-correlation analyses showed that only when the dose rate was logarithmically transformed ( $\log_N$  mg/kg) was there a highly significant correlation between dose rate and duration of residual flea ovisterilant efficacy at the 90% level. The resultant regression equation predicted that a dose rate of 2.8 mg/kg provides 30 days of efficacy at 90%. The correlation between dose rate and residual efficacy at the 100% level was not statistically significant. However, flea eggs collected on day 31 from the two cats treated at the highest dose rates of 3.5 to 3.6 mg/kg were all sterile, indicating that the predicted dose rate for a 100% residual efficacy claim is about these values.

*The study dose rate (~3.5 mg/kg) and proposed dose rate (2.8 mg/kg) are 10x greater than the highest label dose rate(0.296 mg/kg). Thus, the study does not support the desired registration.*

**MRID 46166109.** Cruthers, L. 2003. Efficacy Evaluation of a Cyphenothrin Spot-On Against Adult Cat Fleas (*Ctenocephalides felis*), Adult Brown Dog Ticks (*Rhipicephalus sanguineus*), American Dog Ticks (*Dermacentor variabilis*), Nymphal Deer Ticks (*Ixodes scapularis*), and Adult *Aedes aegypti* Mosquitoes on Dogs. Project Number: 0307. Unpublished study prepared by Professional Laboratory and Research and Thomas A. Miller, 342 p.

When applied at a rate of 100 mg/kg, the tested Cyphenothrin Spot-on was greater than 90% effective (based on comb counts) against adult cat fleas, *Ctenocephalides felis*,



and nearly 90% effective against American dog ticks, *Dermacentor variabilis*, between test days 3 and 30.

On Test Day 37, this formulation was only ~81% and ~75% effective against adult fleas and ticks. The efficacy against adult fleas was less than ~47% on Test Days 44 and 51 and less than ~69% effective against adult ticks at these same times.

On Test Day 7, this cyphenothrin spot-on formulation was 100% effective against adult fleas at 1, 2 and 3 hours post-infestation and ~83, 89, and 95% effective respectively, against adult American dog ticks at these same time points. The majority of the dead fleas and ticks were found in the pans beneath the dog cages at 1 hour post-infestation on Test Day 7.

Hair removed from dogs treated with this cyphenothrin spot-on formulation killed ~98% of the nymphal deer ticks on Test Day 10 and ~81% of the nymphal deer ticks on Test Day 38. This cyphenothrin spot-on formulation reduced the net percent mosquito landings by ~28%, 19% and 0% on Test Days 9, 30 and 51, respectively. Net percent mosquito mortality (really dead + moribund) was ~96%, 100% and 0% on Test Days 9, 30 and 51, respectively and the net percent reduction in blood-feeding was ~91%, 83% and 6% on Test Days 9, 30 and 51, respectively.

*The study dose rate is substantially greater than the label dose rate. The dose rate used in the study was 100 mg AI/kg. The label dose rate is >5.14mg AI/kg, except for dogs less than 0.5 kg. Thus, the study does not support the desired registration.*

**MRID 46298502.** Miller, T. 2003. Competitive Efficacy Evaluation of a Cyphenothrin Spot-On Against Adult Cat Fleas (*Ctenocephalides felis*), Adult Brown Dog Ticks (*Rhipicephalus sanguineus*) and Against Feeding by *Aedes albopictus* and *Culex quinquefasciatus* Adult Mosquitos on Dogs. Project Number: MS13D. Unpublished study prepared by Sharp Veterinary Hospital and Vetoquinol N.A., Inc. 25 p.

Squeeze-on formulations containing cyphenothrin, fipronil, or phenothrin were applied once a group of dogs that were infested and were subsequently re-infested with adult fleas (*Ctenocephalides felis*), ticks (*Rhipicephalus sanguineus*), and mosquitoes (*Aedes albopictus* and *Culex quinquefasciatus*). The dose rate was approximately 100 mg/kg. Flea and tick counts were performed at 1 and 2 days after treatment and at 1 and 2 or 3 days after re-infestation. Efficacy, at 90% or better compared with untreated controls, was shown against fleas and ticks for up to 37 days. For mosquitoes, feeding was reduced by >90%, compared to controls, through 22 DAT. The data appear to support claims against adult fleas for up to 30 days, if the dog is not washed or wetted.

