

Vinyl Is A Small, Manageable Part of the Solid Waste Stream

- *Millions of pounds of vinyl are being recycled.*
- *Demand for recycled vinyl far exceeds supply.*
- *Numerous commercial products contain recycled vinyl.*
- *Vinyl can be safely incinerated and landfilled.*

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While vinyl is the world's second most widely used plastic material, very little (about two and a half 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 five percent of all plastic packaging found in the waste stream, or less than 0.5 percent of the total waste stream.

Facts at a Glance

Recycling

- Vinyl is recyclable and is being recycled. According to research conducted by R.W. Beck and Associates,¹ approximately 9.5 million pounds of post-consumer vinyl were recycled in the U.S. in 1995. An estimated additional 300 million pounds of pre-consumer vinyl scrap were diverted from landfills and recycled in to second generation products.²
- In addition to vinyl packaging, long-lived vinyl applications also are being recycled. Examples include vinyl siding, wire and cable scrap, and computer keyboard housings. Special grades of PVC pipe now contain an inner core of recycled vinyl.
- The most recent Directory of U.S. and Canadian Companies Involved in the Recycling of Vinyl (PVC) Plastics, published by the Vinyl Institute, lists more than 160 companies, up from 47 in the first edition; the most recent Directory of U.S. and Canadian Companies Manufacturing Products from Recycled Vinyl lists more than 60 companies, up from 43 in the first edition.
- In 1989, the University of Toledo identified nearly 100 potential uses for recycled vinyl, most in non-packaging applications.³
- The University of Toledo estimated potential demand for recycled vinyl at about 500 million pounds per year -- over twice the amount available by recycling all vinyl bottles.
- Recycled vinyl already is used commercially to make packaging (bottles, jar and "blister" packaging), floor tiles, notebook covers, traffic cones, pipe, pond liners, garden hoses, fencing and plastic lumber.
- The vinyl industry has helped sponsor the development of several automated technologies that separate vinyl packaging from other plastics in the waste stream. These systems are now in commercial use in at least 40 locations throughout the U.S. and Europe.

Incineration

- A recent study by sponsored by the American Society of Mechanical Engineers, involving the analysis of over 1,900 test results from 169 large-scale, commercial incinerator facilities throughout the world, found no relationship between the chlorine content of waste and dioxin emissions from combustion processes. Instead, the study stated, the scientific literature is clear that the operating conditions of combustors are the critical factor in dioxin generation.⁴
- Incinerator scrubbing systems can remove about 99 percent of the hydrogen chloride (HCl) generated by incinerating vinyl plastics and other chlorine-containing compounds and materials.⁵ Research indicates that this can be done at minimal cost.⁶
- In Europe and Japan, studies show that only about 0.3 percent of all atmospheric acidity can be traced to incineration of vinyl, which in turn represents only 0.02 percent of all acid rain. Power plants and auto exhaust are the main sources.⁷

Landfilling

- Vinyl products are extremely resistant to the corrosive conditions found in landfills and will not break down or degrade under them. In fact, vinyl is often used to make landfill liners because of its resistance to these conditions and PVC pipe is used to collect landfill leachate.

References

¹1995 National Post-Consumer Plastics Recycling Rates Study, R.W. Beck and Associates, September 1996.

²Industry Estimate

³End Use Markets for Recycled Polyvinyl Chloride, Robert A. Bennett, Ph.D., The University of Toledo College of Engineering, July 1990.

⁴The Relationship Between Chlorine In Waste Streams and Dioxin Emissions From Combustors, The American Society of Mechanical Engineers, Draft January 6, 1995.

⁵Air Emissions Tests at Commerce Refuse-to-Energy Facility, May 26 - June 5, 1987, Vol I test results ESA 20522-449, Energy Systems Associates, Pittsburgh, PA, July 1987.

⁶D. Randall and B. Suzanne Shoraka-Blair, Midwest Research Institute, "An Evaluation of the Cost of Incinerating Wastes Containing PVC," The American society of Mechanical Engineers 1994.

⁷Plastics in Municipal Solid Waste Incineration: A Literature Study, R.S. Magee, Hazardous Substance Management Research Center, New Jersey Institute of Technology and Does PVC Waste Incineration Contribute to Acid Rain? P. Lightowers and J.N. Cape, Chemistry and Industry, June 1987.

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Revised: October, 1996

CMA 112485