

# Progress Report 2013

Reporting on the activities of the year 2012



# Table of Contents

- 03 I 2012 Year Highlights**
- 04 I Management and Monitoring**
  - 04 I Management Board
  - 04 I Monitoring Committee
- 05 I Foreword**
- 06 I Voluntary Commitment Challenges and Achievements**
  - 07 I Challenge 1
  - 11 I Challenge 2
  - 13 I Challenge 3
  - 15 I Challenge 4
  - 17 I Challenge 5
  - 20 I VinylPlus Partners
- 21 I Financial Report**
- 22 I Verification Statements**
  - 22 I KPMG Certification of Expenditure
  - 23 I KPMG Certification of Tonnages
  - 24 I SGS Verification Statement
- 25 I The Natural Step Commentary**
- 26 I Appendix 1 – Glossary**
- 27 I The PVC Industry**

**Cover: Estonia Pavilion, Shanghai, China.**

A functional PVC-coated mesh fabric wraps the Estonia Pavilion designed by Alianss Arhitektid for the Expo 2010 in Shanghai. The mesh, inspired by the traditional colours of Estonian women's costumes, provides micro-ventilation and allows outward visibility to visitors inside.

# 2012 Year Highlights

VinylPlus is the European PVC industry's ten-year Voluntary Commitment to Sustainable Development. It has been developed in an open process of stakeholder dialogue, including private companies, NGOs, regulators, civil society representatives, and PVC users. The scope of the programme extends to the EU-27 plus Norway and Switzerland.

Five key sustainability challenges have been identified as priorities according to The Natural Step's System Conditions for a Sustainable Society.

## **Controlled-loop Management**

In line with the wider scope of VinylPlus, an updated definition of 'recycled PVC' has been agreed where: "*Recycled PVC is a discarded PVC product or semi-finished product that is diverted from waste for use within a new product. Processing waste is included, provided that it cannot be re-used in the same process that generated the waste.*" In 2012, based on this new definition and including some of the regulated waste streams that are covered by the programme, 362,076 tonnes of PVC were recycled in Europe within the framework of VinylPlus. In addition to VinyLoop® and Texyloop®, other innovative technologies to recycle difficult-to-treat PVC waste are under evaluation. During the year, significant efforts were made to address the 'legacy additives' issue.

## **Organochlorine Emissions**

In order to address the concerns on organochlorines, in 2012 VinylPlus prepared a technical briefing paper for distribution to a wide list of stakeholders. In November, the first VinylPlus stakeholder event was held in Vienna, Austria, involving national and local institutions and NGOs. The new audit on the PVC Industry Charters shows a 96% full compliance. No accidents with VCM release during transportation occurred in 2012.

## **Sustainable Use of Additives**

In 2012, lead stabiliser consumption decreased by 76.37% in the EU-27 compared to 2007, and remains on track to complete the substitution by the end of 2015. The replacement of DEHP by High Molecular Weight phthalates and/or other plasticisers is ongoing. The Additives Task Force agreed to focus its work on updating existing LCAs and EPDs as well as assessing substances consistently with the sustainability principles of The Natural Step.

## **Sustainable Energy Use**

Both the Energy Efficiency Task Force and the Renewable Materials Task Force are fully operational. In 2012, they started analysing the current status and feasible solutions to decrease the European PVC industry's non-renewable energy consumption by 2020. An ad hoc Task Force on Sustainability Footprinting was set up in 2012. It will initially focus on developing a Product Environmental Footprint (PEF) to be extended into a Sustainable Product Footprint at a second stage.

## **Sustainability Awareness**

With the objective of reinforcing the Voluntary Commitment messages along the value chain, joint communication projects with the European industry sector and national PVC associations were promoted and supported by VinylPlus in 2012. A Partner Certificate that companies can use in their internal and external communications was implemented. The VinylPlus product label concept has been developed bottom up, involving external stakeholders. In June 2012, VinylPlus participated in Rio+20, the United Nations Conference on Sustainable Development. In addition, the VinylPlus Voluntary Commitment has been included in the Rio+20 Registry of Commitments.

# Management and Monitoring

## Management Board

VinylPlus is managed by a comprehensive Board representing all of the European PVC industry sectors.

