

Partnerships for a New Century:

With our Neighbors

With the Environment

With the World Community

The vinyl industry in the 1990's and beyond.

BOR 000383

Today, everyone wants the best of both worlds: to live well, to live longer, to live better and more comfortably than our parents and forefathers. With clean air and pure water. And no threats to our health and safety. Is it possible to have both worlds at once? In the vinyl industry, we think it is. This brochure tells how we're producing life's necessities—and conveniences—without harm to our workers, our neighbors or the environment.

We Take Safety Seriously

Strict safeguards make the production of PVC (polyvinyl chloride, or vinyl) one of the most carefully monitored operations in industry today. And safety is our first concern at each step in the process:

When we make the key raw material (vinyl chloride monomer, or VCM).

When we ship VCM to other processing sites.

When we convert VCM to a finished plastic material (vinyl).

When vinyl is made into end products like house siding, pipe or packaging.

Over the years, the way vinyl is produced has changed substantially, and worker exposure to on-the-job hazards has decreased accordingly. Years ago, workers were protected by special breathing equipment and their access to certain areas of each plant was restricted. Since then, the production process has been re-engineered to minimize emissions during manufacturing. Higher risk processes are completed in smaller, better protected areas. Therefore, workers are exposed

to fewer chemicals. And monitoring of both the manufacturing site and individual workers is conducted on an ongoing basis to confirm this.

Since monitoring began in the 1970s, the vinyl industry has reduced its VCM emissions 95 percent nationwide. That trend is continuing as we develop better equipment to control releases into the atmosphere.

This means our workers and neighbors are safer than ever before. Numerous studies of "fence line" exposure risk related to vinyl production have shown that no cause for concern exists.

Communications Are A Priority

Specific laws are now in place to help us better communicate this progress to the communities in which our plants operate. These same laws require that all manufacturing plants plan for emergencies and keep the public informed of what they are doing to improve their environmental performance.

We're finding other ways to improve the environment in which we operate, too. More and more of the industry's manufacturing scrap is being recycled back into the production process, thereby reducing landfill and waste handling demands. Increased effort is focusing on ways to refine and reuse process chemicals as well in order to keep these materials out of the waste stream. Our plants also are monitored under federal laws that regulate the handling and storage of potentially hazardous wastes.

**A bright future
for our children.**

**A healthy environment
for everyone
is our number-one concern.**



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We're Committing Resources To Solid Waste Solutions

New programs are demonstrating that vinyl end products can be a part of the move toward better environmental stewardship, too.

Disposal/reuse options for vinyl include:

- recycling
- incineration with energy recovery
- landfilling

With vinyl, all of these can be done without the need for "special handling" that complicates and increases the cost of waste management.

Recycling Heads The List

Today, vinyl products account for about two and a half percent of all solid waste. Based on current market projections, this small percentage is expected to remain constant in coming years. On the other hand, markets for recycled vinyl are expected to grow dramatically.

Vinyl is one of the most recyclable plastics and the practicality of recycling vinyl has been demonstrated in numerous small-scale projects. The Vinyl Institute, for instance, has funded projects at Vermont Republic Industries in St. Albans, Vermont, at Rutgers University, and at Recoverable Resources Boro Bronx 2000 (R2B2). The industry also has identified at least 40 additional companies in 17 states that recycle vinyl commercially. That list is growing as entrepreneurs discover the profit potential for recycling this versatile material.



Clean air and
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tured in a r spon-
sible manner.

Another important benefit of recycling vinyl is that short-term uses like packaging can be converted into long-term, second-generation uses. This will further reduce the demand that discarded vinyl products could make on the environment.

Research Will Make It A Reality

Vinyl's recyclability is well known among processors who do it every day by reusing the vinyl scrap they generate in their production process. More recently, vinyl received its own recycling code under the The Society of the Plastics Industry's "Voluntary Plastic Container Coding System." With this system, which is quickly becoming state law across the country, manufacturers add a special symbol to containers as they are produced in order to identify the type of plastic used. The symbols aid separation and recycling, and are expected to greatly enhance consumer/curb-side separation of plastics. Vinyl containers bear the SPI code of "3-V."

Currently, the most common way to sort plastics for recycling is at solid waste processing centers. Until recently, separating vinyl from other plastic materials this way was difficult because many different products in many shapes and sizes are made from vinyl. That hurdle is expected to be overcome soon, with new research underway at the Center for Plastics Recycling Research at Rutgers University and at National Recovery Technologies, a private company based in

Nashville, Tennessee. Both programs, funded by the Vinyl Institute, are developing technology to automatically identify vinyl containers typically found in municipal solid waste. The technology is based on vinyl's unique chemical make-up and will be available for use by handlers once the development work is completed.

Since separation of individual plastics is not always feasible, the industry also has funded research to explore how vinyl can be mixed with other plastics and recycled together. This research, conducted by Rutgers University, has found that up to 60 percent vinyl can be added to mixed—"commingled"—plastics recipes without affecting end-product properties. This new replacement for special wood and concrete applications like park benches and boat docks opens up additional markets for recycled vinyl.

Waste-To-Energy Remains An Option

Incineration is likely to remain an important part of waste management programs for those products with little recycling potential. Like other plastics, vinyl produces significant amounts of energy when it is incinerated in a waste-to-energy plant. And, it can be incinerated without harm to the environment—a fact demonstrated by the New York State Energy Research and Development Authority (NYSERDA).

Landfilling Will Play A Part, Too

Through recycling and incineration, the amount of vinyl that ends up in landfills likely will decrease substantially in the years ahead. Nevertheless, vinyl remains a stable, inert material that can be landfilled safely. Landfilled vinyl products do not leach harmful chemicals into groundwater and soil, and can help keep landfill contents from shifting and settling. In fact, vinyl sheet often is used as landfill liner material because it is not easily attacked by the chemicals that decomposing landfill material generates.

We Stand Behind A Product With A Future

In the coming century, we believe products will be judged as much on their contribution to society as on their performance and for this reason, we see a bright future for vinyl.

Concern for dwindling natural resources will be one reason. Vinyl products are durable and long-lasting, often with a useful life many times greater than "traditional" materials like wood and metal. Fifty percent of its raw material production comes from salt, a basic, readily available commodity. Additional energy savings are realized when vinyl resin is converted into end products.

Just as important, however, are the contributions vinyl products make to providing the improved quality of life society wants for everyone:

- Pipe made from it economically delivers pure water to places that have never had this basic necessity.
- Medical goods and pharmaceutical packaging made from it help provide a higher, safer standard of health care.
- Wiring made from it makes electrical service safer and more dependable.
- Construction products made from it make housing more affordable.
- Packaging made from it reduces food spoilage and waste.

Through partnerships with our employees, our neighbors and the environment, the vinyl industry can continue to provide these products and more—products that give all of us the best of both worlds.

**A better life for
everyone . Vinyl
products play an
important role.**



A New Century is Coming . . .

*...and a new commitment to the future is growing. We all
know that what we do today will shape the world our children
inherit tomorrow. It means taking responsibility for our
environment—as individuals and as corporations.*

Safeguarding the health and safety of our workers and neighbors.

Finding ways to extend the useful life of the products we make.

Developing new products that will bring a better life to more

*people around the world. We in the vinyl industry are proud
of the responsibility we have taken to make sure these things
happen today, and that they continue to happen in the future.*



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