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## Environmental Elements of Vinyl and Vinyl Manufacturing

### Chlorine

Vinyl does not harm the atmosphere. Once chlorine is processed into vinyl, it is chemically locked into the product more tightly than it was in salt. When vinyl is recycled, landfilled, or disposed of in a modern incinerator, chlorine gas is not released into the atmosphere.

### Dioxin

Vinyl production is an extremely small source of dioxin, so small that levels in the environment would be essentially unchanged even if vinyl were not being manufactured and used every day in important products. The vinyl industry has studied and worked to reduce its contribution to dioxin. Other dioxin sources include forest fires, volcanoes, burning wood in fireplaces, exhaust from diesel-powered vehicles, and manufacture of other building materials. Overall, dioxin levels in the environment have been declining for decades, according to data from the U.S. Environmental Protection Agency (EPA). During this time, production and use of vinyl have more than tripled.

#### According to the EPA:

- Dioxin emissions from industrial sources in the United States have decreased by more than 90% since 1987
- Vinyl's dioxin emissions are a tiny fraction of the overall total

### Hydrogen Chloride

HCl is a by-product of burning vinyl, but it does not incapacitate or become dangerous until it reached concentrations far higher than those that have been measured in actual fires. In real fires, HCl air concentration declines rapidly as it adheres to surfaces. Because it is an irritant with a pungent odor, HCl can serve as a warning to evacuate. Since the 1970s, fire incidence and deaths have declined steadily.

### Incineration

Vinyl can be safely incinerated and its energy recaptured and reused. A large-scale study by the American Society of Mechanical Engineers found no link between the chlorine content of waste-like vinyl and dioxin emissions from controlled combustion processes. Instead, the study stated, the operating conditions of combustors are the critical factor in dioxin generation. Other scientific studies confirmed this conclusion.

### Indoor Air Quality (IAQ)

Vinyl products are able to meet low volatile organic compounds (VOC) requirements in standards such as FloorScore®, Green Label Plus, and GREENGUARD.

IAQ can be affected by biological factors, as well. In hot and humid climates, impermeable wall coverings can cause condensation to occur inside the walls. Manufacturers have addressed this issue with innovations such as mildew-resistant or "microvented" products that allow moisture to circulate.

- By discouraging moisture and resulting microbial growth, vinyl flooring products and vinyl-backed carpet are some of the vinyl products that contribute to IAQ.