

The Vinyl Formulators Division of The Society of the Plastics Industry, Inc.

Frequently Asked Questions About Vinyl

Question: What are the facts regarding the alleged hazards of vinyl and associated raw materials, such as metal-containing activators and plasticizers?

Answer: The question actually is this: Is vinyl safe? And the answer is this: Yes.

Vinyl has been used in many life-enhancing products for decades. Its uses include medical products such as blood bags and medical tubing and food-contact applications such as meat wrap and bottles – all of which are regulated for safety by the U.S. Food and Drug Administration.¹

Over the years, attention has been drawn especially to vinyl made with phthalates – the most commonly used plasticizers. Erroneous allegations made about these plasticizers have prompted a great deal of scientific research on the part of industry, academia and government.

Without belaboring the claims, new research into phthalate plasticizers indicate little potential impact of any kind on human health or the environment.² In fact, because of vinyl's physical nature, phthalate plasticizers are tightly held in the polymer, limiting the potential for human contact or release to the environment.³ One research effort, which focused on phthalates in medical products and toys, involved a panel led by former Surgeon General C. Everett Koop. This learned panel found no evidence of harmful health effects at standard doses and in normal product use.⁴

Additives, such as stabilizers, activators and plasticizers, constitute a small part of the overall vinyl formulation and their use, as noted, is closely regulated.⁵

¹ "The Benefits and Safety of Vinyl,"

http://www.vinylinfo.org/pressmaterials/factsheets/benefits_safety.html.

² "Phthalate Plasticizers: Safety Used in Vinyl Products for over 40 Years," Vinyl Council of Canada, www.plastics.ca.

³ "Vinyl Flooring 'Fact vs. Fallacy'," www.polyone.com.

⁴ "Update on phthalates," ATOFINA Chemical, www.atofina.com.

⁵ "An Introduction to Vinyl," www.azom.com/details.asp?ArticleID=987.

Metal-containing activators have been perceived negatively because of historical problems associated with the metal in another form or application, which cannot in most cases be compared to their use in the creation of today's PVC. There also has been an association with the hazard that can be contributed by these metals in the waste stream when proper disposal methods are not used.⁶

To put it simply, metal stabilizers are used selectively and do not represent a health or exposure risk when properly disposed of at the end of a product's life cycle.⁷



Question: What are the issues facing the vinyl industry in Europe?

Answer: Issues facing the European vinyl industry more or less mirror concerns that have been raised in the United States. These include occupational health concerns, toxicity of materials and disposal issues. A difference, however, often is found in a more strident activist community and a regulatory environment that fosters the precautionary principle. This principle, which contends that products and substances are guilty until proven innocent and any possible risk should be avoided, is so fluid that it can be used to support almost any radical argument or proposed product ban. (Using the precautionary principle, for example, the solution to car accidents could be found in the banning of automobiles.)

Activist opposition and a difficult operating environment, however, have not curtailed industry efforts, with an emphasis, for instance, on ensuring that sound science exists and is applied to ongoing EU risk assessments on phthalates.⁸

On May 6, 2003, the European PVC industry (Vinyl 2010⁹) published its third annual Progress Report on its efforts to dispel “any unjustified doubts that may remain about the future of PVC and the tens of thousands of European companies involved in the production and transformation of PVC products.” The report showed a substantial increase in investment on waste management, research and development and other projects of the industry's Voluntary Commitment during 2002. The organization also announced plans to set up a Monitoring Committee with Members of the European Parliament, officials of the European Commission and trade union representatives to independently evaluate the industry's progress.



⁶ “Science: Conclusion,” http://www.ecvm.org/code/page.cfm?id_page=145.

⁷ “An Introduction to Vinyl,” www.azom.com/details.asp?ArticleID=987.

⁸ “Health and Environmental Effects of Phthalates,” www.phthalates.com/index.asp?page=5.

⁹ Vinyl 2010, www.vinyl2010.org.

Question: What is happening on this issue in the U.S. automotive industry?

