

FACTS ABOUT

Consumer Products and Air Pollution

Why Consumer Products Are Regulated

Although the state's air quality has steadily improved over the last 30 years, most Californians still live in areas where smog reaches unhealthy levels. Reducing air pollution from cars and businesses hasn't been enough to meet state and federal air quality standards. Many small sources also need to reduce their pollution, including consumer products. To achieve these goals, the California Air Resources Board (CARB) limits and/or restricts certain types of chemicals in consumer products that cause pollution and/or have harmful health effects. This information can be found in The California Consumer Products Regulations, at <http://www.arb.ca.gov/consprod/regs/regs.htm>.



Consumer products include a wide variety of items people use every day, in their homes, automobiles, and in commercial and industrial establishments. Deodorants, hair spray, cleaning products, spray paint, and insecticides are examples of categories of common consumer products that are formulated with chemicals known as *volatile organic compounds* (VOCs). When VOCs are emitted into the air, they contribute to the formation of [ground level ozone](#), a major component of smog. Some consumer products also contain toxic chemicals called *toxic air contaminants* (TACs). CARB also regulates *greenhouse gases* (GHGs), compounds having high *global-warming potential* (GWP) in many consumer products.

Although the majority of consumer products only contain a small amount of VOCs, TACs, and/or high-GWP chemicals, Californians use over half a billion of these items every year, resulting in substantial emissions. State law requires that consumer products pollute less. CARB works through a public process to develop requirements that achieve the maximum feasible emission reductions, while making sure that the regulations do not burden California's economy.

Today, standards that reduce VOCs, TACs, and high-GWP compounds have been established for over 100 categories of consumer products. CARB's consumer products regulations have resulted in projected emissions reductions of nearly 50 percent since 1990. This represents significant progress. However, population growth will increase the sales of consumer products, eroding some of the benefits we have achieved. Therefore, more work needs to be done and CARB is committed to meet the challenge.

Volatile Organic Compounds (VOCs) and Smog

When VOCs mix in the air with another type of air pollutant called *nitrogen oxides* (NOx), in the presence of sunlight, a chemical reaction occurs that creates *ozone*, a toxic, colorless gas that has a chlorine-like odor. Ozone is a naturally occurring, beneficial chemical in the upper atmosphere, because it protects us from much of the sun's harmful ultraviolet rays. However at ground-level, ozone is a dangerous air pollutant. People with asthma and other respiratory disorders, children, the elderly, and people who exercise outdoors are particularly susceptible to the harmful effects of breathing ozone. Ozone at ground level also damages plants, other wildlife, and speeds the aging and breakdown of many objects such as rubber tires. By regulating the amount of VOCs in consumer products, ground level ozone is reduced.

Toxic Air Contaminants (TACs)

CARB is committed to reducing exposure to toxic compounds emitted from consumer products. A *toxic air contaminant* means an air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health. To this end, CARB has prohibited the use of the TACs perchloroethylene, methylene chloride, trichloroethylene, and para-dichlorobenzene from use in several consumer product categories because these compounds are potential carcinogens. CARB continues to evaluate the presence of TACs in consumer products to ensure that public health and the environment are protected.

Greenhouse Gases with High-Global Warming Potential (GWP)

Certain chemicals used in consumer products can contribute to global [climate change](#) (also known as “global warming” or “the greenhouse effect”). Refrigerants and pressurized gas dusters are examples of consumer products that contain high-GWP compounds. The most abundant greenhouse gas in the atmosphere is carbon dioxide (CO₂), an odorless, colorless gas that is one of the main products of combustion, mainly from fossil fuels. Excess carbon dioxide in the atmosphere is the main contributor to global warming. High-GWP compounds can be hundreds or even thousands of times more effective in trapping heat than carbon dioxide. Because of this, even very small amounts of high-GWP compounds equate to hundreds or thousands of times more CO₂ in the atmosphere. Newer consumer products regulations are requiring reductions of high-GWP compounds to meet global climate change mitigation and adaptation strategies.

Methods to Meet the Emissions Reductions

In California, most consumer products are regulated on a “mass-based” approach. This means that for a certain category of products, there is a maximum percentage by weight of VOCs they are allowed to contain. Each regulated category has a limit set based on feasibility and cost. An alternative approach is a reactivity-based VOC limitation. Reactivity is the ozone-forming potential of a particular VOC, that recognizes not all VOCs create the same amount of ozone. Reactivity limits were developed for [aerosol coatings](#), including spray paints, based on this principle. CARB is continuing to evaluate the development of reactivity limits for other categories on a case-by-case basis.



Commercial and Technological Feasibility

The California Clean Air Act requires that each new consumer product regulation is commercially and technologically feasible and does not eliminate a product form. Not eliminating a product form means that a regulation on VOCs cannot result in making aerosol cans illegal, for instance. To evaluate feasibility, the Consumer Products Program staff conducts [surveys](#) to be completed by manufacturers that sell products in California. The purpose of these surveys is to gather current information on VOCs, TACs, high-GWP compounds, and other chemicals used in consumer product formulations that may cause air pollution. This information is critical to determine the feasibility of further reducing consumer product emissions and is used to update California’s consumer products emission inventory.

Flexibility for Cost-Effective Solutions

The average cost of reducing pollution from consumer products is comparable to other VOC regulations. California's consumer product regulations also give manufacturers the flexibility to find the most cost-effective approach to meeting the regulations on the consumer products that are sold in California. This is one of the ways CARB takes into consideration the economy of California when developing regulations.

For More Information

Please contact the CARB Public Information Office at (916) 322-2990, or visit the Consumer Products Program at <http://www.arb.ca.gov/consprod/consprod.htm> or call (916) 322-7072.

To obtain this document in an alternative format or language, please contact the CARB's Helpline at (800) 242-4450 or at helpline@arb.ca.gov. TTY/TDD/Speech to Speech users may dial 711 for the California Relay Service.