



# Vinyl 2010

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In 2000, the European polyvinyl chloride (PVC) industry launched Vinyl 2010 – a voluntary commitment to achieve ambitious targets by the end of the decade on collection and recycling of post-consumer PVC waste, the phase out of certain additives, minimising the environmental impact of PVC production, and encouraging social dialogue between all of the industry's stakeholders.



## Why did the European PVC industry set up Vinyl 2010?

PVC is one of the most widely used polymers in the world and is noted for its strong cost-performance qualities. Due to its versatile nature, it has traditionally been used extensively across different sectors and brings important benefits to products and applications in construction, automotive, medical, electrical and electronic and retail sectors. Examples of its applications range from making cars lighter, more resistant against corrosion, making windows that last longer, allowing fresh water savings through durable pipes and storing blood to help save lives.

PVC has many properties that meet key sustainability criteria - amongst other things it is lightweight and highly durable which contributes to an efficient use of natural resources. However, by the late 1990's, these qualities were being eclipsed by concerns over the use of certain additives as well as the lack of recycling options for PVC products once they had reached their "end-of-life" phase.

Aware that these concerns might materialize into damaging regulation, in 2000 the European PVC industry took the pioneering step of developing a set of ambitious and measurable targets to be achieved over the following ten years. Vinyl 2010 was born.

## The Vinyl 2010 Players

Vinyl 2010 is a unique European commitment in that has brought together all stages of the PVC value chain, from raw material suppliers, to additive manufacturers and the converters who manufacture and distribute their products. It involves around 21,000 companies (including small and medium sized businesses) employing over 500,000 people.

The different sectors are represented by the Vinyl 2010 partner associations:

- ESPA (European Stabiliser Producers Association)
- ECPI (European Council for Plasticisers and Intermediates)
- ECVM (European Council of Vinyl Manufacturers)
- EuPC (the European Plastics Converters)

The implementation of Vinyl 2010 has been overseen by an Independent Monitoring Committee, consisting of representatives of the European Commission, the European Parliament and various trade unions and consumer associations. Since October 2004, Vinyl 2010 has been a Partnership registered with the Secretariat of the UN Commission of Sustainable Development.

## Vinyl 2010 – the targets

The voluntary targets set by industry in 2000 included:

- The recycling by end 2010 of an additional 200,000 tonnes/year of unregulated 'post-consumer' PVC waste beyond what was already covered by European legislation on end-life-vehicles, electric and electronic equipment and packaging and the limited amount of post-consumer waste already recycled in Europe in 1999;
- A plan for full replacement of lead stabilisers by 2015, in addition to the quick phase-out of cadmium stabilisers;
- Ongoing research on the part of the plasticiser industry in order to provide scientific studies and expertise to help policy makers develop well informed decisions
- A Research and Development programme on new recycling and recovery technologies, including feedstock recycling and solvent-based technology;
- The implementation of a social charter signed with the European Mine, Chemical and Energy Worker's Federation (EMCEF) to develop a social dialogue as well as training, health, safety and environmental standards

Meeting these targets, would require not only changing established production processes, but also incorporating a completely new "end-of-life" dimension into the business model of the PVC sector in Europe.

No long-term programme can remain static so, as planned from the beginning, the Voluntary Commitment was subject to a mid-term revision of targets in 2005 to take into account practical experience, technical progress and the enlargement of the European Union. The revised Voluntary Commitment was rolled out across the EU-27 in 2007.

## Vinyl 2010 Moving Forwards

Ten years on, all major targets have been met or exceeded and a new sustainable business model involving the whole value chain has been created. Vinyl 2010's final Progress Report highlights the huge advances made by the industry over the past decade in waste management, innovative recycling technologies, stakeholder engagement and responsible use of additives.

Over 21,000 European companies took part in the voluntary commitment and invested an estimated total €57,500,000, this investment paid off as Vinyl 2010 has succeeded in meeting or exceeding the key targets set by the industry in 2000. The audit results show that in the last year alone over 260,000 tonnes of unregulated post-consumer PVC waste were recycled by Vinyl 2010's network of PVC recyclers across Europe, well beyond the initial goal of recycling an additional 200,000 tonnes on an annual basis by 2010. The voluntary commitment has been credited with revolutionising the sustainable use of PVC in Europe, while maintaining its status as cost-efficient, multi-purpose material in a range of applications.

The achievements of Vinyl 2010 are particularly notable when it comes to collection and recycling. In 1999, there was virtually no infrastructure for recycling of PVC in Europe and it was dismissed by many as an "unrecyclable" material. Major steps to improve collection of PVC as well as investments in research into new recycling technologies have led to exciting breakthroughs for the sector.



