



News Letter

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Vinyl is an integral part
of our day to day life



From the desk of Editor

Plastic is a dirty word for many. But little does one realize that without plastics, we will not be able to live the comfortable lives we are used to in this modern world. Consider these: You wake up, the first act of tooth-brushing with toothpaste is contained in a plastic tube; you use the toilet, the seat and the cover are made of plastics; the specs you would then wear will have a plastic frame; the mobile phone you will thereafter handle will contain almost half of its constituent in plastics; and the saga goes on. Without plastics, we cannot go along with our daily lives. This is the reality.

What is important for all of us to know is that we must use plastics in a sustainable way. Which would imply, disposing of them responsibly. Littering around our cities and towns with unused plastic bottles or bags is the biggest cause of concern. If we could somehow throw the used plastics in bins meant for municipal collection (mostly used for recycling or responsible destruction), we would find our surroundings neat and clean, with our drains not clogged, and waterfronts not plagued with unused plastics.

The government has seriously moved to make us more responsible.

The EPR (Extended Producer Responsibility) guidelines for plastic packaging therefore become more important for all of us. The February 2023 guidance notes issued in this matter by the Central Pollution Control Board, Delhi, need to be taken very seriously. The EPR Portal says a lot of stuff, which would help not only to save the earth but also our very own PVC businesses from being viewed negatively.

The guidelines stipulate mandatory targets on EPR, recycling of plastic packaging waste, reuse of rigid plastic packaging and use of recycled plastic content. The guidelines provide for moving towards sustainable plastic packaging and reducing the plastic footprint of plastic packaging. The Government has issued guidelines to provide additional central assistance to the States under the Swachh Bharat Mission for plastic waste management, in urban and rural areas.

The EPR will ensure that plastic producers handle responsibly the packaging they put into the market.

Another tricky but important issue is the single-use plastic items, which have low utility and high littering potential. These have already been prohibited, with effect from 1st July, 2022, through the Plastic Waste Management Amendment Rules, 2021. It prohibits the manufacture, import, stocking, distribution, sale, and use of plastic carry bags having a thickness less than 75 microns with effect from 30th September 2021, and having a thickness less than 120 microns with effect from 31st December 2022. Regular enforcement drives are being undertaken to implement the ban on identified single-use plastic items and on plastic carry bags of thinner varieties.

It may be noted that for effective monitoring of the ban on identified single-use plastic items and plastic waste management, the following online platforms are in operation (a) National Dashboard for monitoring of implementation of comprehensive action plan; (b) CPCB Monitoring Module for Compliance on Elimination of Single Use Plastic, and (c) CPCB Grievance Redressal App.

As a result of these steps, EPR is getting implemented, and private enterprises are manufacturing eco-alternatives. The good news is around 150 manufacturers and startups are already manufacturing eco-alternatives to the banned single-use plastic items.

The business community is working hard to become more responsible. Now, it is the turn of you and me, the common man, to also behave responsibly with plastics. Let's not just 'throw away' the plastic packaging, but collect and dispose of with responsibility. Our children and grandchildren will thank us for our small but sensible acts!

Robin Banerjee



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All about the Indian Vinyl Council



The Indian Vinyl Council is set up and exclusively dedicated to the cause of entire PVC value chain. The objective of the forum is to serve all the stakeholders of Vinyl Family, i.e. the resin producers, additives and related chemical producers, converters, processing and ancillary equipment manufacturers, recyclers of Vinyl products and the end users. With the active and harmonious participation; the members, end users and the public at large will all stand to reap considerable benefits.

The Council will play a pivotal role as the hub of advocacy between the government (state and central), policy makers, regulatory bodies and industry stakeholders to pave the way for the industry by eliminating obstacles and opening the doors to expand the market for the Vinyl industry.

Adding greater momentum to the growth of the Vinyl industry through networking will also be one of the core responsibilities of the Council. It will work towards increasing access to the industry's leaders and enabling them to connect seamlessly with suppliers, academia, regulators, scientists and experts through seminars, conferences, technical meetings and other events.

One of our top priorities is to ensure the efficient diffusion of knowledge to all our members, on the state of art technology, market perspectives, statistics & information and details of global initiatives on sustainability... all relevant to the Vinyl and allied industries.

Our focused approach is to work towards the welfare of mankind and encourage responsible care in an environmentally sustainable manner as practiced and specified in circular economy principles and models.

We strongly believe in supporting & encouraging innovation, and training & skill development within the Vinyl value chain, to facilitate raising the competency and the level of industry to global standards.

We are also committed to developing technical standards for maintaining quality and consistency to enhance the acceptance of Poly Vinyl Chloride and related products and multiply its application in all spheres of life.

IVC Objectives

- To promote and advocate all round development of the entire Vinyl industry comprising of all elements of the Vinyl value chain
- To build a positive image of Vinyl products in eyes of the end-users as well as society at large.
- To assist and collaborate with the government and non-government bodies and statutory authorities for formulating industry related policies including codes and standards and seek representations from such bodies.
- To promote and support standardisation and quality assurance programmes to encourage regulatory compliances.
- To create awareness and educate the end users of the value proposition of PVC products including energy conservation, eco-friendliness and sustainability.
- To support and encourage innovation, training and skill development within the Vinyl value chain and thereby raise the level of industry to global standards.
- To institute and/or fund scientific and economic research in the industry connected with PVC and its products.
- To provide a forum for member associations to collaborate for broadening the market for PVC products.

Corporate Talk

Mr. Ajay Shah :
National Executive Council(NEC) Chairman
Plastindia Foundation Exhibition 2023



Interviewed by
Mr. Vivekanand Sane, President – IVC

Mr. Ajay Shah, Graduated from IIT–Kanpur in 1981 with a Bachelor of Technology in Chemical Engg. and followed it up with a Masters in Financial Management from Bombay University. The Professional Career of Mr. Ajay Shah has spanned over 40 years in the polymers and chemicals industry. In NOCIL, he has experience in multiple functions in a range of chemical and polymer products. This includes international experience with Shell Chemicals in The Hague, Netherlands for 3 years. Currently, Mr. Ajay Shah is the President of Reliance Industries Ltd., Polymer Chain and also, overseeing Sustainability initiatives and the composites business.