*The study dose rate is substantially greater than the label dose rate. The dose rate used in the study was 100 mg Cyphenothrin/kg. The label dose rate is approximately > 1/10<sup>th</sup> the study dose rate, except for dogs less than 1 kg. Thus, the study does not support the desired registration.*

**MRID ????????**

**ENTOMOLOGIST'S COMMENTS AND RECOMMENDATIONS:**

Comment on the requirement for an animal safety study is deferred to the risk and product managers.

The cited data do not support the desired registrations because the study dose rates are above the label application rates. It is not possible to bridge these data to support the desired efficacy claims against fleas, ticks, or mosquitoes. Claims related to product efficacy have not been addressed below, but will be if the registrant is able to submit or cite relevant efficacy data, the following general label comments apply.

Remove control claims throughout the labels. The product will provide relief from the pests for the supported duration, but will not offer control of pests.

Label Comments:

*2517-IN Claims:*

*[MASTERCARTON/PACK LABEL - FRONT PANEL]*

1. Pleasant Fresh Scent [or] [Fragrance]]
2. ~~Flea & Tick Control for Dogs & Puppies 12 weeks old and older~~
3. ?? {?? - dependent on applicator size and quantity in market package - "e.g. 3, 6 or 12 Months"} Supply][For Dogs Weighing Up To ?? Lbs.]\*
4. ~~Five Way Protection~~ [Kills fleas, ticks, mosquitoes, flea eggs & larvae] [for up to 42 days] [per application]\*
5. ~~Five Way Protection to~~ [Kills fleas, ticks, mosquitoes, flea eggs & larvae]
6. ~~Five Way Protection!~~ Kills ticks, mosquitoes, fleas, flea eggs & larvae]
7. ~~5 Way Protection!~~ Kills ticks, mosquitoes, fleas, flea eggs & larvae
8. Extended Protection [[42-Day] [6 Week] Flea ,Tick & Mosquito Treatment]\*
9. 42-Day Flea and Tick Control\*
10. With Nylar® Insect Growth Regulator which Breaks the Flea Life Cycle
11. With Nylar® to Break Flea Life Cycle\*
12. With Insect Growth Regulator to Break Flea Life Cycle\*
13. Dual Action[!] Cyphenothrin with Nylar® IGR Effectively Breaks the Flea Life Cycle
14. Dual Action [!]: Effectively Breaks the Flea Life Cycle[!]\*
15. [For Dogs & Puppies (Over 12 Weeks of Age) Less than 15 lbs.]
16. [For Dogs & Puppies (Over 12 Weeks of Age) 15 to 33 lbs.]
17. [For Dogs & Puppies (Over 12 Weeks of Age) 33 to 66 lbs.]
18. [For Dogs & Puppies (Over 12 Weeks of Age) 66 lbs and Over]
19. Three Applications {for cartons with 3 applicators}.] and for [4-1/2 Month Supply] or [18 Week Supply]
20. For Dogs [less than 15 lbs.] or [15 lbs. to 33 lbs.] or [33 lbs. to 66 lbs.] or [66 lbs. and Over]
21. Breaks Flea Life Cycle!\*
22. Best if used year round!
23. Kills & Repels Fleas Up to [6 weeks], [42 days]!\*
24. Kills & Repels New Fleas in less than 1 hour!\*
25. Kills & Repels New Ticks in less than 3 hours!\*
26. Kills & Repels 95% of Fleas and Ticks [and continues to work for up to six weeks]
27. Kills 99% of Fleas one day after application
28. Prevents ticks from attaching and feeding within 3 hours after application
29. 95% efficacy against ticks for up to [6 weeks] [42 days]
30. Kills and Detaches Ticks
31. Kills over 95% of Ticks
32. Easy to Use Application
33. Specially Formulated for Dogs and Puppies
34. 42 Day Protection!
35. Monthly Calendar Stickers Inside!
36. Patented Technology [combines effectiveness with gentleness!]
37. Kills Flea Eggs & Larvae for more than [63 days], [9 weeks]!\*
38. Prevents Flea Eggs From Developing Into Biting Adults\*