### Members

**Mr Filipe Constant** – Chairman (ECVM 2010)

**Mr Alexandre Dangis** – EuPC

**Dr Brigitte Dero** – Deputy General Manager (ECVM 2010)

**Mr Joachim Eckstein** – Vice Chairman (EuPC)

**Dr Josef Ertl** – ECVM 2010

**Mr Rainer Grasmück** – Treasurer (ESPA)

**Mr Andreas Hartleif** – EuPC (Rigid PVC sector)

**Mr Michael Kundel** – EuPC (Flexible PVC sector)

**Mrs Dominique Madalinski** – EuPC (Flexible PVC sector)

**Dr Ettore Nanni** – SPA

**Dr Norbert Scholz** – ECPI\*

**Mr Arjen Sevenster** – Controller (ECVM 2010)

**Mr Chris Tane** – ECVM 2010

**Mr Hans Telgen** – EuPC (Rigid PVC sector)

**Mr Geoffroy Tillieux** – Controller (EuPC)

\*Until December 2012

## Monitoring Committee

The Monitoring Committee plays a fundamental role in ensuring VinylPlus' transparency, participation and accountability. Open to external stakeholders, the Committee guarantees an independent evaluation of the initiatives undertaken in the framework of the Voluntary Commitment and gives guidance and advice. It currently includes representatives from the European Commission, the European Parliament, trade unions and consumer associations, as well as representatives from the European PVC industry. It is chaired by Professor Alfons Buekens of the Free University of Brussels.

### Members

**Mrs Soledad Blanco** – Directorate-General Environment, European Commission

**Prof. Alfons Buekens** – VUB<sup>1</sup>, Chairman of the Monitoring Committee

**Mr Filipe Constant** – Chairman of VinylPlus

**Mr Gwenole Cozigou** – Directorate-General Enterprise and Industry, European Commission

**Mr Alexandre Dangis** – VinylPlus Board Member

**Dr Brigitte Dero** – Deputy General Manager of VinylPlus

**Mr Joachim Eckstein** – Vice Chairman of VinylPlus

**Mr Rainer Grasmück** – Treasurer of VinylPlus

**Mr Sajjad Karim** – Member of the European Parliament

**Dr Godelieve Quisthoudt-Rowohl** – Member of the European Parliament

**Mr Jorma Rusanen** – Senior Policy Officer, IndustriAll European Trade Union<sup>2</sup>

**Mr Carlos Sánchez-Reyes de Palacio** – President of OCU<sup>3</sup>, President of the Commission on Sectoral Policies and Environment, CES<sup>4</sup>

<sup>1</sup>VUB: Vrije Universiteit Brussel (Free University of Brussels – [www.vub.ac.be](http://www.vub.ac.be))

<sup>2</sup>IndustriAll European Trade Union ([www.industriall-europe.eu](http://www.industriall-europe.eu))

<sup>3</sup>OCU: Organización de Consumidores y Usuarios (Spanish Consumers and Users Organisation – [www.ocu.org](http://www.ocu.org))

<sup>4</sup>CES: Consejo Económico y Social de España (Spanish Economic and Social Council – [www.ces.es](http://www.ces.es))



# Foreword from the Chairman of VinylPlus

*Commitment, cooperation, effectiveness. I believe these three key words are an excellent representation of the work done by VinylPlus in a demanding 2012. Together with the commitment of all the VinylPlus people, we were very pleased to see the proactive involvement in our initiatives of PVC networks, associations, companies and organisations. A number of Task Forces have been activated to better cope with the targets of our five challenges, in several cases directly involving The Natural Step and other external stakeholders.*

*Maximum effort has been put into making the work of our different Task Forces more and more consistent and effective by sharing information, methodologies and advice.*

*New recycling technologies are under evaluation to identify the best options for difficult-to-recycle PVC waste. Recovinyl was reorganised to make it fit for the recycling of 800,000 tonnes of PVC waste a year, in line with our new wider recycling targets and with the objective of making it become a 'pull market agent', including now also the converters in the network. At the same time, costs were substantially reduced to allow for a long-term financially viable platform.*

*Transparency and common rules were implemented for all co-funded technical projects, some of them were reduced or discontinued to free up resources for new ideas.*

*Several examples coming from our working groups showed that high-value applications can be produced with high-quality recycled PVC. Up-cycling rather than down-cycling, this is a great achievement towards our Controlled-loop Management Challenge.*

