

Taking Sustainability Seriously

How the specialty graphics industry can minimize the environmental impact of its commonly used plastics.



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In a circular economy, plastics will be recycled again and again to eliminate waste and the continual use of resources. In some cases, “plastics” can be the perceived enemy with the negative press surrounding large quantities of mismanaged, single-use applications in the world. Broadly, in the consumer’s mind, there is no distinction between single-use and performance plastics.

Performance plastics — which include many products used in the specialty graphics industry, such as polyvinyl chloride (PVC) and high-density polyethylene (HDPE) — make very efficient use of resources, especially during the utilization phase. Due to their inherent longevity and durability, they reduce replacement waste and aggregated costs of traditional materials such as wood and metal. PVC sheets are broadly used in the wide-format digital print industry to create venue and exhibit signage, retail and point-of-purchase (POP) displays, and general applications, such as wayfinding, political, regional, community, and educational event signage. HDPE sheets can be used as a rigid backing for monument signs or can be routed to create durable dimensional signage if they contain a contrasting color core. Products made from HDPE can be UV-protected for long-term outdoor use and will resist graffiti.

Not all plastic is created — nor can be recycled — equally. While one type of plastic can be handled relatively easily in the recycling waste stream, another could require additional handling and processing. If properly ushered through their end-of-use lifecycle, many types of plastic can be recycled back into other products.

PVC used in signage, POP, and specialty graphics applications is inherently recyclable. Unprinted droplets and scraps from fabrication, such as trim

waste from a sign cutout, can be recycled into a fresh foamed or solid PVC sheet product. Printed or colored PVC sheets can be reclaimed and used to manufacture sustainable decking products.

Depending on the specification, HDPE sheets may already be made from recycled materials (content varies by manufacturer and customer requirements) and are themselves also 100% recyclable. HDPE is highly functional and can retain its chemical integrity through proper remanufacturing practices.

The Current Recycling Challenge

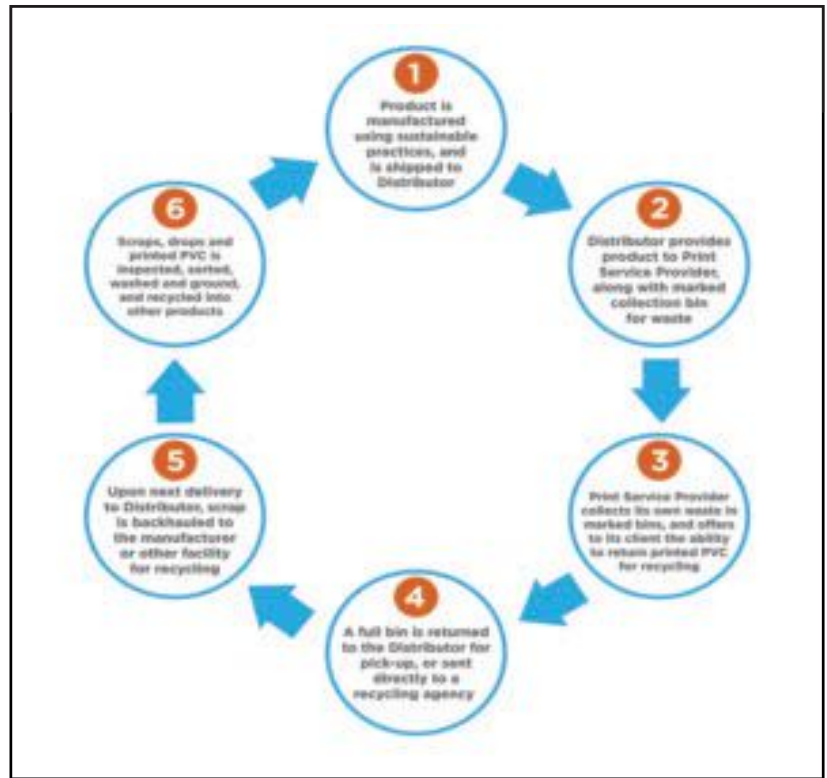
Poorly managed plastic waste is a growing global crisis. An overwhelming amount of plastic is not being properly recovered and recycled. Overseas processing availability for recycling is now limited as China and Malaysia are no longer accepting scrap plastics from foreign countries, which means the U.S. must reinvigorate and reinvest in local recycling initiatives. U.S.-based recycling, as a discrete business, is facing its own set of challenges. For example, in August 2019, rePlanet — California’s largest bottle and can recycling center — closed its remaining 284 sites throughout the state, citing “depressed pricing for scrap aluminum and [polyethylene terephthalate] (PET) plastics, and higher operating costs due to labor changes” as contributing factors. In some communities, post-consumer recyclables are being diverted to incinerators or landfills, as municipalities and waste processors struggle to find a solution for the dwindling availability of recycling partners.

Framework for a Solution

What can the specialty graphics community do to address this now-pressing need? How can we

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**Figure 1:
PVC Recycling.**



better recycle used signage and production waste, and help provide circularity in plastics usage? U.S.-based companies across the supply chain must come together and take on more responsibility for managing plastic waste.

As a network of manufacturers and service providers that produce graphic displays, we're acutely aware of the quantities of PVC used in day-to-day operations as well as in our marketing efforts, such as the large trade shows we attend. The amount of printed graphic waste and scrap could fill dozens of dumpsters before the end of the show, and it all has to eventually go somewhere. Ideally, a coordinated take-back program that's supported by all parties associated with the placement and use of the PVC-based signage is the answer.

