

Concerns on Naphthalene Blocks in Women's Restrooms

In January 2011, the Environmental Epidemiology Program (EEP), Utah Department of Health received an email regarding the potentially negative health effects for women exposed to naphthalene while using the workplace restroom. The person reported the restroom cleaning crew left the blocks in the restroom and the odor of naphthalene was overbearing. They further expressed exposure concerns for women who are pregnant. The EEP contacted the person via email to further clarify how the cleaning crew was using the naphthalene blocks. Apparently, crews were storing blocks on a shelf in the restroom. In the initial response, the EEP sent a fact sheet on naphthalene from the Agency for Toxic Substances and Disease Registry (ATSDR) to the person.

The following information references the ATSDR ToxFaqs fact sheet (ATSDR, 2005): Naphthalene is a white solid that evaporates easily. Its major consumer use is in moth repellents and toilet deodorant blocks. It is commonly found in coal, white tar, tar camphor, and moth balls. It has a strong distinct smell with an odor threshold of 38 ppb. (ScienceLab, 2010). While olfactory sensitivity to naphthalene is high, this is not reflective of the dosage required to achieve a health hazard. Currently, it is unknown if short-term exposures to naphthalene inhalation can result in long-term health conditions.

Long-term exposures to large amounts of naphthalene may damage or destroy red blood cells. This could result in hemolytic anemia, a condition wherein red blood cells are lost until the body replaces the destroyed cells. Some symptoms of hemolytic anemia are fatigue, lack of appetite, restlessness, and pale skin. Exposure to large amounts of naphthalene may also cause nausea, vomiting, diarrhea, blood in the urine, and a yellow color to the skin. It is unclear if naphthalene causes reproductive effects in animals; most evidence says it does not.

In addition, there is no direct evidence that naphthalene causes cancer in humans; however, research shows that naphthalene is a carcinogen in animal studies (National Toxicology Program [NTP], 2000). Based on these studies, the Department of Health and Humans Services (DHHS), the International Agency for Research on Cancer (IARC), and the United States Environmental Protection Agency (EPA) have concluded that naphthalene is reasonably anticipated to be a human carcinogen (IARC, 2002; EPA, 2003).

Hospitals have reported many cases of hemolytic anemia in children, including newborns and infants, who either ate naphthalene mothballs or deodorants cakes or who were in close contact with clothing or blankets stored in naphthalene mothballs. Naphthalene can move from a pregnant woman's blood to the unborn baby's blood. Naphthalene has been detected in some samples of breast milk from the general U.S. population, but not at levels that are expected to be of concern. Currently, there is no information on whether naphthalene affects fetal development in human; furthermore, no developmental abnormalities were observed in the offspring from rats, mice, and rabbits fed naphthalene during pregnancy.

After researching the issue, it is the EEP's finding that exposure to naphthalene in this case, while a nuisance to some individuals, does not constitute a health concern. The EEP further finds that this exposure does not pose a health hazard to pregnant women. The EEP recommends that removing naphthalene blocks from restrooms is not required, however, accommodation of highly sensitive individuals may be warranted to decrease work place nuisance.

Prepared by:

Alexander Wu, MPH
Epidemiologist

Craig J. Dietrich, Ph.D.
Toxicologist

Environmental Epidemiology Program
Utah Department of Health

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