*Most industries are currently experiencing a difficult market situation. We are glad to stress that the great majority of companies which supported VinylPlus are nevertheless maintaining their effort. It was therefore with great regret that we saw a few companies withdrawing their participation in VinylPlus in 2012. Those who quit leave the others to share the burden over fewer contributors, while benefitting from their efforts. This is both deeply unfair, and very short-sighted. Nevertheless, despite budget constraints in 2012 and 2013, the programme must keep its momentum. We believe that progressing towards sustainability is a duty for any responsible company and industry and we hope these companies will revise their position in 2013.*

*A visible Membership Certificate has been developed and is being used by partner companies. The VinylPlus product label concept represents a further opportunity to increase the programme visibility with downstream deciders and attract converters to become VinylPlus partners, allowing them to demonstrate they implement concrete measures to enhance sustainability. We believe that the objective of increasing the number of participants by 20% by the end of 2013 is achievable despite the difficult economic environment.*

*It is also important that VinylPlus' visibility with external stakeholders and institutions continues to grow. Two occasions worth highlighting in 2012 were the participation in the Earth Summit Rio+20, where VinylPlus contributed with its experience and best practices to the Partnerships Forum debate; and the Olympic Games in London, where, thanks to its recyclability and environmental credentials, PVC was largely used in a number of venues.*

*And it is with a great pleasure that we welcomed the Southern African Vinyls Association's commitment to their Product Stewardship Programme at the beginning of 2012, a further important step for the global PVC industry towards sustainability.*

*Today, more than ever, we feel that we are building a sustainable future for our industry with VinylPlus, bringing added value for our partners.*

Filipe Constant, Chairman of VinylPlus

# Voluntary Commitment Challenges and Achievements

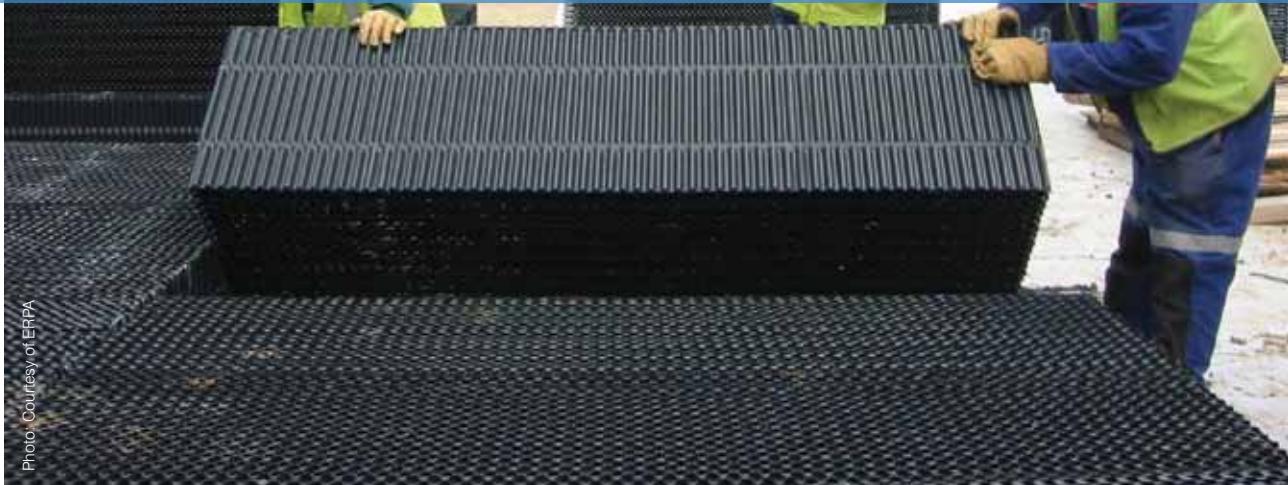
This Report summarises VinylPlus' progress and achievements under each of the five challenges in 2012. All the information reported is independently audited and verified by external third parties. A full glossary of abbreviations appears at the end of the Progress Report to aid the reader. For detailed descriptions of the projects and activities please visit [www.vinylplus.eu](http://www.vinylplus.eu).