Q1. Against many uncertainties and many odds, PLASTINDIA management was successful in delivering 2023 trade show true to an international level. As NEC Chairman, you steered it meticulously, encountering all challenges and made proud of the Indian plastic industry. We appreciate your leadership and commitment. Sir, what are your takebacks?

It was not easy to hold an exhibition of this scale just after the pandemic. Yes, there were hurdles along the way, but the NEC team worked day and night to overcome them. We had the complete support of the Ministry of Chemicals and Fertilizers, ITPO & the Shapoorji Pallonji Group. My heartfelt gratitude to them for helping make this event a success.

The outcome of PLASTINDIA 2023 has been very promising. The innovations and the technologies showcased will set the roadmap for the future. PLASTINDIA 2023 also brought together the industry's brightest minds who used the opportunity to network, explore, and learn more about the industry. It also introduced and familiarized various businesses with state governments and city councils. It was heartening to welcome a large array of bureaucrats and return with a better understanding of the versatility and virtues of plastics post the exhibition.

Q2. Is this success going to be an inspiration to create an opportunity and new avenue for the upcoming entrepreneurs in future shows?

PLASTINDIA 2023 was an incredible platform for the Indian plastics industry. The exhibition was a very good opportunity for Indian exhibitors who showcased parallelly foreign exhibitors. Domestic exhibitors got the support they needed to expand more aggressively. The world is now looking at India and with the right policy support, the country will soon emerge as the global sourcing hub for plastics.

Q3. We have seen record footfalls in this PLASTINDIA 2023 show. The new venue faced many challenges to your team as well as to visitors/exhibitors. How will it transform into a world-class ground in the next PLASTINDIA exhibition?

The venue will be completely ready for the next edition with all the facilities required for an exhibition of PLASTINDIA standards. The pending Hall I with around 14,000 sq ms (Including GF & FF) area, the convention center and meeting rooms with various sizes will be ready. There will be ITPO vendors for food & beverages, including fine dining. The entire basement parking for 4500 vehicles will be available. There will be easy of connectivity with improved mobile connection and additional towers.

Q4. Plastindia Exhibition has always had great interest and influence on the Indian Plastic industry and Market. Does PLASTINDIA have any mechanism to monitor and document the contribution of this exhibition in terms of business growth?

With our focus on innovation, sustainability, growth, and facilitating modern techniques, we could draw attention to the versatility of plastic and how this industry is contributing to the Indian economy. Though business and growth on individual companies are difficult to collect and share, we did bring out a Plastic Industry Status Report highlighting growth in the past year, as has been done for previous editions too.

Q5. Traditionally, PLASTINDIA exhibition was always a trade show parallel with a prestigious two-day PLASTINDIA international conference, covering global business scenarios and technical developments. This year this mega event was missing in PLASTINDIA portal and is a great loss to the technical fraternity. Hope PLASTINDIA will consider continuing this tradition in future shows.

PLASTINDIA supported the International Conference on Plastics & Sustainability organised by ICPE on 3rd of February 2023 during the Exhibition held at The Lalit, Cannught Place, New Delhi .

World's best technology providers in plastics waste management systems, including pre-recycling stages like collection, sorting, cleaning, and processing, shared their experiences during the event. Internationally distinguished scientists, academicians and industrial experts discussed the role and scope of alternate materials like biodegradable and compostable plastics in this regard.

We decided to support the focussed conference by ICPE, which covered the current topical issues . Further,

exhibitors' feedback was lukewarm to a parallel conference, as it diverts the focus away from the exhibition which was a 5 day event instead of the traditional 6 days.

Q6. We have seen increased participation from companies dealing with recycling and sustainability. How do you think this trend will play out in future PLASTINDIA Exhibitions?

The motto of PLASTINDIA 2023 was Innovate, Sustain, Grow.

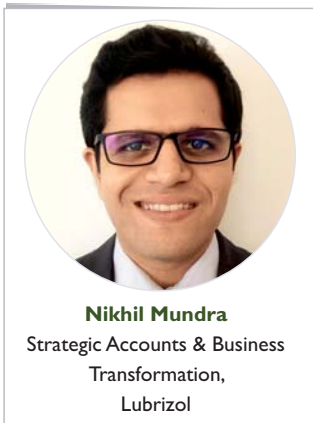
With our focus on innovation, sustainability, and growth, facilitating modern techniques we could draw attention to the versatility of plastic and how this industry is contributing to the Indian economy.

Sustainability did attract a lot of attention. We gave a few stalls to the startups free of cost to encourage recycling and sustainability. We also had paid exhibitors showcasing sustainability and recycling. Processors and products around recycling were showcased and were available for sale. That was another key achievement.

Q7. Do you recommend PLASTINDIA have long team plans to educate the general public and use its platform to act as an influencer?

My personal view would be to have PLASTINDIA exhibitions as a focussed B2B platform for the entire Plastic value chain. Each edition of Plastindia is for the industry and by the industry, and is unique in that sense. Let us not dilute this objective and other aspects of educating the general public or removing the plastic myths in young minds.

CPVC – Core ingredient in India’s growth story



CPVC’s history:

In 1959, Lubrizol (then BF Goodrich), developed CPVC (Chlorinated Polyvinyl Chloride), a unique polymer with several enhanced properties around heat, fire resistance, temperature, and strength.

CPVC is a thermoplastic produced by chlorination of polyvinyl chloride (PVC) resin. With several years of global success across various CPVC product categories, Lubrizol

introduced CPVC plumbing systems in India in 1999 under the FlowGuard® brand name. It was the first CPVC brand that was launched for hot and cold water supplies in India.

