

FOCUS

on Product Safety

04

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PRODUCT SAFETY

At the recent World Vinyl Forum, Kiyoshi Ueno, program advisor to the United Nations University's Environment and Sustainable Development Programme in Tokyo, stated, "PVC's environmental performance is proven from both the technical and scientific point of view. There is no longer any room for doubt about PVC's advantages and versatility. Leading enterprises should actively use PVC and positively advertise its environmental benefits."

DUE DILIGENCE HALLMARK OF VINYL INDUSTRY

At a time of rampant concern about consumer product safety, the design community should take Mr. Ueno's words to heart. Fifty years of studies and monitoring have concluded that PVC, or vinyl, is being used safely in household, health care and building applications. Found in products of all kinds that meet stringent national regulatory standards, vinyl's effects on health and the environment have been investigated at every stage of the product life cycle from manufacture through use and final disposal.

In fact, virtually no other building material has been studied to the degree that vinyl has, and most of the claims against it by pressure groups, having no scientific foundation, have been discredited. There are tradeoffs with all materials, and the U.S. Green Building Council's exhaustive examination of the impact of vinyl building materials underscored the lack of wisdom of a chemical-by-chemical attack strategy, concluding, "No single material shows up best across all human health or environmental impact categories, nor worst."

On its own, vinyl resin has few uses, but becomes an enormously versatile material – with the customized performance characteristics specifiers look for – when turned into vinyl compound through the addition of ingredients such as stabilizers, plasticizers, lubricants and colorants. Studied by independent scientists, the federal government and industry itself, these ingredients have been used safely for decades. Their potential for human exposure or environmental release is limited by the physical nature of the vinyl polymer, which holds them tightly in the matrix of the fabricated product.

A SAFE AND SOUND CHOICE

Regulatory, scientific and trade bodies have conducted rigorous safety evaluations of products made of vinyl for decades, among them:

- U.S. Food and Drug Administration
- U.S. Consumer Product Safety Commission
- National Academy of Sciences, Institute of Medicine
- National Fire Protection Association
- American National Standards Institute
- NSF International



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PRODUCT SAFETY continued

PHTHALATES

Phthalate plasticizers have established a strong safety profile over the 50 years in which they have been in general use as an ingredient to make vinyl flexible in everything from decorative products to toys and medical devices. Thorough scientific reviews in the U.S., including by the Consumer Product Safety Commission, and in the European Union, have specifically found toys containing phthalates safe for children.

Phthalates' low vapor pressures are several orders of magnitude lower than those of the volatile organic compounds usually associated with indoor air quality concerns, such as benzene, acetone and formaldehyde, limiting exposure scenarios. Yet debate continues about possible human health effects, based primarily on studies showing some adverse health effects in rats at exposures thousands of times higher than humans would ever encounter. Use restrictions in Europe and California notwithstanding, there is no reliable evidence from the accumulated scientific data that any phthalate has ever caused a human health problem from its intended use.

METAL STABILIZERS

In decorative products, stabilizers are used to prevent vinyl formulations from degrading during heat processing and use, and as an agent to hold pigment in the vinyl film. They usually amount to less than 2% of the recipe. Stabilizer use is closely regulated by a number of agencies and third-party certification groups. For example, NSF International, which writes standards for food, water and consumer goods, certifies that PVC pipe complies with public health standards for drinking water, as well as the suitability of other sensitive applications like flexible liners for water storage tanks.

Recalls of imported products containing lead have been the focus of much attention. However, lead stabilizers are not used in vinyl wallcovering or upholstery products. Lead alternatives such as the mixed metal stabilizer barium-zinc are more preferred and are approved by U.S. regulatory agencies, according to the Vinyl Institute. As with phthalates, stabilizers are held tightly in the fabricated product, limiting the potential for human contact or release to the environment either in use or disposal. This has been shown repeatedly by NSF extraction testing of the constituents in rigid PVC pipe.

FOR MORE ON PRODUCT SAFETY ...

- For an information center on phthalates, visit the Phthalate Esters Panel of the American Chemistry Council at www.phthalates.org
- For a new report on metal stabilizers, "Use of Metal Compound Additives in the U.S. Vinyl Processing Industry," go to www.vinylinfo.org/Publication.aspx



DID YOU KNOW?

Suggestions that alternatives to vinyl will become more affordable with economies of scale ignore the fact that the pervasive spike in oil prices will affect the pricing of alternatives more readily than it will PVC. That's because most alternatives are nearly 100% petroleum based, while vinyl contains approximately 57% chlorine, derived from one of the most common chemicals found in nature – salt. Alternatives, which generally have not been subject to the same level of testing that vinyl has, also typically use processes, inks and coatings that are more expensive.



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