- 39. Kills Mosquitoes for up to [30 days!] [42 days!]\*
- 40. Kills Mosquitoes (~~vector of West Nile Virus~~) for up to [30 days][42 days!]\*
- 41. Protects Against Blood Feeding by Mosquitoes (that may  
     | transmit| | carry| | vector] of Heartworm) For up to [30 days!] [42 days!]\*
- 42. Kills & Repels Ticks for Up to [42 days], [6 weeks] !\*
- 43. Kills & Repels Deer Ticks (vector of Lyme Disease) for up to [35 days!] [42  
     days!]\*
- 44. Kills & Repels Ticks (Including Deer Ticks) for up to [35 days!][42 days!]\*
- 45. Kills & Repels Brown Dog Ticks [(*Rhipicephalus sanguineus*)] for up to 42  
     days!)\*
- 46. Kills & Repels American Dog Ticks [(*Dermacentor variabilis*)] or up to 42  
     days!\*
- 47. Apply every [42 days], [6 weeks]!\*
- 48. 42 Days Flea and Tick Treatment!\*
- 49. Kills & Repels Fleas and Ticks for up to 42 days!\*
- 50. Kills all stages of the flea life cycle\*
- 51. Kills Fleas, Flea Eggs & Larvae for up to 6 Weeks\*
- 52. ~~Kills & repels mosquitoes that are may | transmit| | carry| | be vectors] of West Nile  
     Virus.]~~
- 53. Waterproof formula.
- 54. Dogs can be bathed 24 hours after squeeze-on is applied]
- 55. Continues to work 50% longer than other leading brands
- 56. Longest lasting, quick acting
- 57. [MASTERCARTON/PACK LABEL – BACK/SIDE PANNELS CON'T]  
     [Sergeant's Cyphenothrin + IGR Squeeze-On for Dogs [with] [Nylar®] [an]  
     [Insect Growth Regulator] is an effective and easy to use product.] [Sergeant's  
     Cyphenothrin + IGR Squeeze-On for Dogs [with] [Nylar® ] [an] [Insect Growth  
     Regulator] has demonstrated ~~greater than 95%~~ control of fleas and ticks within one  
     day of application.] [Sergeant's Cyphenothrin + IGR Squeeze-On for Dogs [with]  
     [Nylar®] [an] [Insect Growth Regulator] prevents eggs from fleas on treated dogs  
     from developing into biting adults for 63 days.] [As with all flea and tick control  
     products, Sergeant's Cyphenothrin + IGR Squeeze-On for Dogs [with] [Nylar®] [an]  
     [Insect Growth Regulator] should be used as part of a [an overall] [complete]  
     program [aimed at] [to] [intended to] [reduce] reducing flea populations in the dog's  
     environment (bedding, carpets, kennel, yard).] [Consult your retailer for program  
     recommendations.]

2517-ON Claims:

*[CARTON LABEL - DRAFT MASTER LABEL COPY]*

1. Pleasant Fresh Scent [or][Fragrance]
2. Flea & Tick Control for Dogs & Puppies 12 weeks old and older][18 week], [24],[36], [48][54] [72] Week Supply For Dogs weighing [less than 15 lbs], [15 to 33 lbs], [33 to 66 lbs] [66 lbs and over] [15 lbs and over]\*
3. Four Way Protection [Kills [fleas] and [ticks], [for up to six weeks], [flea eggs] [for up to one month]] and prevents mosquitoes from feeding on dogs [for up to three weeks!]
4. Works up to [6] [Six] Weeks on fleas and ticks!
5. Protects for up to [6] [Six] Weeks against [fleas] [ticks]!
6. Kills [For Up To 6 Weeks:] fleas and ticks, [For up to 6 Weeks] and-prevents mosquitoes (that may [carry][transmit][be vectors] of West Nile Virus) from feeding on dogs for up to three weeks!
7. Kills Flea eggs for up to one month
8. ~~Four Way Protection~~ Kills fleas, ticks, and flea eggs and prevents mosquitoes from feeding on dogs]\*
9. ~~Four Way Protection~~ Kills fleas, ticks, and flea eggs and prevents mosquitoes from feeding on dogs]\*
10. ~~4 Way Protection~~ Kills fleas, ticks, and flea eggs and prevents mosquitoes from feeding on dogs]\*
11. ~~[Extended Protection] 4 Way Protection~~7 [4 Way Extended Protection] [[42-Day] [6 Week] [Flea & Tick Treatment]\*
12. 42-Day Flea [Six (6) Week] [Flea and Tick Control]\*
13. Prevents mosquitoes (that may [carry][transmit][be vectors] of West Nile Virus) from feeding on dogs for up to 3 weeks]
14. With methoprene an Insect Growth Regulator which Breaks the Flea Life Cycle\*
15. With methoprene to Break Flea Life Cycle\*
16. With Insect Growth Regulator to Break Flea Life Cycle\*
17. Dual Action [!]: Cyphenothrin with methoprene IGR Effectively Breaks the Flea Life Cycle] \*
18. Dual Action [!]: Effectively Breaks the Flea Life Cycle[!]\*
19. For Dogs & Puppies (Over 12 Weeks of Age) Less than 15 lbs.][\* For Dogs & Puppies (Over 12 Weeks of Age) 15 to 33 lbs.][\* For Dogs & Puppies (Over 12 Weeks of Age) 33 to 66 lbs.][\* For Dogs & Puppies (Over 12 Weeks of Age) 66 lbs and Over]
20. Three Applications {for cartons with 3 applicators} and or [4-1/2 Month Supply] or [18 Week Supply]
21. For Dogs [less than 15 lbs.] or [15 lbs. to 33 lbs.] or [33 lbs. to 66 lbs.] or [66 lbs. and Over]
22. Breaks Flea Life Cycle!\*
23. Best if used year round!
24. Kills & Repels Fleas Up to [6 weeks], [42 days]!\*
25. Kills & Repels New Fleas in less than 1 hour!\*
26. Kills & Repels New Ticks in less than 3 hours!\*
27. Kills & Repels 95% of Fleas and Ticks [and continues to work for up to six weeks]

