



**CALIFORNIA STATE SCIENCE FAIR
2002 PROJECT SUMMARY**

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| Name(s) Jacob B. Constance | Project Number <p align="right">22399</p> |
| Project Title Comparing the Effectiveness of Insecticide Residuals on Sand and Non-Sand Grout Mortars Treated with a Sealant | |
| <p align="center">Abstract</p> <p>Objectives/Goals The objective of my project was to determine if sand and non-sand grout mortars treated with a sealant decrease the effectiveness of insecticide residuals.</p> <p>Methods/Materials For my comparison I made 12 - 4"x4" tile and grout samples using 4" tiles set with 1/8" grout joints. Half the samples were grouted with a sand grout mortar and the other half with a non sand grout mortar. Then I applied a water and oil grout sealant to half of the sand and non-sand grout samples. The samples were then divided into 3 observation groups. Each group consisting of 2 samples each of sand and non-sand grouts. One sample of each, sand and non sand, were treated with sealant. the first observation group was then treated with 'Raid Ant and Roach Killer' according to label directions with all safety precautions taken during insecticide application. Each sample was then placed into a clear plastic container with 2 live healthy crickets. Cricket mortality observations were made every 24 hour period. The crickets, whether dead or alive, were removed and replaced with 2 healthy crickets every 24 hours. The second observation group used the exact same procedure as the first, but I used 'Black Flag Ant & Roach Killer' on these samples. My third observation group was my control group. Again the same procedure was used, but no insecticide was applied to these samples. Observations were made for 11 days.</p> <p>Results Treating a grout mortar with a sealant makes relatively little or no difference in the effectiveness of an insecticide residual. However, it was interesting to see from my data that a non-sand grout mortar maintained a longer insecticide residual than sand grout mortar, and that 'black flag' was a slightly more effective insecticide than 'Raid'.</p> <p>Conclusions/Discussion Treating grout mortar with a sealant makes no difference in the effectiveness of an insecticide. My comparison did show that a non-sand grout mortar maintains a longer insecticide residual than sand grout.</p> | |
| Summary Statement The use of a water and oil sealant on sand and non-sand grout mortars has little or no effect on insecticide residuals. | |
| Help Received Mother helped type report and helped with the layout of my project board. Father helped by making numerous trips to the bait shop for crickets. Both parents helped with expenses. A close family friend gave me the sand grout mortar. | |