

US EPA ARCHIVE DOCUMENT

Kettleman City Indoor Pesticide Sampling

Status Update

In March and July 2011, the U.S. Environmental Protection Agency (EPA), Region 9, collected samples from inside a small number of Kettleman City homes to find out whether pesticides used either primarily or solely in agriculture were present. Pesticides were detected in homes, but amounts were below levels of concern.

EPA is sharing the results of the both rounds of sampling with each participating resident, and is sharing summary results with the community and general public. When local pesticide use information becomes available, EPA will prepare a full report for the community. Participation in this residential sampling project was voluntary.

SUMMARY FINDINGS

In March, samples were collected from hard surface floors in 14 homes and one public building. In July, samples were collected from 10 homes and one public building. Four of the homes sampled in March were not available for sampling in July. All samples were analyzed for chlorpyrifos, diazinon, endosulfan, iprodione, phosmet, and propargite. These chemicals, which do not have legal residential uses (with the exception of a few remaining uses for chlorpyrifos), were selected based on historical and potential pest management use for almonds and pistachios and/or their detection in air as part of the 2010 Cal/EPA exposure assessment. Exposure to these pesticides above levels of concern could result in symptoms such as nervous system effects (short- and long-term), eye or skin irritation (short-term), or increased cancer risk (long-term).

This sampling was not random, and was limited to two square feet of hard surface floors in high traffic areas of a small number of Kettleman City homes. The complete project includes two rounds of sampling which represent snapshots in time.

The amount of pesticide found on floors was below levels of concern for exposure by skin contact or by ingestion due to children's hand-to-mouth activities.

Therefore, results cannot be used to draw broad conclusions about pesticide levels in homes, or areas within homes, that were not sampled. Nor can conclusions be drawn about presence of pesticides in homes at other times.

Very low levels of pesticides were found on the hard surface floors sampled in this project. Chlorpyrifos was found in most of the samples in both March and July. The largest number of pesticides detected in any home was five. In three homes sampled in March, and one home sampled in July, no pesticides were detected. For one home sampled in March, no usable results were obtained. The following table provides a summary of pesticide sampling results.

Chlorpyrifos was detected most often (79% of homes in sampled in March; 91% of homes sampled in July). Iprodione was found in 14% of homes in March and in 64% in July. Propargite was detected in 43% of homes in March, and 36% in July. Endosulfan was found in 36% of homes in March, and 45% in July. Diazinon was detected in 14% of homes in March, but was not detected in any homes in July. Phosmet was not detected (ND) in any homes in either sampling round.

Similar samples collected from a random selection of more than 450 homes throughout the US for the American Healthy Homes Survey showed that chlorpyrifos was present in 78% of homes and diazinon in 35% of homes.¹ Floor wipe samples collected from 20 homes in Salinas, California in another study showed the presence of chlorpyrifos in 95% of homes, diazinon in 95%, and iprodione in 20%.²

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Table: Summary Results (14 samples in March; 11 samples in July). ND = not detected.

Pesticide	Detections	% Detections	Maximum (ng/ft ²)*
Chlorpyrifos			
March	11	79%	61
July	10	91%	16
Propargite			
March	6	43%	16
July	4	36%	40
Endosulfan I			
March	5	36%	7
July	5	45%	10
Endosulfan II			
March	0	0%	ND
July	5	45%	46
Diazinon			
March	2	14%	< 5
July	0	0%	ND
Iprodione			
March	2	14%	12
July	7	64%	26
Phosmet			
March	0	0%	ND
July	0	0%	ND

*All amounts were below levels of concern; ng = nanograms; 1 billion nanograms = 1 gram.

WHY WE DID THIS

During a 2010 visit to Kettleman City, EPA staff noted that new orchards of almonds and pistachios have been planted to the north, east and west of the city. In addition, many Kettleman City residents work in agricultural fields and could potentially track pesticides into their homes. The EPA wants to know if residents of Kettleman City may be exposed to agricultural pesticides within their homes.

THE SAMPLING WORK

EPA collected floor wipe samples from hard surfaces in entryways. At each location, two 12" x 12" areas were wiped with alcohol-soaked cotton twill material.

Since pesticide use varies by season, two rounds of sampling were done to capture the variability of agricultural pesticide use between fall/winter and spring/summer.

AFTER THE TESTING

Although levels of pesticides detected in Kettleman City homes were below levels of concern, residents in agricultural communities are encouraged to take additional steps to minimize pesticide exposure in the home. EPA Region 9 will work with other agencies and the community to provide pesticide safety information that will help residents reduce exposure.

¹Stout DM, Bradham KD, Egeghy PP, Jones PA, Croghan CW, Ashley PA, Pinzer E, Friedman W, Brinkman MC, Nishioka MG, Cox, DC. 2009. American Healthy Homes Survey: a national study of residential pesticides measured from floor wipes. *Environmental Science and Technology* 43: 4294-4300.

²Bradman A, Whitaker D, Quiros L, Castorina R, Henn BC, Nishioka M, Morgan J, Barr DB, Harnly M, Brisbin JA, Sheldon LS, McKone TE, Eskenazi B. 2007. *Pesticides and their metabolites in the homes and urine of farmworker children living in the Salinas Valley, CA. Journal of Exposure Science and Environmental Epidemiology* 17: 331-349.

For More Information

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Copies of the Final Sampling Plan, the Final Report and other key documents will be available at the Kettleman Hills, Hanford and Avenal Libraries.