# Challenge 1

## Controlled-loop Management:

*We will work towards the more efficient use and control of PVC throughout its life cycle.*

Photo Courtesy of ERPA



# 362,076

**TONNES RECYCLED**

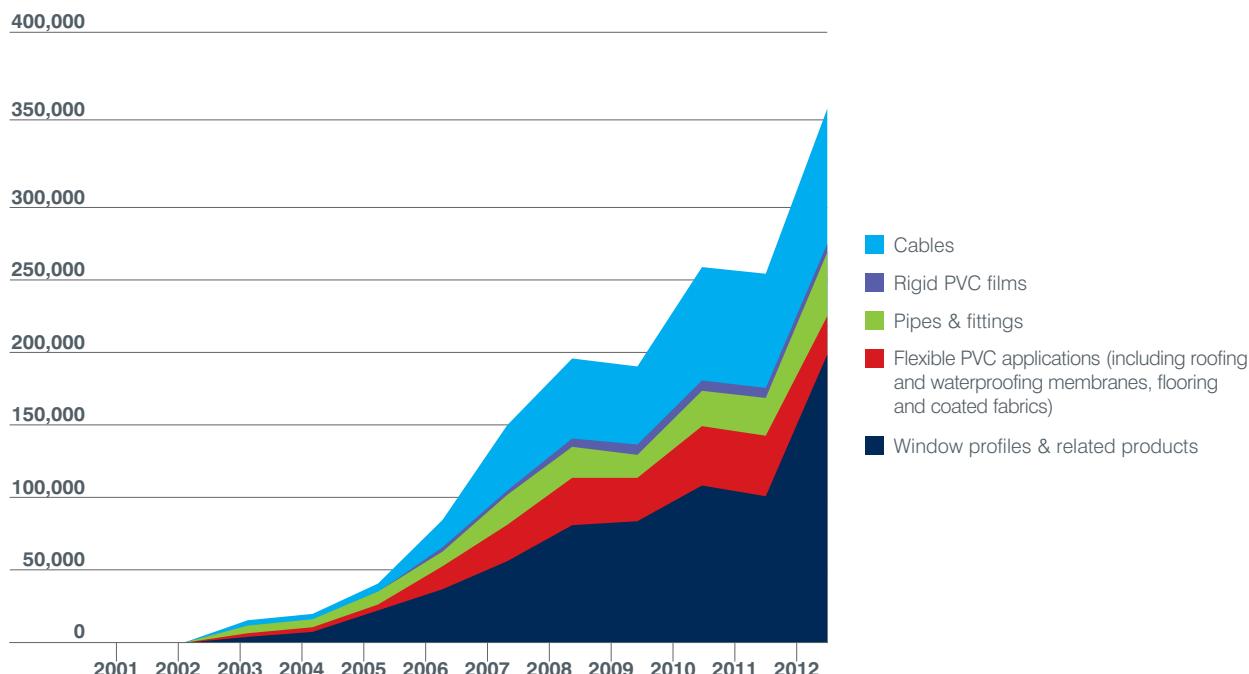
Recycled PVC is defined as “*a discarded PVC product or semi-finished product that is diverted from waste for use within a new product. Processing waste is included, provided that it cannot be re-used in the same process that generated the waste*”.

- 1 - Recycle 800,000 tonnes/year of PVC by 2020.
- 2 - Exact definitions and reporting concept to be available by end 2011. *Achieved*
- 3 - Develop and exploit innovative technology to recycle 100,000 tonnes/year of difficult-to-recycle PVC material (within the overall 800,000 tonnes/year recycling target) by 2020.
- 4 - Address the issue of ‘legacy additives’ and deliver a status report within each annual VinylPlus Progress Report.

### Recycling Target

2012 represents a breakthrough for the achievement of the recycling targets set by the Voluntary Commitment of the European PVC industry. A new accounting system was put in place, based on the agreed definition of the ‘PVC recycling’ concept and including all waste streams, whether regulated by EU Directives or not, which resulted in 362,076 tonnes of PVC recycled within the framework of VinylPlus.

## PVC recycled (in tonnes) within the Vinyl 2010's and VinylPlus' frameworks



### ■ Recovinyl

Established in 2003, Recovinyl ([www.recovinyl.com](http://www.recovinyl.com)) is the organisation aimed at facilitating PVC waste collection and recycling in the framework of the Voluntary Commitments.

In 2012, Recovinyl was engaged in the implementation of its 'pull market' concept which integrates converters and recyclers into a new certification system. For this purpose, the main challenge was to motivate and keep the network of recyclers together and involve converters while changing from an incentive-based registration scheme into a fixed service-related agreement for standard and advanced contracts.

