

Summary of Analytical Report  
for  
2007 MITC Residential Community Air Assessment: Franklin County, WA.  
by  
Washington State University, Food and Environmental Quality Laboratory.  
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Metam sodium fumigant is used to prevent diseases found in soil for potato, mint, onion and tree fruit crops. In Washington State, approximately 10 million pounds of metam-sodium are applied to potato fields each year. Upon contact with moist soil, metam-sodium releases the active ingredient methyl isothiocyanate (MITC) in the form of a gas. If the gas reaches the soil surface, it can become airborne and travel offsite. Exposure to this gas can be harmful to human health.

The purpose of this current air monitoring study was to evaluate fumigant air concentrations within nearby residential communities to see if levels in air posed a health concern. A similar [air monitoring study was conducted in 2005](#).

Air monitoring stations were set up outdoors at five residences and one commercial facility in south Franklin County during the fall potato field fumigation season. Air monitoring took place day and night, three days a week, for seven weeks (September 17 – November 3). Sampling occurred on a total of 26 days during this period.

## **Results**

Results were compared to Environmental Protection Agency (EPA) established levels of concern for two types of exposures—acute, defined as 1-8 hours; and what EPA calls short-term to intermediate exposure, which is between 1-30 days. EPA's threshold of health concern is 22 parts per billion (ppb) for acute inhalation of MITC and 5 ppb for short-term to intermediate inhalation exposures. The state of California has adopted the same level of health concern for acute inhalation exposures but sets a lower threshold of 1 ppb for short-term to intermediate inhalation exposures.

### *Acute Exposure (1-8 hours)*

The final weeks of the fumigation season produced the highest amounts of MITC in residential air. On one night Oct. 22), air levels exceeded the EPA threshold of acute health concern (22 ppb) with the highest detection being 40 ppb over a 4-hr period. Levels of acute concern were not detected on the other 25 days of sampling.

### *Short-term to Intermediate Exposure (1-30 days)*

Over the 7-week period, the MITC concentrations averaged 1.5 ppb for the days sampled. There were three days when the 24-hour average air concentration exceeded 5 ppb at one

or more sample sites. These days were Oct 12 (at 2 sites), Oct 22 (at all 6 sites), and Oct 31 (at 1 site). On Oct 22, the 24-hour average air concentrations ranged from 7.9 -11.8 ppb. On the other two days the levels detected were only slightly over the 5 ppb level of concern (5.2-6.5 ppb). The 7-week average is below the EPA threshold of human health concern for intermediate periods. It does slightly exceed the California standard of 1 ppb.

Results from this study and a similar study in 2005, suggest that the fall fumigant applications to potato fields in south Franklin County contribute to fairly uniform air concentrations in nearby residential areas. Levels detected were mostly below acute and short term inhalation levels of concern, however, air levels can reach and exceed thresholds of health concern during peak fumigation periods.

For more information about MITC and EPA levels of concern go to our [fact sheet](#).

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