CPVC pipes offered several distinct advantages over incumbent materials:

- Ability to withstand higher temperature
- Resistance to corrosion
- Lowest bacterial growth
- Ease of installation
- Long life-span

While initially there were perception issues about how a plastic product could deliver such great properties, regular engagements with key influencers like plumbing consultants, architects, builders, and plumbers to showcase the benefits through tangible results helped in the adoption of this unique product. The CPVC market continued its growth trajectory and by 2010, CPVC had outpaced all other materials as the de-facto material of choice in plumbing applications. Lubrizol invested in India’s first and largest CPVC compounding facility at Dahej, reaffirming its commitment to India’s growth.

Over the past decade the Indian CPVC market has continued to grow at ~10% YoY and in 2022 stood at ~250kMT. It is now the largest as well as fastest growing market in the world in volume terms. Several industry estimates indicate the market’s potential to touch ~400kMT in the next 5 years. There are many beneficial tailwinds that continue to support this trajectory in India:

- Emphasis on driving access to clean drinking water, ~\$50Bn investments planned in next 5 years
- Growth in housing :~40Mn new homes planned in 5 years
- Infrastructure growth as India continues to push its boundaries as a world economy

This strong growth story has encouraged several investment decisions in the recent past, including the world’s largest CPVC resin plant by Lubrizol in partnership with Grasim, part of the Aditya Birla Group, and doubling Lubrizol’s CPVC compounding capacity.

As India’s CPVC industry continues to evolve, there are 5 key factors that will ensure long-term growth and success.



Wider adoption of existing solutions:

While in India CPVC is now synonymous with hot and cold-water plumbing, there are a few pockets that continue to use UPVC pipes instead, especially in cold water and external lines. The use of CPVC across installations provides several distinct benefits, including but not limited to avoiding challenges with hot water backflow, avoiding the use of UPVC solvent cement on CPVC due to human errors as well as avoiding carrying 2 different material inventories and related wastages. A single CPVC system is especially the right technical solution in cases of solar water heater installations, which are increasingly on the rise in India. The incremental cost per sq. ft. of any installation is minimal compared to the several advantages – industry leaders have realized this fact and are now adopting CPVC across installations

Within the piping space, there are non-plumbing categories like industrial pipes and fire sprinkler pipes where CPVC has a strong value proposition. Both these categories are well-established in several global markets - streamlining of regulatory norms and alleviation of perception issues will lead to tremendous growth in these categories in India as well

Innovation:

The use of multiple materials in a single plumbing pipe was invented by Lubrizol with its CPVC-Aluminum-CPVC product “Bendable” - this is a unique technology and has the potential to grow exponentially in India.

Lubrizol along with its partners continues to drive several plumbing innovations beyond pipes. A few recent examples are high-contrast green-coloured solvent cement and a manifold fitting for complex installations.

Beyond pipes, CPVC has already found success in many Western markets in several unique applications like building profiles, window profiles, wires & cables, ACM panels, membranes, etc. CPVC’s properties of better heat/flame resistance and better chemical resistance have helped CPVC create a strong value proposition vs. the incumbent materials in these segments. Continuous innovation in identifying such new applications and adoption of these in the Indian market will further foster growth for CPVC. Towards this, Lubrizol is investing in a dedicated R&D facility in Dahej to ensure we are able to

bring global solutions to the Indian market and further innovate as per market needs

Sustainability:

Piping is the heart of any building installation – the use of CPVC vs. metal has already helped contribute to sustainability due to the relative environmental footprint as well as the longer lifespan of CPVC vs. metal. Lubrizol’s FlowGuard® Plus has been a leader when it comes to sustainability by conducting life cycle assessments and achieving key certifications like IGBC and GRIHA.

The Indian market is now conscious of the need for sustainable solutions – the rise in the number of green buildings and green building products is testimony to that. Thus CPVC as a category is ideal for a sustainability-driven mindset. The next phase of sustainability-based growth will be the adoption of additives that are more sustainable in nature. This can be achieved in 2 ways: either by using more environmentally friendly solutions or by using local/regional additives to reduce the logistics-based environment footprint.

Emphasis on Quality:

As the CPVC market continued to witness unabated growth, there has been a flurry of relatively lower-quality imports. Despite the

government’s strong actions by the imposition of anti-dumping duties, these imports continue due to the strong demand. In addition to this, several companies have started selling spurious products in the name of CPVC. Such lower-quality imports and spurious products pose a risk to the image of the industry and the overall value-creation opportunity. The new BIS CPVC resin standards released in 2022 are a step in the right direction. This combined with the government’s recent ruling on RVC content on source PVC as well as local CPVC production will help ensure that the Indian market uses good quality CPVC. It is imperative for us as an industry to whole-heartedly adopt these standards and regulations and foster compliance to ensure the quality levels are maintained

Stakeholder engagement:

The success and growth of any product/solution is driven by its stakeholders. It is important for the industry to engage with key stakeholders in the value chain and contribute to their growth. One such example is Lubrizol’s FlowGuard® Plus app, a first-of-its-kind mobile app that helps to develop a community of plumbers and encourages their continuous learning journey. The app has been recognized by several awards for being a trailblazer in this category. Such marketing and communication initiatives that go beyond just selling the product and truly engage with our stakeholder communities will be key to the growth of the CPVC category.

Vinyl is an integral part
of our day to day life

Become a **Member,**
to **enjoy** the
IVC Benefits

Industry Updates

Vinyl India International PVC & Chlor - Alkali Summit 2023

The 10th edition of the Vinyl India International PVC & Chlor - Alkali Summit 2023 by ElitePlus Business Services was the two-day Summit held on 26th – 27th April 2023, at Hotel Sahara Star Mumbai, India, after a gap of 3 years.

