

US EPA ARCHIVE DOCUMENT

EFFICACY REVIEW

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TYPE PRODUCT(S): (I,)D, H, F, N, R, S Miticide

DATA ACCESSION NO(S) . 441553-01;D231686;S515102;Case#034900;AC:310

PRODUCT MGR. NO. 13-LaRocca/DeLuise

PRODUCT NAME(S) Allercurb/Medachieve Multi-Purpose 10% E.C.

COMPANY NAME Medachieve, Incorporated

SUBMISSION PURPOSE Provide performance data in support of amended solution concentration and new method of application for control of dust mites in carpeting.

CHEMICAL & FORMULATION Permethrin: (3-phenoxyphenyl)methyl (+) cis, trans 3-(2,2-dichloroethenyl) 2,2-dimethylcyclopropanecarboxylate*
*Cis/trans ratio: 10.0%
Maximum 65%(+) trans (approx. 1.0 lb./gal. active emulsifiable)
Minimum 35%(+) cis

CONCLUSIONS & RECOMMENDATIONS The data presented in EPA Accession (MRID) Number 441553-01, having been obtained from standard laboratory testing designed to simulate actual use, and meeting the requirements of § 95-11(b) (1) to (7) on p. 268 and the standard of § 95-11(c) (2) (ii) (A) (a) on p. 270 of the Product Performance Guidelines, are adequate to demonstrate satisfactory reduction in live mites of the American house dust mite, *Dermatophagoides farinae*, within 48 hours after application of a 0.1% permethrin solution to one half of 20x40 inch sections of carpeting using a standard pump-up sprayer, when 40 adult mites were individually placed into each carpet sample aged from zero days to 45 months. Although the total volume of solution is not stated, the method of application simulated label directions. Additionally, a simulation of the new use pattern in which a specified volume of solution is injected into the carpeting by means of the "Medachieve 18" Injector Machine" (or the "Payton Pile & Injection Machine"), used a standard volume of 0.25cc at each location in a 7 x 5 grid spread evenly over a 8" x 6" piece of carpet injected by means of a hypodermic (continued)

needle, was applied at the same rate as the spray application as stated in the label directions, namely, 1 gallon of spray solution per 130 square feet of carpeting. Since the injection method uses the same volume for the same area, according to label directions, we can be reasonably certain that the total volume sprayed on the carpeting was equivalent to 1 fluid ounce per square foot. To see how this amount is delivered by means of the injection machine, we multiply 0.25cc by either 35 (the conservative number of injections spaced 1.25 inches apart in a 7 x 5 grid over a 8" x 6" piece of carpet in which injections are made beginning 1/4 inch from the edges of the long dimension of the piece and 1/2 inch from the two edges of the narrow dimension of the piece) or 40 (the maximum number of injections spaced 1.0 inch apart in a 8 x 5 grid over the same 8" x 6" piece of carpet in which injections are made beginning 1/2 inch from the edges of the long dimension of the piece and one inch from the edges of the narrow dimension of the piece):

0.25cc x 35 = 8.75 ml per 48 square inches or,
26.25 ml per 144 square inches or 1 square foot

0.25cc x 40 = 10.0 ml per 48 square inches or,
30.0 ml per 144 square inches or 1 square foot.

We note that these amounts are equivalent to slightly less than a gallon per 130 square feet to almost exactly a gallon per 130 sq. ft. Thus, the effectiveness of the injection method in reducing populations of house dust mites in carpeting has been demonstrated when the amount of solution per area as stated in label directions has been applied. Equally effective is the same rate when sprayed onto surfaces in domestic and industrial facilities and equipment, and fabric ticking or sub-ticking, as demonstrated by results of 24-hour acute toxicity observations (at time zero and one month) and 48-hour acute toxicity observations (at beyond one month up to 45 months). Therefore, these data are adequate to support the claim "Effectively Controls Dust Mites..." on the front panel of the label, the claims for "Dust Mites" on carpeting, upholstered furniture and mattresses, as well as on fabric ticking or sub-ticking, on p. 6; and "Dust Mites" on carpeting using the injection method on p. 7. We note that the data summarized in MRID No. 441553-01, Table 1., is a continuation of the data summarized in MRID No. 432076-01, Table 1., and repeated in more detail in MRID No. 432076-02, Table 1., at which time the age of exposed carpet samples was 5 and 12 months, respectively, for data submitted in support of EPA File Symbol 432-TIG, reviewed on July 12, 1994. Although this data demonstrated the efficacy of the 0.1% concentration of permethrin, the label apparently used the 1:20 dilution for dust mites. This is difficult to assess for the former product since it is a ready-to-use 1.0% concentration with 0.15% imazalil sulfate in a combination insecticide-fungicide aqueous pump spray intended to control dust mites and household molds contributing to allergies. The subject product is an insecticide concentrate of permethrin only, with no fungicide included.

RL Vern L. McFarland, IRB

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