Answer: Flexible vinyl compounds remain, for many automotive applications, the price and performance leader, providing both cost-effectiveness and superlative products. However, the automotive market is a very competitive one, and automakers and their suppliers always are seeking materials and processes that will enable them to build better products and to do so more efficiently, cost-effectively and profitably. If alternatives to vinyl can successfully satisfy these customer needs, then vinyl will lose market share. To the extent the vinyl industry and its customers can continue to meet the needs of automakers, vinyl likely will remain the preferred material for appropriate applications.

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Question: What is the issue surrounding flexible vinyl and carpets?

Answer: Flexible vinyl is used as a backing for some carpets, mostly commercial-grade carpet tile, which is a very small portion of the overall carpet industry. An issue in this market is the impact of such carpeting on indoor air quality (IAQ) of volatile organic compounds (VOCs) in the products.

In this regard, the SPI Vinyl Formulators Division supports the Carpet & Rug Institute's testing programs to facilitate and promote compliance with scientifically established IAQ standards.

There also have been allegations that phthalate plasticizers used in the manufacture of vinyl flooring pose a health risk. This is not true, as extensive research has shown no evidence of adverse human health effects when phthalate plasticizers are properly used in vinyl flooring.¹⁰

It also is untrue that vinyl flooring creates more toxic fumes in fires than other combustible materials. Fire resistant vinyl flooring actually allows more time for exit from a fire situation and will not burn unless there is an external source of heat.¹¹

Finally, as to allegations regarding its disposability issues:¹²

- Vinyl flooring poses no special problems when landfilled, as it essentially is inert. In fact, vinyl is the preferred material for modern landfill liners to prevent groundwater contamination.

¹⁰ Ibid.

¹¹ Ibid.

¹² Ibid.

- Properly operated municipal waste incinerators efficiently burn vinyl flooring without harmful releases of dioxin and hydrochloric acid.

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Question: Are the vinyl-containing materials used in commercial and residential building construction safe?

Answer: Yes, these materials are safe. In fact, they often are the material of choice because of their durability and imperviousness to environmental assault – with resulting breakdown – over time.

According to the Vinyl Institute, vinyl is often referred to as the "infrastructure plastic," and with good reason. More than half of all vinyl produced annually in the United States is used to manufacture construction or furnishing products, and more vinyl is used in construction than any other plastic. Vinyl is used so widely in the construction industry because of its durability, easy installation and cost-effectiveness. What's more, the chlorine content in rigid vinyl makes it inherently flame resistant. Vinyl also is highly energy efficient.

In addition, vinyl building products such as siding and fencing, which do not require paint, stains or harsh cleansers, can replace wood products that do require the use of these treatments on a regular basis.¹³

Suffice it to say that these materials have been used safely for nearly 50 years, they have been extensively studied and they are well understood. Throughout this scrutiny, there has been no evidence to suggest that finished products made with vinyl, when properly used and installed, represent any risk to consumers.

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Question: What is the vinyl industry doing to dispel and correct the misinformation and factual distortions distributed by Greenpeace and other activist organizations that want to ban the use of vinyl and chlorine? How much time and money is the industry spending to defend itself against negative Greenpeace comments, as well as "Green Label" issues? What, specifically, is the SPI Vinyl Formulators Division doing to refute erroneous information put forth by environmental groups?

Answer: The Vinyl Institute invests a significant amount of its budget to its Vinyl By Design program,¹⁴ which works to promote vinyl to building and construction professionals and educate and inform them about the true

¹³ Energy & Environment, Reduced Material Use, www.aboutbluevinyl.org.

¹⁴ www.vinylbydesign.org.

environmental impacts of vinyl products. Providing these material specifiers and users with confidence in their choices is important, as the lion's share of vinyl resin finds its way into building and construction applications.

Industry also has been active in conducting and supporting research and keeping federal policymakers informed and "armed" with current and correct information.

The SPI Vinyl Formulators Division supports industry outreach and informational efforts and works to educate its members and the broader industry on related issues through its Web site and conferences. Member companies also work with other important audiences – their employees and customers – to keep the record straight.