The circularity chain is not complete if these materials end up in a landfill. Companies that want to do the right thing and are committed to more effective waste management and recycling are a key component in ensuring these materials do not end up at the garbage dump. Those responsible for distributing the new product from the plastics manufacturer to the print service provider (PSP) can add value by consolidating scrap and used signage from multiple customers to build scale and optimize logistics. The recyclable material can be easily collected in standardized heavy cardboard containers, called gaylords, or secured directly on a pallet and be made ready for shipment with no further handling required.

PSPs can collect and set aside their scrap to be returned to the manufacturer, and they can offer their clients a take-back program for printed graphics. A system that takes used signage from its endpoint and returns it into a process for recycling is one way PSPs can add value to their offerings.

Logistics efficiency is critical to building sustainable take-back programs. Overcoming the cost of freight is a major driver in the success of these programs and efficient shipping is a key component of sustainability, reducing fuel usage and carbon emissions. Consolidated trucks departing from the sheet manufacturer could be used to backhaul material if full truckloads can be achieved and if the final destination is geographically favorable. Figure 1

demonstrates what an ideal PVC Take-Back program could look like.

Taking a Leadership Position

Vycom and its affiliates in The AZEK Company take sustainability seriously. In October 2018, The AZEK Company unveiled its new green recycling plant in Wilmington, Ohio. This dedicated facility accepts post-consumer and post-industrial recycled polyethylene materials from recyclers, waste management companies, and municipalities for reprocessing into multiple product lines including TimberTech deck boards and Vycom sheet products.

At the primary Vycom manufacturing plant in Scranton, Pa., we also purchase post-consumer recycled material from waste management companies that is used in Vycom's sheet products. Here, we can process more than 50 million pounds of recycled material per year — with capabilities including shredding, grinding, and pulverizing PVC raw materials — then manufacture foamed or solid sheet products or decking.

In February 2020, The AZEK Company expanded its capabilities further by acquiring Return Polymers, a leader in PVC recycling and compounding located in Ashland, Ohio. In 2019, Return Polymers was named the first-ever Vinyl Recycler

Vycom was among the 2020 PRINTING United Alliance Sustainable Business Recognition Award recipients for its ongoing commitment to stewarding sustainable practices that support a circular economy. Learn what you can do now to be a 2021 recipient at sgia.org/programs/awards-competitions.

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of the Year by the Vinyl Sustainability Council. We're working closely with our colleagues there to help connect end users of our PVC materials that are looking for sustainable solutions as their products are retired.

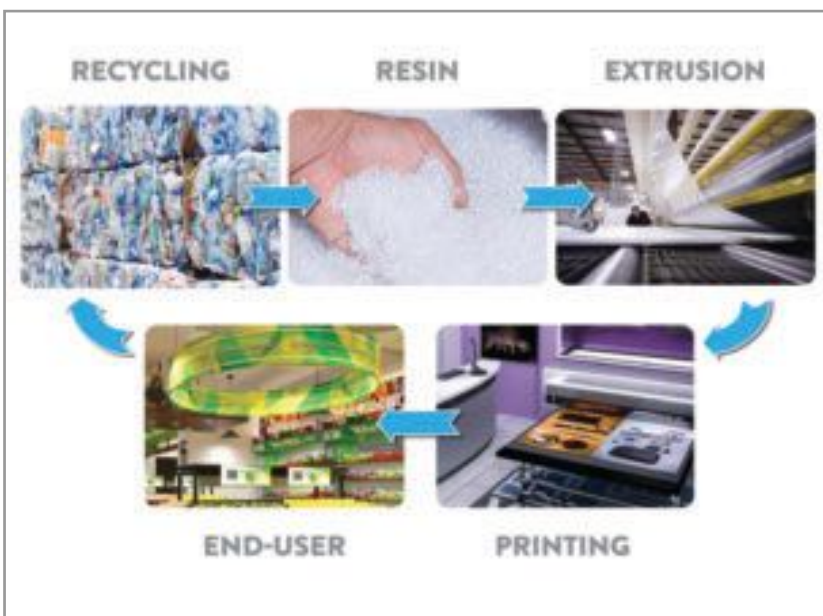
At PRINTING United in October 2019, we originally unveiled plans for our Recycling Take-Back Program intended to capture and recycle printed and unprinted PVC sheets, as well as scraps and drops from finishing and fabricating. The program is intended for users of PVC and PE products — in coordination with authorized distributors for drop-off or collection — to recycle used signage and scrap. Our plan for the 2020 PRINTING United show, working with show management and event services, was to coordinate a pilot recycling program by providing special bins where exhibitors would drop off their scrap or unwanted printed PVC. While that couldn't happen this year, we're looking forward to bringing this service to exhibitors at the 2021 PRINTING United show.

Vycom and The AZEK Company are taking a leadership position in starting the discussion, partnering with key stakeholders, and building recycling programs for the specialty graphics industry. One of our initial partners in this effort is a world leader in supermarket design, retail design, and décor fabrication that serves independent and chain retailers to provide customized retail experiences. We're

Printed or colored PVC sheets can be reclaimed and used to manufacture sustainable decking products.



With a concerted effort by all involved, PVC used in specialty graphics applications can be collected, processed, and recycled.



collecting the retired PVC-based signage as their change-outs occur, and recycling the materials into new products. All scrap is returned to our facilities and recycled into the company's various products, ensuring these materials do not end up in landfills and instead in long-lasting, functional performance products.

The world needs responsible companies to lead the way by making sustainability a core part of their mission, process, and products. State-of-the-art recycling facilities and innovative material process technologies can revolutionize our industry and help protect our planet. Vycom and our affiliated companies are committed to being good stewards of the environment by implementing programs to responsibly manage plastic waste. The future is dependent upon the commitment we make to sustain our natural environment and better utilize our precious resources. We encourage the entire specialty graphics community to join us in this effort. ■

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