Vinyl India Summit has been veritably a truly historic event, creating history this year, as it attracted over 1035 delegates from 490 Organizations representing 22 countries, making it the Largest Conference of the Vinyl Industry - Globally. 10th Vinyl India has been widely acclaimed and acknowledged as a grand success, with the wholehearted participation of the entire cross-section of the worldwide Vinyl Industry

The highlight was the whole hearted participation by Policy makers - Shri Arun Baroka, Secretary, Shri Deepak Mishra, Joint Secretary, Department of Chemicals and Petro-Chemicals, Ministry of Chemicals and Fertilisers, Government of India and CIPET leadership team who interacted with industry captains for the 2 days. There was a Global CEO Conclave – first time at Vinyl India - which attracted over 55 CEOs who had close interaction with the DCPC officials - on challenges and way forward for PVC Industry.

The two-day conference consisted of presentations and panel discussions by industry leaders and subject matter experts from across the world, covering the latest innovations & technology developments in PVC industry.

This Summit attracted unparalleled gathering of the brightest minds in the industry, who spent two powerful and packed days together, engaging in high-level networking, sharing information, disseminating the latest information and technologies & collaborating. The Who's Who of the Vinyl Industry including Industry Thought Leaders, Luminaries, Visionaries, Key influencers, Innovators, Veterans, Strategic Heads, Subject Matter Experts, Policy makers attended the pathbreaking Summit. Vinyl India brought together the entire PVC value chain on this platform.

The 2-day Program included 6 power-packed Business sessions and Interactive Q & A sessions. A huge push towards the latest developments, Innovations, New Applications, and Forecasts for the PVC Industry was outlined through multiple business sessions and the panel discussion giving an overview of (a) the Sustainability of PVC Profiles and (b) Making PVC Piping Robust Enough to Withstand Competition.

Nidhi Verma, Founder & MD ElitePlus Business Services who was at helm of the 2 day Summit opened the Summit. The Keynote Speakers in the inaugural session were Mr Vijay Sankar, Deputy Chairman, The Sanmar Group who outlined the Opportunities & Challenges in Meeting India's Growing PVC

Demand, Outlook for India's Agricultural Sector and the role of PVC was covered by Anil Jain, Vice Chairman & CEO, Jain Irrigation Systems. Global Recession and How India is positioned to face it- was addressed by Nilesh Shah Group President & MD, Kotak Mahindra Asset Management.

PVC Business Overview session were presented by; Pulin Rajyagor, Head - Vinyls Growth, Reliance Industries, Senior Director Sustainability, CRISIL, Saumya Chakrabarti, Director - Finolex, Sandeep Engineer, CMD - Astral, Andy Jones, Global SBU Head, Baerlocher.

Innovations in Processing & Downstream Machinery were presented by Clemente Bausano, MD, Rajoo Bausano Extrusion, Yash Parikh, Director, Neoplast Engineering, Rajesh Shinde, Director, Theysohn, Lukas Jenni, Process Engineer, Buss AG, Dhruv Shah, MD, Prasad Group.

Path forward with Sustainability session was addressed by Dr. Michael Schiller, ED- Platinum Industries, Nasrin Kashefi, GM- Plastics Certification Division, NSF International, Mili Majumdar, MD, Green Business Certification Institute & Stefan Eingärtner, Associate, Sustainable Growth Associates.

Latest on Additives & Compounding was addressed by Pushp Jain, MD, KLJ Plasticizers, Dr. Frank Abraham, Manager - Marketing and Technical Service, Galata Chemicals, Rajeev Mehendale, Co-founder and Director, Goldstab Organics, Jagat Chokshi, Director, Basil Prompt Vinyl, Ashish Bhatt, Head of Technical Service - Polymers Region Asia Pacific, Omya India

Innovations in Applications - Solutions for the future were presented by Peter Loetscher, Head Technical Service, ACG Europe, John Chan, Group Technical Manager, Sun Ace, Australia, Dr.(hc) Mario Schmidt, MD, Lingel Windows and Doors Technologies, India & Germany, Robin Banerjee, President, Caprihans India, Jaideep Bihani, Managing Director, Bihani Group.

Session on latest Technology developments were presented by Dr Alexander Poppe, Head of Service - Petrochemicals and Polymers, Thyssenkrupp Industrial Solutions, Germany, Jean-Christophe Millet, Chlor Alkali Hydrogen Main Expert and VCM & PVC Licensing Manager | Lyon Operating Center, Technip Energies, France, Joost Smit, Technology Development Manager, Johnson Matthey, UK, Dr. Ajay Ramesh Bidwe, Global Lead Process Engineer, Dürr Systems, Germany, Padmashri Dr. Swaminathan Sivaram, Former Director, CSIR.

All major Associations and Media bodies partnered for the Summit lending their support. The Gala Dinner was another key highlight where all industry members networked and met face to face after a gap of almost 4 years. The Grand Vinyl India Quiz has been a showstopper for Vinyl India and was the highlight in this 10th edition too.

Industry Updates

The United National Environmental Program

The United National Environmental Program negotiations on a legally binding global agreement on plastic waste was called in the month of May 23 in France. This global meeting debated the latest UN document Turning off the Tap; This report examines the economic and business models needed to address the impacts of the plastics economy and how the world can end plastic pollution and create a circular economy. The report proposes a systems change to address the causes of plastic pollution, combining reducing problematic and unnecessary plastic use with a market transformation towards circularity in plastics. This can be achieved by accelerating three key shifts – reuse, recycle, and reorient and diversify – and actions to deal with the legacy of plastic.

GLUE/ADHESIVES FOR WPC

Over the past decade, WPC Material has carved a strong niche in the wood market. From furniture boards to flooring, WPC is fast emerging as a fast-growing product in all segments. The WPC product market, which has crossed Rs 3,000 crore in the Indian timber and panel market of around Rs 80,000 crore, has attracted everyone's attention. Today, its portfolio includes all the top line wood industry brands of WPC products in India.