It is important to note that, while Greenpeace has, in the past, targeted PVC, it currently is not focused upon it in the United States. While this could mean the "vinyl issue" is seen as not being the type that can gain ground in post-9/11 America, it also could be that it believes other organizations have sufficiently taken up the banner with their emphasis on application of the precautionary principle on all chemical usage and a tie-in to children's health.

Then again, we can also hope that sound science has prevailed and that the work the broad industry has done to fight fallacy with fact has prevailed – or at least complicated the battle for organizations such as Greenpeace that rely on misinformation to fuel public fear and feed their coffers.



Question: What is the situation with U.S. policymakers? Are there active lobbying efforts being made on behalf of the vinyl industry? What can companies do to influence elected officials?

Answer: Industry organizations and OEMs have worked closely with policymakers to ensure that their questions are answered and concerns allayed. While Federal agencies and decision makers do not currently appear focused on what are perceived as "vinyl issues," activities that could negatively and unfairly impact the industry occasionally arise on the state and local levels.

Industry companies can best respond to such assaults by closely monitoring local press and activist efforts and ensuring that erroneous information is immediately corrected. They also should immediately notify their industry associations/organizations whenever such a situation arises and make sure they remain in close contact with their customers when issues arise.

Proactively, each company should make contact with its elected officials, visiting them in their state or national offices, inviting them to visit or tour its facility(ies) and highlighting the useful and beneficial products made with its materials. Companies also should point out the economic benefits they bring to communities, using SPI statistics¹⁵ to drive home the importance of the broad-based plastics industry to national, state and local economies.

In addition, company leaders should communicate with their employees – their best ambassadors – alerting them to situations that could arise and encouraging them also to contact elected officials, making sure they have the best information and a good understanding of their company and the industry.

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Question: What organizations are involved in responding to attacks on vinyl-based compounds and how can I contact them?

Answer: U.S. organizations involved in the defense of vinyl-based compounds include:

- The Vinyl Institute (Contact: Judy Nordgren, 703/741-5667)
- The American Chemistry Council Phthalate Esters Panel (Contact: Marian Stanley, 703/741-5623)
- Chlorine Chemistry Council (Contact: Janet Flynn, 703/741-5827)
- The Resilient Floor Covering Institute (Contact: Doug Weigands, 301/340-8580)
- Toy Industry Association (Contact: Joan Lawrence, 212/675-1141)
- The SPI Vinyl Formulators Division (Contact: Allen Weidman, 212/974-5233)

Related European organizations include the European Council of Vinyl Manufacturers and the European Council for Plasticisers and Intermediates.

For further information, see the Web sites listed below.

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Question: Where can I find reliable research and studies on vinyl for my information and use?

¹⁵ “The Size and Impact of the U.S. Plastics Industry,” with state and county data, The Society of the Plastics Industry, Inc., www.plasticsdatasource.org.

Answer: Following this document is a list of Web sites, which provide continually updated information on issues and studies related to the vinyl industry and its products.

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Question: What is the situation with PVC in toys?

Answer: Toy makers around the world have been using vinyl for nearly 50 years to make some of the best known and popular toys and children’s products. Vinyl is used in these applications because the material is durable and safe and can be manufactured to meet exacting customer and regulatory standards.¹⁶ It also is one of the most thoroughly tested, well-researched plastics materials on the market today, having been carefully and continually examined by the world’s leading government health authorities, who have given vinyl their approval for children’s products¹⁷.

In recent years, concerns have been expressed regarding a plasticizer used in vinyl toys to make the material soft and flexible. Those concerns were addressed in 1999 by an independent expert task force, headed by former U.S. Surgeon General Dr. C. Everett Koop, that evaluated the plasticizer involved (diisononyl phthalate, or DINP), finding that it was safe and posed no harm to children or adults.

More recently, the U.S. Consumer Product Safety Commission (CPSC) weighed in, denying a petition by the National Environmental Trust to immediately ban the use of PVC in all toys and other products intended for children age five and under, based on allegations of the toxicity of DINP. Its thorough examination, the CPSC said, “revealed that there is no risk posed by PVC that rises even remotely to that specified by the Federal Hazardous Substances Act” regulations.¹⁸

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Question: Should I be worried about what I heard in the documentary “Blue Vinyl”?

