

## Air Fresheners Fact Sheet

Many people often turn to air fresheners (such as sprays, candles, incense, diffusers, etc.) to mask or remove unpleasant odors. However, air fresheners contain a variety of chemical, and sometimes biological, components that can be problematic for some individuals and can contribute to poor indoor air quality. The information below addresses the health and safety concerns of air fresheners and provides accurate information on effective ways to control indoor air pollution.

### How do air fresheners affect indoor air quality?

Air fresheners can impact indoor air quality by adding potentially hazardous pollutants to the air. The use of air fresheners is associated with elevated levels of volatile organic compounds (VOCs), such as formaldehyde, acetaldehyde, benzene, toluene, ethyl benzene, and xylenes, in indoor air. These VOCs are often difficult to smell in the air, but they can irritate the eyes, nose, and throat, as well as cause headaches and nausea. The types and amounts of VOCs emitted depend primarily on the fragrance composition of the air freshener, not on the type of air freshener. It can be difficult or impossible to find out the ingredients in air fresheners, because manufacturers are not required to disclose the complete list of ingredients.

Air fresheners can add VOCs and other pollutants to the air through direct emissions from fresheners as well as through secondary reaction products from the freshener chemicals reacting with constituents (such as ozone) that are already in the air. For example, air freshener emissions can react with naturally-occurring indoor air compounds, such as ozone, to produce secondary pollutants such as formaldehyde. The types and amounts of secondary pollutants produced are influenced by factors such as air freshener ingredients, concentrations, and product usage.

### How do air fresheners affect human health?

The use of air fresheners can increase exposure levels to air pollutants. These exposures, even at relatively low levels, have been associated with a range of adverse health effects. These effects may include migraine headaches, asthma attacks, breathing and respiratory difficulties, dermatitis, and neurological problems particularly for sensitive individuals.

### Are “green” air fresheners safer or better than regular ones?

Some air freshener products are described as “green” (or other related terms, such as organic or all-natural), but these terms lack regulatory or chemical definitions when used with air fresheners. Studies comparing emissions of different types of air fresheners have found that all air fresheners – regardless of “green” claims – emit potentially hazardous compounds. Moreover, emissions from “green” air fresheners were not found to be significantly different from other fresheners.

Homemade or “natural” air fresheners made with essential oils are not necessarily free of potentially harmful chemicals, either. Essential oils consist of combinations of naturally-derived chemicals that are highly concentrated. Concentrations of these oils in nature are typically much lower than the concentrations found in

essential oils. Moreover, few of these oils and plant-based ingredients have been tested for safety, and some can trigger allergic reactions.

### Can air fresheners remove odors and clean the air?

Some air fresheners purportedly clean the air by removing odors, disinfecting the air, or reducing allergens. These claims have been difficult to scientifically verify. Moreover, the use of these products would not provide a long-term solution since the source of odors, bacteria, or other allergens would not be addressed.

### What are some alternatives to using air fresheners?

Air fresheners are generally used to create a more pleasing indoor air environment, but they can also exacerbate indoor air quality problems by adding more chemicals to the air. Ways to mitigate undesirable odors in an indoor air environment without the use of air fresheners include:

- removing the source of the odor
- increasing ventilation by opening a window or using an exhaust fan
- improving and increasing ventilation by maintaining HVAC systems
- regular cleaning and vacuuming (see the [fact sheet on cleaning for good indoor air quality](#))
- use of an air purifier when other means are not sufficient (see the [fact sheet on air purifiers](#))

Fragrance-free policies in the workplace may help people with sensitivity to air fresheners, and some buildings at UMass have been designated as fragrance-free. Please avoid using air fresheners in these buildings.

### For more information:

EPA: "Care for Your Air: A Guide to Indoor Air Quality." <https://www.epa.gov/sites/production/files/2014-08/documents/careforyourair.pdf>

Johns Hopkins School of Medicine, "Aromatherapy: Do Essential Oils Really Work?" <https://www.hopkinsmedicine.org/health/wellness-and-prevention/aromatherapy-do-essential-oils-really-work>

Poison Control National Capitol Poison Center. "Air fresheners: Are they safe?" <https://www.poison.org/articles/air-freshener-171>

Steinemann, Anne (2017), "Ten questions concerning air fresheners and indoor built environments" Building and Environment, Volume 111, January, pages 279-284, <https://www.sciencedirect.com/science/article/pii/S0360132316304334>.