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## Vinyloop – Mechanical Solvent-Based Recycling Technology

Advances in this sector include the development of Vinyloop® - a mechanical, solvent-based, recycling technology that produces high quality R-PVC (recycled PVC) compounds. The purpose of Vinyloop® is, among others, to recycle PVC composite waste which cannot be satisfactorily recycled by a grinding process. After the installation of the new decanter and the integration with the Texyloop® process in 2009, Vinyloop® experienced significant technical improvements in 2010. With regards to the centrifugal decanter, successful trials were conducted with lower rotational speed which resulted in energy consumption savings. Mechanical problems concerning, for example, mechanical seals and screw conveyors were also solved. Likewise, for Texyloop® several technical problems were solved, these included improvement in the strength of materials such as the bottom valve and the agitator and the clogging of the filtration plate due to the presence of fibres. Problems with the colouration of the fibres were also solved and the plant can now deliver white polyester fibres.



These technical improvements resulted in an increase of the volumes treated and of the R-PVC production: in 2010, Vinyloop® treated 5,656 tonnes of PVC waste of which 5,416 tonnes were cables and 174 tonnes were tarpaulins; 66 tonnes were made up of low quality window profiles scraps otherwise difficult to use, resulting in a production total of 3,615 tonnes of R-PVC. The high quality of the R-PVC obtained in the Vinyloop® plant was confirmed by the technical data collected in 2010.

The Ferrara Vinyloop® plant is used also as pilot plant for industrial research. In 2010, trials started for the treatment of coated textiles (cotton and PET), and a new product, called FP101, was developed. The FP101 formulation may include rigid scraps that grant a greater rigidity to the compound. Further trials are scheduled in 2011, and different waste streams such as flooring, roofing membranes and coated textiles with cotton, PET and glass fibre will be tested. Important research will be conducted on the possibility of obtaining a semi-rigid R-PVC, adding not only rigid scraps to the flexible PVC generally treated, but also a filler.

In 2010, Vinyloop® experienced increasing signs of higher sensitivity to recycled products: from a higher demand for treating new kinds of scraps and for tailor-made production, to pressure from final consumers (environmental sensitive people and retailers) to Vinyloop®'s potential customers, as demonstrated by a market research institute. Furthermore, Vinyloop® received several proposals to build new plants from different countries in Asia and South America.

For the future, based on the developments of the Vinyloop® process and the increasing demand from the market, the Vinyloop® management is planning to develop life cycle assessment (LCA) studies on the process and the main commercial applications, to give an added environmental value to customers. The management will also aim at interacting with a new kind of potential proactive customers ready to consider Vinyloop® as a genuine partner supplier in sustainable development.

## Life after Vinyl 2010

The success of Vinyl 2010 lies in its voluntary nature. To date it is the only industry commitment of this kind to have been successful in achieving concrete outcomes that have arguably been more effective overall than would have been the case through legislation. This was due to the industry's ability to identify and take preemptive action on challenging issues. By taking the initiative and driving a sustainability agenda, the PVC industry has been able to remain competitive in Europe, while at the same time enhancing the benefits of its product to society. In doing so it has contributed to the creation of a new recycling industry in Europe.

VinylPlus the successor to Vinyl 2010 will be launched in June 2011. The PVC industry intends to build on the progress made to date and is looking to drive further innovation and broaden industry commitment in order to ensure the ongoing recognition of PVC as a material of choice in sustainable purchasing across a wide range of applications.

## Vinyl 2010 In Numbers

- **1** - the only industry voluntary commitment of its kind that involves the entire upstream and downstream chain – from raw material production to post-consumer waste
- **7** - the number of times PVC can be recycled today
- **20%** - the estimated loss of market share to the PVC industry (due to regulation and customers choosing alternatives to PVC) if Vinyl 2010 had not been established
- **50%** - of total use PVC in Europe is in profiles and pipes and more than half of the waste from these sectors is now being recycled from a starting point of zero ten years ago.
- **75%** - the reduction in the use of lead stabilisers used to produce PVC (as of 2010)
- **150** - recyclers working under the Recovynil umbrella, created thanks to Vinyl 2010's focus on end-of-life that helped establish a new recycling industry
- **450** - the number of Empire State buildings that could be covered by all the PVC profiles that were recycled in 2009
- **4,500** - the equivalent weight in Airbus planes of post-consumer PVC waste recycled in 2009
- **21,000** - the number of European companies involved in Vinyl 2010
- **200,000** - Vinyl 2010's annual recycling target in tonnes for post-consumer PVC waste by 2010
- **500,000** - the number of people employed by the PVC industry
- **949,827** - the number of tonnes of post-consumer PVC waste which have been recycled since 2000
- **57,500,000** - estimated total spending in euro on Vinyl 2010 by member companies (as of 2010)
- **80,000,000,000** - the estimated market value in euro of all the PVC products produced in Europe each year