Answer: No. The allegations made in the film were not factual and/or relied on outdated information. The film’s allegations – and the corresponding facts – can be found on www.aboutbluevinyl.org. On that site, you’ll find evidence that:

- There has been no documented case of angiosarcoma of the liver among vinyl chloride manufacturing plant workers whose industry

¹⁶ “Safety of Plastic Toys and Teethers,” The American Plastics Council, www.plasticsinfo.org/toys.

¹⁷ “An Information Resource on the Safety and Benefits of Vinyl Toys” – www.vinyltoys.com.

¹⁸ “Statement of the Honorable Mary Sheila Gall on Vote to Deny Petition Requesting a Ban on Polyvinyl Chloride in Toys and Products Intended for Children Five and Under,” www.cpsc.gov/LIBRARY/FOIA/FOIA03/petition/Ageunder.pdf.

careers began after OSHA promulgated issued strict exposure regulations in 1975.

- The accumulated evidence does not support a causal link between exposure to vinyl chloride and brain cancer.
- Vinyl manufacturing is not a major source of dioxin.
- The U.S. EPA has established no link between living near a vinyl chloride/PVC plant and angiosarcoma.
- There was no industry “cover-up” or “conspiracy” to conceal facts.
- Fire performance studies have disproved allegations that vinyl was responsible for injuries in a number of large fires in the 1970s and 1980s.
- Vinyl can be disposed of safely.



Question: What are some of the major uses and benefits of vinyl?

Answer: Here are just a few of the myriad life-enhancing, cost-effective uses of vinyl in everyday life¹⁹:

- As the material of choice for blood bags and medical tubing, vinyl helps to maintain the world’s blood supply and supports critical healthcare procedures such as dialysis. Each year, countless lives are saved through the use of medical products made with plastics.
- As a packaging material, vinyl helps to keep meats and other foods safe and fresh during transportation and on store shelves, and it provides tamper-resistant packaging for food, pharmaceuticals and other products.
- Because it will not rust or corrode and breaks far less frequently than alternative materials, vinyl is widely used in water pipes to deliver clean, safe-to-drink water and in sewer pipes to ensure the integrity of wastewater handling systems.
- Vinyl’s resistance to breakdown under high electrical voltage and its ability to bend without cracking make it the leading material for wire and cable insulation.
- As an underbody coating on automobiles, vinyl has helped to add years to the life of motor vehicles.
- Vinyl’s toughness and durability make it the most widely used plastic for building and construction applications such as siding, windows, roofing, fencing, decking, wallcoverings and flooring.

Want more? Check out www.vinylfacts.com, www.vinylbydesign.com, www.vinylsiding.org and www.vinylinfo.org.



¹⁹ “Benefits of Vinyl,” The Vinyl Institute, www.aboutbluevinyl.org/benefits.asp.

Question: Are there alternatives to phthalate plasticizers?

Answer: Yes and no. There are alternatives, but they do not provide the performance standards of phthalates -- the most commonly used plasticizers.

It can be argued, as well, that alternatives are not needed.

As the extensive testing of phthalates for possible human health and environmental effects has shown (see above), these plasticizers have an excellent record, despite erroneous activist claims to the contrary. They do not persist in the environment, they do not bioaccumulate and there has never been any scientifically validated evidence that they have caused anyone any harm.²⁰

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Question: Is there an environmentally friendly way to dispose of vinyl?

Answer: First, it is important to note that, while vinyl is the world's second most widely used plastic material, very little (about 2-1/2 percent) is found in the solid waste stream. Most of that consists of vinyl packaging bottles, blister packaging and flexible film. Even this amount is relatively small, equaling about 5 percent of all plastic packaging found in the waste stream, or less than 0.5 percent of the total waste stream.²¹

But more to the point, when proper methods are used, there is no environmentally *unfriendly* way to dispose of vinyl once they have served their purpose after a typically long life. For instance:²²

- Independent studies repeatedly have found that the presence (or absence) of vinyl wastes in incinerators had no effect on the levels of dioxin produced. Rather, it was found that incinerator operating conditions (primarily, temperature) were the key to controlling dioxin formation. When burning is well controlled, as it is in modern incinerators, very little dioxin is made or emitted.
- In landfills, vinyl, like all plastics, is an extremely stable material. It resists chemical attack and degradation and is so resistant to the conditions present in landfills that it is often used to make landfill liners. On those occasions when vinyl chloride monomer is detected in

²⁰ "What are Phthalates?"; The Phthalates Information Center, www.phthalates.org/whatare/index.asp.