Now when any material is for panel furniture or joinery, glue becomes the most important raw material for it. Whether to join panel to panel or to apply decorative material to its surface, a good glue is essential. Today, whatever glue is available in the market for WPC, a description of them is given below, which will be useful for traders, carpenter friends and furniture units of this material.

I. PAPER LAMINATE TO WPC (MICA SHEET)

HEATX of Fevicol (Pidilite) has been in use for this application since long. Recently another glue of Fevicol is also being tested in the market by the company, which is specifically for sticking

PVCWPC with mica sheet.

At present, Astral company's WPC FIX glue is also available in the market for fixing the mica on the WPC sheet.

2. PVC LAMINATE TO WPC

Since last many years PVC laminate is a new product emerging which is suitable for decoration over plywood and WPC boards.

Astral company's WPC Fix is currently available in the market for bonding PVC laminate with plywood.

Fevicol's HEATX is also in use for PVC laminate with WPC board. To apply HEATX, a thin layer of glue is drawn onto the surface of both the board and the laminate. It is necessary to keep this layer of glue evenly spread and thinly spread, otherwise there may be a bubble at that place by pulling the moisture in future. After drying for a while, the laminate is pressed over the board.

Apart from this, BENSON Polymer's glues are available in the market under POLYFIX brand, they can also be suitable for WPC to PVC Laminate, Mica and Wood.

Recently ALSTONE who is a leading Indian manufacturer of WPC products has also launched glue for WPC to Mica, PVC Laminate and Acrylic Laminate. It can be a good option for multiple substrates on WPC.

3. WPC TO WPC

HARDYBOND brand quick fix glue is available in the market for joining WPC with WPC, which is a product of HARDYPLAST. The mechanical name of this adhesive is Cyanoacrylate. The material made of PVC does fast bonding with other materials. The use of HARDYBOND and screws for making furniture will provide strength.

COURTESY: WPCNEWS.IN, POSTED ON JULY 15, 2023

Industry Updates

U.S.A. PVC Recycling Efforts Today and Beyond

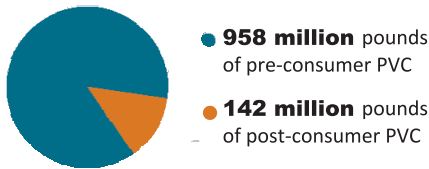


www.vinylinfo.org

The U.S.A. PVC industry is doing its part to reduce plastic waste. We have many efforts underway to grow post-consumer recycling of PVC materials and are exploring circular solutions for PVC applications. We support domestic and international efforts to eliminate plastic pollution that do not impose bans or restrictions on the production or recycling of polymers or products.

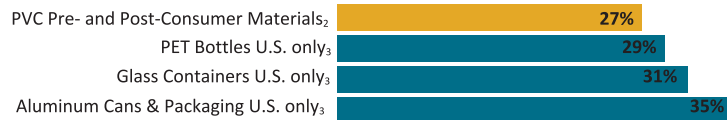
INDUSTRY RECYCLING BENCHMARKS

1.1 Billion pounds of PVC materials are recycled annually in the U.S.A. and Canada¹:



Note: Estimates are from a survey of 140 recyclers in US and Canada, last completed in 2019. Totals exclude manufacturing scrap that is internally reused by the producer

Recycling rates for all PVC materials is comparable to commonly recycled packaging. The VI assessed the recyclability of all PVC materials at the end-of-life, not just certain components. PVC compares favorably to EPA recycling rates for common post-consumer packaging materials.



Note: PVC recycling rate is estimated as Total Recycled Volume / (Total Recycled Volume + EPA Estimate for Municipal Solid Waste + VI Estimate for Construction & Demolition Waste)

ONGOING U.S.A. PVC INDUSTRY EFFORTS TO INCREASE COLLECTION AND USAGE OF POST-CONSUMER RECYCLED CONTENT

2020
The Vinyl industry recycled over **142M lbs.** of post-consumer vinyl material

This number is part of the total 1.1B LBS. of material recycled by the vinyl industry annually in the U.S.A. and Canada.

Increasing commitments from vinyl product manufacturers to collect and use post-consumer recycled PVC content.

SIDING
Collecting & recycling vinyl siding from homes. Collaboration with construction industry and building product distributors leading to scale-up of post-consumer PVC collection programs.

ROOFING
Collecting & recycling commercial roofing when replaced.

MEDICAL DEVICES
Developing programs to collect non-hazardous devices (i.e., saline bags, oxygen masks, tubing) to recycle into new vinyl products.

FUNDING
Providing seed funding through the VIABILITY grant program to accelerate post-consumer PVC recycling.

2025
Grow post-consumer vinyl recycling to **160M lbs.**

OPPORTUNITIES TO GROW CIRCULAR SOLUTIONS FOR PVC RECYCLING

NEAR-TERM OPPORTUNITIES

- Broaden collection and use of post-consumer recycled vinyl**
- Development of consensus standards to improve supply chain transparency
 - Education of design teams on benefits of using recycled content and design for recycling
 - Initiation of new programs to collect products such as consumer goods and automotive interiors

LONG-TERM OPPORTUNITIES

- Support emerging recycling technology**
- Extraction technologies that enable the reuse of chlorine
 - Purification technologies that improve recycled content recovery

Scale globally to support circular and low-carbon economy

- Joint efforts to develop public-private partnerships to grow urban and rural advanced collection infrastructure

1. 2019 Tarnell Company Recyclers Survey (Amounts Sold)
 2. Krock, R., et al, "An Update on PVC Plastic Circularity and Emerging Advanced Recovery Technologies for End-of-Life PVC Materials." REMADE Institute Technical Conference, March 2023. Pre-consumer material includes scrap generated during production of materials which is being diverted from landfill, and excludes internally-consumed 'regrind' material.
 3. 2018 U.S. EPA Plastics: Material Specific Data & Aluminum: Material Specifics Data & Glass: Material Specific Data

Industry Updates

PVC Applications Are Needed to Achieve United Nations Sustainable Development Goals



www.vinylinfo.org

3
GOOD HEALTH AND WELL-BEING

ONE-QUARTER OF ALL MEDICAL DEVICES USE PVC DUE TO ITS PERFORMANCE AND COST-EFFECTIVENESS¹.