Furthermore, following the new definition of recycled PVC and the integration of the regulated waste streams (automotive, electric & electronic and packaging) in the scope of VinylPlus, Recovinyl set up a new audit protocol based on the EuCertPlast certification ([www.eucertplast.eu](http://www.eucertplast.eu)).

In 2012, 354,173 tonnes of recycled PVC were registered and certified by Recovinyl using the new accounting system. (For further information [www.vinylplus.eu](http://www.vinylplus.eu)).

### ■ PVC Waste Management Sector Projects

EPPA's<sup>5</sup> window collection and recycling schemes operated very well thanks to the strategic partnership with Recovinyl and Rewindo<sup>6</sup>, as two key examples in Germany and the UK demonstrate: in Germany, Rewindo recycled 100,725 tonnes of windows and profiles in 2012; in the UK, Recovinyl registered 25,480 tonnes of PVC windows and profiles recycled. This means that 2.5 million of window frames were recycled only in Germany and the UK. In 2012, an upgraded and extended version of the Environmental Product

Declaration for PVC windows compliant with the EN 15804 was published. (For further information [www.vinylplus.eu](http://www.vinylplus.eu) and [www.eppa-profiles.org](http://www.eppa-profiles.org))

In the framework of VinylPlus, TEPPFA<sup>7</sup> is committed to utilising 60,000 tonnes of recycled PVC in new products by its members and to providing the best efforts for using further 60,000 tonnes by 2020. A report by VITO<sup>8</sup> confirms that the European plastic pipes industry utilised 55-60,000 tonnes of recycled PVC already in 2011, compared to approximately 4,000 tonnes in 2000 and 43,000 tonnes in 2010. (For further information [www.vinylplus.eu](http://www.vinylplus.eu) and [www.teppfa.org](http://www.teppfa.org))

In 2012, ESWA<sup>9</sup> recycled 2,581 tonnes of roofing and waterproofing membranes through its project Roofcollect®, a 58% increase compared to 2011. A new high-value application for recycled PVC – flooring for hydroponic greenhouses – was launched by the German firm Jutta Hoser Recycling. (For further information [www.vinylplus.eu](http://www.vinylplus.eu) and [www.roofcollect.com](http://www.roofcollect.com))

In 2012, EPFLOOR<sup>10</sup> collected 3,644 tonnes of post-consumer flooring waste to be recycled, with a 20% increase compared to the previous year. In 2013, EPFLOOR will participate in three research projects on new recycling alternatives: the project Turquoise, aimed at developing a viable collection and recycling system for PVC flooring waste in France; the VinylPlus Project for difficult-to-recycle mixed soft PVC waste in cooperation with ECP4 innovation platform (European Composites, Plastics & Polymer Processing Platform – [www.ecp4.eu](http://www.ecp4.eu)); and the joint ERFMI<sup>11</sup>/EPFLOOR Task Force on new technologies. (For further information [www.vinylplus.eu](http://www.vinylplus.eu))

<sup>5</sup>EPPA: European PVC Window Profile and Related Building Products Association, an EuPC sectoral association ([www.eppa-profiles.org](http://www.eppa-profiles.org))

<sup>6</sup>Rewindo: Fenster-Recycling-Service ([www.rewindo.de](http://www.rewindo.de))

<sup>7</sup>TEPPFA: European Plastic Pipes and Fittings Association, an EuPC sectoral association ([www.teppfa.org](http://www.teppfa.org))

<sup>8</sup>VITO: Vlaamse Instelling voor Technologisch Onderzoek (the Flemish Institute for Technological Research – [www.vito.be](http://www.vito.be))

<sup>9</sup>ESWA: European Single Ply Waterproofing Association, an EuPC sectoral association ([www.eswa.be](http://www.eswa.be))

<sup>10</sup>EPFLOOR: European PVC Floor Manufacturers, an EuPC sectoral group ([www.epfloor.eu](http://www.epfloor.eu))

<sup>11</sup>ERFMI: European Resilient Flooring Manufacturers' Institute ([www.erfmi.com](http://www.erfmi.com))

EPCoat<sup>12</sup> (EuPC/IVK PVC Coated Fabrics Sector Group) recycled 3,057 tonnes of post-consumer PVC coated fabrics (reported as part of Recovinyl volumes) through its IVK collection and recycling scheme during 2012. Coated fabrics consist of a polyester fibre web whose surface is coated with soft PVC. An innovative application for PVC recyclates from coated fabrics is represented by waterproof floors utilised for green houses in the Netherlands.