²¹ "Vinyl Is A Small, Manageable Part of the Solid Waste Stream," The Chlorine Chemistry Council, www.c3.org/chlorine_knowledge_center/solidwast.html.

²² "Some Common Misconceptions About Vinyl," The Vinyl Institute, www.vinylinfo.org/pressmaterials/factsheets/mispercept.html

landfills, it typically can be traced to the presence of other chemicals and solvents.

- And as to recycling, industrial vinyl scrap has been recycled for years, and post-consumer vinyl recycling is growing, as well. Vinyl can be included in any plastics collection program and readily can be processed using a variety of commercially available sorting technologies. Nearly 100 uses for recycled vinyl have been identified, and the potential demand for recycled vinyl is estimated to be about twice the potential supply. A Vinyl Institute directory lists more than 80 companies that make commercial products out of recycled vinyl.

Useful URLs and Links on Vinyl Issues

American Chemistry Council/Phthalate Esters Panel – www.phthalates.org

Carpet & Rug Institute – www.carpet-rug.com

Chlorine Chemistry Council – www.c3.org

The Chlorophiles – www.ping.be/~ping5859

Pb stabilizers www.ping.be/chlorophiles/en/en_index.html
Phthalates www.ping.be/chlorophiles/en/en_index.html

European Council of Vinyl Manufacturers – www.ecvm.org

PVC and safety www.ecvm.org/code/page.cfm?id_page=110
PVC Stabilizers
and Plasticizers www.ecvm.org/code/page.cfm?id_page=115
Heat Stabilizers www.ecvm.org/code/page.cfm?id_page=137
Lead (Pb) Stabilizers www.ecvm.org/code/page.cfm?id_page=138
Organotin stabilizers www.ecvm.org/code/page.cfm?id_page=139
Calcium/Zinc www.ecvm.org/code/page.cfm?id_page=140
Barium/zinc www.ecvm.org/code/page.cfm?id_page=141
Cadmium www.ecvm.org/code/page.cfm?id_page=142
Heat stabilizers in
recycle and disposal www.ecvm.org/code/page.cfm?id_page=143
Landfill Recycle
and WTE www.ecvm.org/code/page.cfm?id_page=144
Conclusion to
Stabilizers and
Plasticizers www.ecvm.org/code/page.cfm?id_page=145
Plasticizers www.ecvm.org/code/page.cfm?id_page=342
Important Research
Studies on PVC www.ecvm.org/code/page.cfm?id_page=323

European Council on Plasticisers and Intermediates – www.ecpi.org

Phthalates
Information Centre
Europe www.phthalates.com/index.asp?page=3
Wire and Cable www.cableplast.com
ECPI Links Page www.phthalates.com/index.asp?page=42

Organotin Environmental Program (ORTEPA) – www.ortepa.org

Stabilizers www.ortepa.org/stabilizers/pages/applications.htm

PVC Toys Information Centre – www.pvc-toys.com

Resilient Floor Covering Institute – www.rfci.com

Tin Stabilizers Association – www.tinstabilizers.org/research.htm

Wallcoverings Association – www.wallcoverings.org

Vinyl Institute – www.vinyl.org

Vinyl by Design www.vinylbydesign.com

Vinyl Facts www.vinylfacts.com

Vinyl Toys – www.vinyltoys.com

The Vinyl Formulators Division was formed in 1953 to enhance the growth and prestige of the vinyl formulating industry. The Division pursues this objective through educational programs and the exchange of ideas and experiences. For more information, visit the Web at www.flexiblevinyl.org.