PVC Blood Bags Safely Preserve Blood for up to 49 Days

- A storage period of up to 49 days is crucial for preserving the more than 14 million units of blood transfused in the U.S. annually.²
- Patients' safety depends on a stable supply of blood, especially red blood cells that must meet the criteria of a low hemolysis rate without visible hemolysis in the supernatant.³

PVC Flooring, Wall Protection, and Coated Fabrics Help Prevent the Spread of Infectious Bacteria

- PVC interior applications have surfaces that are smooth and impermeable which helps them withstand frequent harsh cleaning, disinfection, and sanitation protocols in medical facilities.⁴

PVC Medical Applications Protect Healthcare Professionals and Caregivers from Serious Contagions

- PVC is one of the only materials that meet strict requirements for personal protective equipment (PPE) – face shields, goggles, and gloves – for doctors, nurses, and caregivers treating virulent diseases like Ebola.⁵
- PVC sterile tubing helps medical professionals administer basic care to people.⁶
- PVC sealant tape used in medical containment units creates an effective barrier for stopping the spread of infectious diseases.
- PVC sealants for medical bottles and containers keep contents fresh and free from bacteria.

6
CLEAN WATER & SANITATION

PVC PIPES SAFELY DELIVER CLEAN WATER AND WASTEWATER

- NSF standards in the United States and some 10 million quality control tests conducted since 1965 ensure that PVC and CPVC safely deliver clean drinking water.
- PVC pipe has a smooth, non-corrosive surface that stays clean even after decades of use, unlike iron pipe, which suffers from tuberculation, a form of internal corrosion and bio-film contamination that can be a breeding ground for bacteria like E-coli⁷ and Legionella.⁸
- The non-corrosiveness of PVC pipe prevents loss of clean water and seepage of sewage in regions with corrosive soil conditions, unlike metal piping materials.
- The durability and non-corrosiveness of PVC pipes make them critical components of desalination plants.
- PVC pipe is often used as a core component of water wells because they are long-lasting, easy to install, and cost-effective.

11
SUSTAINABLE CITIES AND COMMUNITIES

PVC PIPES ARE A LOWER CARBON SOLUTION FOR INFRASTRUCTURE

- PVC has a well-documented lower carbon footprint when compared to other piping materials like iron, copper, cement, or clay.⁹
- Durable PVC pipes are also proven as the longest-lasting (100+ year service life) of all pipe materials, meaning fewer replacements are needed, and therefore less embodied carbon is required to maintain system integrity over time.⁹
- PVC pipe is lightweight making it easier to transport and install resulting in less GHG emissions.⁹
- PVC pipes have significantly lower total GHG emissions during production than other pipe materials.¹⁰
- In sewer pipe applications, PVC has lower GHG emissions, approximately 45 percent lower than reinforced concrete pipes and 35 percent lower than ductile iron pipes.¹⁰
- PVC piping systems require less energy to pump water resulting in cost, energy, and carbon savings.¹¹

12
RESPONSIBLE CONSUMPTION AND PRODUCTION

PVC APPLICATIONS PROVIDE FOOD SAFETY & SECURITY, AND STOP WASTE

- PVC films protect food products from microorganisms that breed quickly on uncovered food and help prevent food waste.
- Used as an interior metal can liner, vinyl coatings protect the can contents and protect the can from corroding due to acids in the food or beverage thereby increasing product shelf-life.
- Vinyl sealants provide airtight seals for caps and closures on food and beverage bottles and jars keeping food fresh and bacteria out – also preventing food and beverage waste.
- Clear PVC tubes are vital for the construction of bioreactors which produce algae for food, aquaculture, pollution control, and natural carbon sequestration.

1. <https://pvcmed.org/healthcare/facts-figures/>
2. <https://www.cdc.gov/bloodsafety/basics.html>
3. <https://pvcmed.org/healthcare/safe-and-innovative-pvc-blood-bags/>
4. <https://www.iands.design/sourcetextiles/article/21066721/the-time-for-upholstered-fabric-performance-in-healthcare-is-now>
5. PVCMed Alliance. *Fighting Ebola with PVC* (Mar. 10, 2018), available at <https://pvcmed.org/fighting-ebola-with-pvc>
6. https://cdn.who.int/media/docs/default-source/medical-devices/meddev-list-ebola-25nov-en.pdf?fvrsns=61168871_4&download=true
7. <https://www.uni-bell.org/About-Us/Public-Health>
8. <https://www.nationalacademies.org/news/2019/08/stronger-policies-needed-to-protect-the-public-from-legionnaires-disease>
9. PVC Pipe Association Environmental Product Declaration <https://www.uni-bell.org/communication/images/environmental-product-declaration-for-water-and-sewer-piping.pdf>
10. McKinsey and Company, *Climate Impact of Plastics*, July 2022
11. 2022 cadeo Study Agriculture Energy Efficiency Ag Efficiency draft_Final 25SEP2022 (vinylinfo.org)

Industry Updates

Life Cycle Analysis PVC Flex

Communication plays a significant role in society as it is the foundation of all human relationships. Outdoor advertising has been effectively used for hundreds of years as a part of marketing communication. The technological explosion in the digital era has made advertising much easier, cheaper and customized.

A Flex banner is a digitally printed advertisement that is primarily kept along the sides of the roads so as to attract people's attention and make a memorable impression. It can be considered the most widely used medium for outdoor advertising as it is extremely flexible, cost-effective, durable, recyclable, and portable. The Government of India utilizes the Flex banners to communicate the various social schemes and regulatory announcements to a large audience in urban and rural areas. The commercial advertisements by private companies help in the extensive marketing of their products/brands/services to the consumers.