(For further information [www.vinylplus.eu](http://www.vinylplus.eu))

ERPA<sup>13</sup> – CIFRA<sup>14</sup>: in 2012, CIFRA recycled 539 tonnes of post-consumer food packaging (PVC/PE composite rigid films). The recycled thick rigid films produced were subsequently thermoformed into profiles by HAMON Thermal Europe ([www.hamon.com](http://www.hamon.com)) and used for the construction of ultra lightweight water-bearing modules (GEOlight™), thus turning short-life post-consumer packaging into long-life products for water drainage (see picture at p. 07).

Rigid PVC composite films (PVC/PE films) from industrial waste were also recycled within the framework of VinylPlus in 2012 and utilised for the production of long-life building components (hollow profiles and bent sections). In total, 5,620 tonnes of PVC rigid films were recycled in 2012.

(For further information [www.vinylplus.eu](http://www.vinylplus.eu))

#### ■ Other Recycling Projects

A specific project on an innovative and efficient collection and recycling system for plastics from the building sector was initiated in Sweden. The first phase of analysis concerning the status and perspectives of plastic recycling was completed in 2012 and the results will be summarised in a report in 2013.

VinylPlus continued to support the WUPPI<sup>15</sup> project ([www.wuppi.dk](http://www.wuppi.dk)) in Denmark in 2012. All parties found a new basis to organise the collection of rigid PVC waste and are working toward a self-sufficient cost basis.

#### Innovative Recycling

##### ■ VinylLoop®

VinylLoop® is a physical, solvent-based technology that recycles difficult-to-treat PVC waste and produces high-quality R-PVC (recycled PVC) compounds. In 2012, the VinylLoop® Ferrara plant produced 4,701 tonnes of R-PVC (+6.3% vs. 2011). During the year, VinylLoop® concentrated its efforts on improving the efficiency of its production process, which resulted in significant savings for steam (-23%), energy consumption (-10%) and waste disposal (-29%). Important results were also achieved in terms of health and prevention, as the plant registered zero lost-day accidents per million of worked hours since May 2003, and benefited from the new anti-seismic protection system built before the earthquake of May 2012.



Sound barriers made of recycled PVC

An Eco-Footprint Study (critically reviewed by the independent testing organisation DEKRA Industrial GmbH – [www.dekra-certification.com](http://www.dekra-certification.com)) compared the environmental impact of one kilogram of VinyLoop® R-PVC with one kilogram of PVC compound produced via a conventional route. The results showed that the Primary Energy Demand (PED) of the VinyLoop® R-PVC is 46% lower; the Global Warming Potential (GWP 100a) is reduced by 39% and the Water Consumption by 72%. (For further information [www.vinylplus.eu](http://www.vinylplus.eu) and [www.vinylloop.com](http://www.vinylloop.com)).

##### Legacy Additives

'Legacy additives' are substances which use in PVC products has been discontinued but which are contained in recycled PVC. Since the use of recyclates containing 'legacy additives' may be restricted by recent legislation, VinylPlus is committed to addressing the issue in cooperation with the regulatory authorities.

##### ■ Cadmium Stabilisers

The placing on the market of polymers containing cadmium is subject to the EU Commission Regulation (EC No 494/2011). In order to support converters and recyclers, EuPC and ECVM published the 'Guidance document on the implementation of the labelling obligation related to the use of recyclate in PVC products in line with Regulation EU 494/2011'<sup>16</sup>.

##### ■ Phthalates

In summer 2011, Denmark proposed a restriction on the commercialisation of articles containing DEHP, BBP, DBP

<sup>12</sup>EPCoat: EuPC PVC Coated Fabrics Sector Group

<sup>13</sup>ERPA: European Rigid PVC Film Association ([www.pvc-films.org](http://www.pvc-films.org))

<sup>14</sup>CIFRA: Calandrage Industriel Français – a French calendering company ([www.cifra.fr](http://www.cifra.fr))

<sup>15</sup>WUPPI: Danish company set up to collect and recycle rigid PVC ([www.wuppi.dk](http://www.wuppi.dk))

<sup>16</sup>The guidance document is available at [www.plasticsconverters.eu/uploads/2011-12-09\\_EuPC%20guidance%20on%20Cd%20recyclate%20exemption%20labelling.pdf](http://www.plasticsconverters.eu/uploads/2011-12-09_EuPC%20guidance%20on%20Cd%20recyclate%20exemption%20labelling.pdf)

and DIBP in indoor and skin contact applications. In 2012, ECHA's<sup>17</sup> Risk Assessment Committee (RAC) and the Socio-Economic Analysis Committee (SEAC) concluded<sup>18</sup> that the proposed restriction is not justified because the biomonitoring data are currently under Derived No Effect Level (DNEL) and the use of LMW phthalates is expected to decrease over the coming years. Consequently, no restrictions are foreseen for recyclates. However these Low Molecular Weight phthalates will be subject to Authorisation as from 2015.