28. Kills 100% of Fleas on first day after application
29. Kills 100% of Fleas on Day One!
30. Kills 100% of Fleas and Ticks on Day Two!
31. Kills 100% of Fleas and Ticks on the second day after application.
32. Kills 100% of Fleas in first [24 Hours] [Day]!
33. Kills 100% of Fleas and Ticks in [48 Hours] [2 Days]!
34. Prevents ticks from attaching and feeding within 3 hours after application
35. 95% efficacy against ticks for up to [6 weeks] [42 days]
36. Kills and Detaches Ticks
37. Kills over 95% of Ticks
38. Easy to Use Application
39. Specially Formulated for Dogs and Puppies
40. 42 Day Protection against fleas and ticks!
41. 21 Day Protection against mosquitoes!
42. Reminder Calendar Stickers Inside!
43. Patented Technology [combines effectiveness with gentleness!]
44. Kills Flea Eggs for 30 days
45. Prevents Flea Eggs From Developing Into Biting Adults\*
46. Prevents mosquitoes from feeding on dogs for up to [21 days]!
47. Prevents mosquitoes (that may [carry][transmit][be vectors] of West Nile Virus) from feeding on dogs for up to [21 days]\*
48. Protects Against Blood Feeding by Mosquitoes (that may [carry][transmit][be vectors] of West Nile virus) For up to [21 days]!
49. Kills & Repels Ticks for Up to [42 days],[6 weeks]!\*
50. Kills & Repels Deer Ticks (that may [transmit][carry][be a vector] of Lyme Disease) for up to [35 days!] [42 days]!\*
51. Kills & Repels Ticks (Including Deer Ticks) for up to [35 days!] [42 days]!\*
52. Kills & Repels Brown Dog Ticks [(*Rhipicephalus sanguineus*)] for up to 42 days!\*
53. Kills & Repels American Dog Ticks [(*Dermacentor variabilis*)] for up to 42 days!\*
54. Apply once every [42 days], [6 weeks]!\*
55. 42 Days Flea and Tick Treatment!\*
56. Kills & Repels Fleas and Ticks for up to 42 days!\*
57. Kills Fleas and Flea Eggs for up to 4 Weeks\*
58. Prevents mosquitoes that are vectors of West Nile virus from feeding on dogs.
59. Continues to work 50% longer than other leading brand.
60. Longest lasting, quick acting]
61. Kills [& Repels] [for Six [6] Weeks] [New ] Fleas [in 1 hour], and [new] ticks [in 3 hours] [for up to 6 weeks]
62. [BACK/SIDE CARTON LABEL - MASTER LABEL]

[Sergeant's Squeeze-On Flea & Tick Control with methoprene is an effective and easy to use product.] [Sergeant's Squeeze-On Flea & Tick Control with methoprene has demonstrated greater than 95% of fleas and ticks within one day of application.] [Sergeant's Squeeze-On Flea & Tick Control with methoprene prevents eggs from fleas on treated dogs from developing into biting adults for 30 days.] [As with all flea and tick control products, Sergeant's Squeeze-On Flea and Tick Control with

methoprene should be used as part of a program aimed at reducing flea populations in the dog's environment (bedding, carpets, kennel, yard).] [Consult your retailer for program recommendations.]

Enclosure  
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