According to the Technology Upgradation Fund Scheme (TUFS) launched by the Ministry of Textiles, Government of India, Flex banners have been placed under the category of Technical Textiles. A Flex banner is commonly known as a "PVC banner" in India which is a misnomer as it is a three-layer laminated structure wherein the polyester fabric is sandwiched between the films consisting of compounded calcium carbonate (CaCO₃), polyvinyl chloride (PVC) resin, plasticizers and additives. The polyester fabric imparts rigidity and durability while the PVC films provide flexibility and enable low-cost digital printability of the Flex banners.

Due to the numerous benefits offered by the Flex banners, they serve as a compelling medium for outdoor communication. There are no other commercially viable alternatives with similar technological functionality. In this study, metallic boards and fabric/cloth banners have been utilized for comparison with the Flex banners. They possess various constraints like size restrictions, poor printability, durability, and weatherability which severely restrict their usage even at higher costs of fabrication. Large LED screens have not been able to replace the Flex banners for outdoor advertising purposes owing to the sophisticated installation and exorbitant costs of production and maintenance.

The common misconceptions that are associated with the Flex banners are:

Flex banners are flammable: Lab trials as well as international research articles have clearly stated that PVC by itself is self-extinguishing when the source of the flame is removed. In the

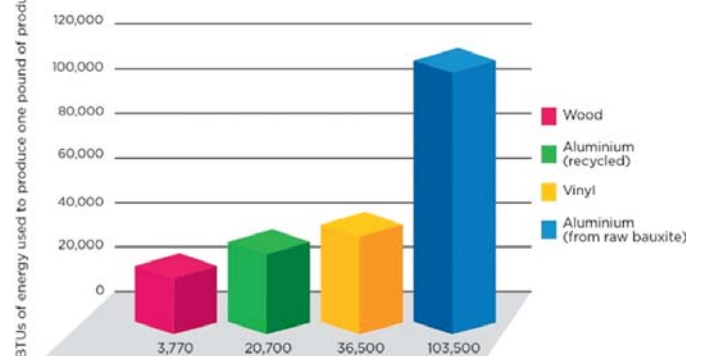
event of the ignition of PVC during an accidental fire, it mainly contributes to extinguishing rather than spreading the fire.

Flex banners generate dioxins: Due to the self-extinguishing property, the Flex banners do not sustain burning which in turn eliminates the possibility of dioxin generation. Even during the production, the processing temperature of PVC does not exceed 200°C which is much below the threshold temperature.

Flex banners are non-recyclable: Similar to most of the products made from PVC, the Flex banners are also reusable and recyclable which enables them to be used in multiple product life cycles without the degradation of the component material.

The inherent advantages of the Flex banners include low cost, environmentally friendly, durable, completely recyclable, convenient installation, endures adverse weather conditions, available in multiple sizes, ease of printing and maintenance.

Life cycle analysis is an extensive environmental management tool that is used for evaluating the effects of a process or a product on the environment. It offers a quantitative assessment of the consumption and disposal of materials by the system. Energy conservation and efficient energy usage are pivotal factors that should be taken into account during any fabrication process. The main goal must be to reduce the amount of energy required to provide the products/services through the implementation of new and creative technologies. Embodied energy is the sum of all the energies desired to yield a product or service. It is highly useful to calculate how successful/effective a product or service produces or saves energy



Polyester yarn is utilized for the production of the knitted fabric. The power consumed for manufacturing 1 t of fabric lies in the range of 500-550 kW and the cost is around 3.25-4.25 per kg. The production capacity per person for a particular day is approximately 225-275 kg of Flex banner. Water is used for cooling purposes which is recycled with the help of cooling towers and chillers. No chemical treatment is used while recycling the Flex banners.

Table: Resource Requirement for the Production of 1 kg of Flex Banner

Industry Updates

Types of Transportation	Average Distance (km)	Average Fuel Consumption	Average Fuel Consumption for 15 t (l)	Average Fuel Requirement (l/kg)
From the factory to the dealer	800	4-5 km/l	160-200	0.12
From the dealer to the printer	100		20-25	0.002
From the printer to the site	50		10-12	0.001
Total	Fuel	Requirement		0.123 l/kg

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Total	Fuel	Requirement		0.123 l/kg

The average lifetime of a Flex banner ranges from 6 months to 7 years,. Flex banners clearly belong to the category of B2B products which are printed and installed even by small and medium business establishments. After their usage, they carry an economic value as they can be reused as tarpaulin, roof covers, truck covers, rickshaw covers, food grain covers, bags, sitting mats etc. They can also be recycled wherein the constituents are separated by means of a mechanical shredding process. The PVC compound can be utilized for flooring and manufacture of footwear, geotextiles etc. while the shredded polyester fabric can be used as soft fillers in the mattresses and pillows. The Government of India recently issued Guidelines encouraging the use of plastics including PVC for laying roads. The Central Road Research Institute (CRRI) has been conducting research on the usage of the scrap of the Flex banners for bituminous road construction.

	500 Cal/kg of Flex banner
Grinding and separation	0.3 kW
Downstream power consumption	0.3 kW
Energy required for the production of 1 kg of Polyester fabric	0.6 kW

CREDIT

All India Laminated Fabric Manufacturers Association, New Delhi, India & Department of Materials Science and Engineering, Indian Institute of Technology Delhi

VISIT OUR WEBSITE

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FOR REPORTS & NEWS



INDIAN VINYL COUNCIL

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Mumbai - 400 099, Maharashtra. INDIA
Tel.: +91 22 67489899
Email ID : membership@indianvinylcouncil.com
Website: indianvinylcouncil.com

Reg. No. : GUJ/21190/Ahmedabad (Registrar of Societies)

MEMBERSHIP APPLICATION

Date of application: _____

Name of the organization : _____

Business Address : _____

City : _____ Pin : _____ State : _____

Tel. : _____ Email: _____ Website: _____

Factory Address (if applicable) : _____

City : _____ Pin : _____ State : _____

Tel. : _____ Email: _____ Website: _____

Date of Establishment GST No.