The REACH Regulation requires the submission of Authorisation requests for virgin LMW phthalates by August 2013 (they can be used without Authorisation until February 2015), but it is still not clear whether recyclers must apply for Authorisation, too. The cost is estimated to be prohibitive: between €10,000 and €100,000 per company, taking into account both the fee to be paid to ECHA (up to €64,000 per company), and the shared cost of the technical dossier, the total of which can be several hundred thousands of Euros.

By the time this Report is published, VinylPlus' comments will have been sent to DG Environment and DG Enterprise focusing on the fact that the need of Authorisation for recycled PVC containing DEHP would result in a significant loss of investments made in the recycling of soft PVC and in a significant decrease of soft PVC recycled volumes. The industry's view is that no Authorisation should be required when plastics recyclate contains legacy additives below 20%, the threshold below which such a substance can be considered as an impurity.

Meanwhile, VinylPlus is informing soft PVC recyclers and is gathering information in the event that an Application for Authorisation is required.

#### ■ Lead

The use of lead is currently restricted in electric & electronic (RoHS Directive 2002/95/EC), automotive (ELV Directive 2000/53/EC), food contact and drinking water applications.

In March 2012, VinylPlus initiated a study on the impact of recycling waste streams containing lead with the Dutch consultant Tauw<sup>19</sup>. Preliminary modelling results were presented in December. The completion of the study is expected by April 2013.

In April 2012, Sweden announced a proposal for lead restrictions in consumer products. VinylPlus sent comments, underlining the potential impact on recycling and the fact that the definition of 'consumer products' was not clarified. Further cooperation in order to find new solutions was offered. Studies were provided by the industry on migration in water.

From a regulatory point of view, around 20 lead-based substances were added to the REACH Candidate List<sup>20</sup> by

the end of 2012, including oxides, sulphates, acetate and salts of fatty acids.

#### ■ SDS-R Project

To support recyclers in their compliance with the REACH Regulation requirements, EuPC and EuPR<sup>21</sup> have developed an online database of polymers and applications where recyclers can enter basic information (statistical or analytical) to obtain the specific required Safety Data Sheet for Recyclates (SDS-R).

The availability of SDS-R is now fundamental to demonstrate the compliance with the REACH Regulation required by the new Recovinyl contracts and to obtain the EuCertPlast certification.

Following the request by recyclers, additional more specific SDS-Rs were developed. Regular updates to the SDS-Rs will be necessary on the basis of new information coming from Registration dossiers, regulatory changes and input from recyclers.

#### Controlled-loop Committee

In 2012, the Controlled-loop Committee worked on the specific interpretation of the new VinylPlus definition of recycling for sectoral applications and produced a guidance document in order to harmonise work and optimise synergies.

In relation to the target of exploiting innovative technology to recycle 100,000 tonnes/year of difficult-to-recycle PVC, the Committee selected a list of options to be investigated. It also agreed to support EuPC's ECP4 organisation (the European Composites, Plastics and Polymers Processing Platform – [www.ecp4.eu](http://www.ecp4.eu)).

The potentially interesting technologies that the Committee is investigating include: the dehydrochlorination of PVC; and a technology which utilises plastic waste materials to produce renewable diesel fuel.

The developments of the AlzChem project 'Energy-efficient carbide manufacture through complete recycling of PVC' ([www.alzchem.com](http://www.alzchem.com)) and EcoLoop ([www.ecoloop.eu](http://www.ecoloop.eu)), a new process to produce synthesis gas from flexible input materials from old plastics containing chlorine, are being monitored as well.

Concerning the separation of PVC from other plastics/waste, the Committee is monitoring the PlasticSort technology in Italy, which utilises an innovative physical principle based on the different electric properties of plastics ([www.plasticsort.com](http://www.plasticsort.com)), and the Hemawe-Caretta technology ([www.hemawe.de](http://www.hemawe.de)) in Germany, for the separation of fabric, tissue and other materials from soft PVC foils.

