

## Scientific Review

# Is Your Home Cleanser Toxic?

Scientists in Korea say household products emit toxic aromatic and chlorinated organic compounds that are potential sources of indoor air pollution.

Chemical ingredients have been found that are not on the product label and chemical components vary by manufacturers. These toxic compounds, which have been found in every laundry, air freshener, deodorizer, and cleaning product tested, provide a source of exposure by inhalation for household occupants.

Six chemicals (acetone, ethanol, limonene, perchloroethylene (PCE), phenol, and 1-propanol) were identified in all 42 tested household products. More than 10% of the products also contained limonene, ethanol, PCE, phenol, 1-propanol, decane, acetone, toluene, 2-butoxy ethanol, o-xylene, chlorobenzene, ethylbenzene, and hexane.

This data may be useful to link environmental exposures to health risk. Many of the chemicals found are respiratory irritants, some are even neurotoxic. The current findings can provide valuable information for the selection of safer household products.

A University of Washington study analyzed six fragranced consumer products which are widely used in homes, businesses, institutions, and public places. Anne Steinemann, PhD, tested three each of best-selling air fresheners and laundry products and discovered that, unlike the European Union, no laws in the U.S. require disclosure of all chemical ingredients in fragranced consumer products.

She found the products emit dozens of toxic chemicals such as acetaldehyde, acetone, benzaldehyde, tert-butyl alcohol, 2-butanone, chloromethane, 1,4-dioxane,

ethanol, ethyl acetate, isopropyl alcohol, and  $\alpha$ -pinene.

Many of these chemicals are listed on the Environmental Protection Agency's (EPA) hazardous substances list.

During an interview, Steinemann said, "I was surprised by both the number and the potential toxicity of the chemicals that were found. Nearly 100 volatile organic compounds were emitted from these six products, and none were listed on any product label. Plus, five of the six products emitted one or more carcinogenic 'hazardous air pollutants,' which are considered by the Environmental Protection Agency to have no safe exposure level."

Until laws are enacted to require manufacturers to disclose ingredients, Steinemann suggests that, "Instead of air freshener people use ventilation, and with laundry products choose fragrance-free versions."

There are many safe and natural cleaning products that do a great job of cleaning and freshening without toxic risk, such as baking soda, vinegar, and peroxide. Conscious choice to use simple and natural solutions instead of the cleaning chemicals which are made and marketed can make the air inside safer to breathe for everyone.



## References

Kwon KD, Jo WK, Lim HJ, Jeong WS. Volatile pollutants emitted from selected liquid household products. *Environ Sci Pollut Res Int*. 2008 Aug 8.

Steinemann AC, *Fragranced consumer products and undisclosed ingredients*, *Environ Impact Asses Rev* (2008), doi:10.1016/j.eiar.2008.05.002.