

## Study 12f

### Laboratory Summary

The *ActiveGuard*® Mattress Liner, is an Active Liner impregnated with 1.64% permethrin on a polyester fabric, and is labeled to kill bed bugs for up to 2 years. The Active Liner is typically installed inverted on the mattress and/or box spring once the bed bugs are largely cleared from the structure. Any missed bed bugs or nymphs from newly hatched eggs are killed thus preventing the start of new infestations.

This study centered upon the sub lethal effects of bed bugs from 5 strains exposed to permethrin-impregnated fabric. The 5 strains of bed bugs represented susceptible to highly pyrethroid resistant strains.

Adult virgin female bed bugs were exposed for 1 or 10 minutes to the fabric where they were individually observed to determine feeding attempts. As bed bug feeding is tightly coupled to bed bug fecundity, all the females were then mated and the number of eggs laid and hatched were measured.

Bed bugs of all 5 strains tested were exposed to *ActiveGuard* for 10 minutes, were significantly less likely to attempt to feed or successfully feed, with significantly smaller blood meals the result. Little to no feeding and virtually no eggs, means that even the most resistant bed bug population would have a hard time surviving with exposure to the treated fabric. The mated females in this study laid virtually no eggs which highlighted the importance of sub lethal effects on the control of this pest.