Category of Business (Please tick mark wherever applicable) (see page 3 and 4 for criteria of type of membership)

- Manufacturer of PVC resin Additives manufacturer Processor of PVC Equipment manufacturer
- Trader/Distributor Institution/Association Consulting firm Others

Annual Turnover of last financial year Rs.

Nature of business:

Name of Authorized Representatives	Designation	Specimen Signature	Mobile No	Email ID
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(Principle Member)

(Alternate Member)

Category of Membership Applied for (Please tick mark wherever applicable):

- Privilege Associate Donor

Name of the authorized Person: _____

SIGNATURE _____

FOR OFFICIAL USE

Received on:

Accepted at the Managing Committee Meeting held on

Sign of Hon. Secretary / Auth. Signatory

Send the filled form along with the cheque to :
Indian Vinyl Council, 101/102 terminal -9, Nehru Road, neat Hotel Sahara Star, Vile Parle (E) , Mumbai 400099 .India

FEE STRUCTURE

A) Privilege Members :Individuals in the Business of PVC, Corporate in PVC business , PVC compounders, PVC converters, PVC end product fabricators and any other company engaged in the field of PVC value chain or furthering the object of the Society, may be admitted as Privilege Member

Figures in Rupees

Please tick as applicable category					
Company Turnover	0-100 Cr	100-250 Cr	250-500 Cr	500-1000 Cr	1000+ Cr
ADMISSION CHARGE	5000	5000	5000	5000	5000
ANNUAL MEMBERSHIP FEE	25000	50000	75000	100000	250000
TOTAL	30000	55000	80000	105000	255000
ADD GST (18%)	5400	9900	14400	18900	45900
TOTAL	35400	64900	94400	123900	300900
LESS TDS (10%)	3000	5500	8000	10500	25500
TOTAL PAYABLE	32400	59400	86400	113400	275400

B) Associate Member: Any society, association, chamber of commerce or other not-for-profit organization, trust, foundation etc. registered as per the applicable law and representing manufacturing industries, service providers, suppliers, end users, dealer etc. belonging to the Vinyl chain from the India, may be admitted as Associate Member of the Society

Figures in Rupees

Membership Fee	10,000
One Time Enrolment Fee	5,000
Total	15,000
Add GST 18%	2700
Total	17700
Less TDS @ 10% (for F/Y 21-22)	1500
Total Payable	16200

Above mentioned are Annual fees and become due in April every year.

C) Donor Member: Individuals, firms, trusts, foundations, institutions, bodies corporate or associations supporting or desirous of supporting, or furthering the objects of the Society, may, on payment of the lump sum donations, as is fixed by the Society from time to time.

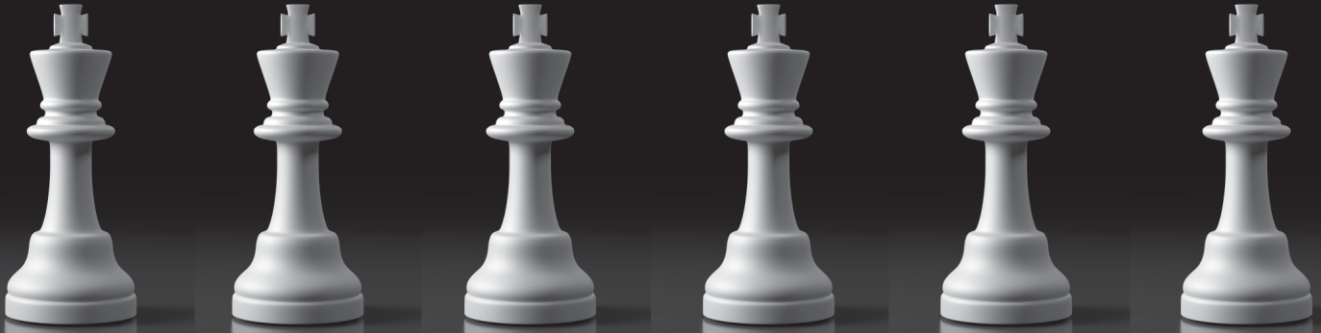
Donation will be accepted in multiples of Rs 1.0 Lakh and minimum of Rs 5.0 lakhs

VISIT OUR WEBSITE

www.indianvinylcouncil.com

**FOR ONLINE MEMBERSHIP
APPLICATION**

Privilege Members of IVC



- 1 Amisha Vinyls Private Limited
- 2 Asia Pacific Vinyl Network
- 3 Baerlocher India Additives Private Limited
- 4 Basil Prompt Vinyl Private Limited
- 5 Bharat Milling Industries
- 6 Bihani Manufacturing Company Private Limited
- 7 Cooldeck Industries Pvt. Ltd
- 8 Deceuninck Profiles India Private Limited
- 9 Encraft India Private Limited
- 10 Finolex Industries Limited
- 11 Goldstab Organics Private Limited
- 12 Karan Polymers Pvt. Ltd
- 13 Lubrizol
- 14 Manish Packaging Private Limited
- 15 NCL Veka Limited
- 16 Ori-Plast Limited
- 17 Pioneer Polyleathers Private Limited
- 18 Platinum Industries Private Limited
- 19 Prabhu Poly Pipes Ltd
- 20 PVC Converters (India) Private Limited
- 21 Reagens India Polymer Additives Private Limited
- 22 Reliance Industries Limited
- 23 Shand Pipe Industry Pvt. Ltd
- 24 Sun Ace Chemical India (Private) Limited
- 25 The Supreme Industries Limited
- 26 Theysohn Extrusion



INDIAN VINYL COUNCIL

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GSTIN : 24AABTI 7693 EIZJ

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Visit our Website : www.indianvinylcouncil.com



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