<sup>17</sup>ECHA: European Chemicals Agency (<http://echa.europa.eu>)

<sup>18</sup>[http://echa.europa.eu/web/guest/view-article/-/journal\\_content/926431e7-3a71-4f06-b22c-9c6b54966df3](http://echa.europa.eu/web/guest/view-article/-/journal_content/926431e7-3a71-4f06-b22c-9c6b54966df3) and <http://echa.europa.eu/documents/10162/58050be8-f7be-4b55-b106-76dda4989dd6>

<sup>19</sup>Tauw: independent European consulting and engineering company ([www.tauw.com](http://www.tauw.com))

<sup>20</sup><http://echa.europa.eu/candidate-list-table>

<sup>21</sup>EuPR: European Plastics Recyclers ([www.plasticsrecyclers.eu](http://www.plasticsrecyclers.eu))

# Challenge 2

## Organochlorine Emissions:

*We will help to ensure that persistent organic compounds do not accumulate in nature and that other emissions are reduced.*



Photo: Courtesy of Bureau Veritas

### Targets

- 1 - Engage with external stakeholders in the discussion of organochlorine emissions during 2012. **Achieved**
- 2 - Develop a plan to deal with stakeholder concerns on organochlorine emissions by end 2012. **Achieved**
- 3 - Compliance with the PVC resin Industry Charters by first Quarter 2012. **Partially achieved**
- 4 - Risk assessment for the transportation of major raw materials, in particular VCM, by end 2013.
- 5 - Target zero-accident rate with VCM release during transportation in the next 10 years.

### Organochlorines

In line with the commitment to address the concerns expressed by stakeholders on organochlorines, in 2012 VinylPlus prepared the technical briefing paper 'VinylPlus discussion document on PVC and sustainable development – Dioxins'. This document was circulated to a wide list of stakeholders and TNS<sup>22</sup> is collecting their feedback.

The first VinylPlus stakeholder event was held in Vienna, Austria, in November 2012, involving national and local institutions as well as NGOs. The outcome was positive, and constructive comments were made by the stakeholders. Main concerns focused on accidental fires and uncontrolled incineration of waste. Institutions were very interested in PVC recycling and in the issue of 'legacy additives'.

<sup>22</sup>TNS: The Natural Step ([www.naturalstep.org](http://www.naturalstep.org))

## PVC Resin Industry Production Charters

The Industry Charters<sup>23</sup> for suspension (VCM & S-PVC Charter) and emulsion (E-PVC Charter) PVC are aimed at reducing their environmental impact in the production phase. The audit carried out by DNV<sup>24</sup> in 2010 showed a 90% compliance achieved across all applications of the verification standards, 4% partial compliance (i.e. one non-compliant result) and 3% non-compliance; 3% of all applications of the standards could not be verified.

A new verification took place at the beginning of 2012, based on the performance during the second half of 2011

and limited to the criteria found partially compliant or not compliant. The results, published on the VinylPlus website in April 2012, showed a 96% full compliance, 1% partial compliance and 1% non-compliance; 2% of all applications of the standards could not be verified.

## Safe Transport

With reference to the target of zero-accident rate with VCM release during transportation, no such accidents occurred in 2012.



Photo: Courtesy of Deceuninck



Photo: Courtesy of Isao Hosoe Design



Photo: Courtesy of Shultz



Photo: Courtesy of Deceuninck



Photo: Courtesy of Babla

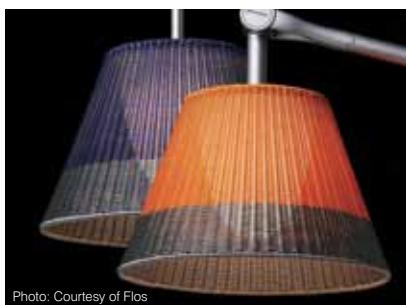


Photo: Courtesy of Flos



Photo: Courtesy of Melissa

## PVC: a suitable material for leisure, fashion and design

<sup>23</sup>The ECVM Industry Charters are available at [http://www.pvc.org/upload/documents/ECVM\\_Charter\\_VCM\\_PVC.pdf](http://www.pvc.org/upload/documents/ECVM_Charter_VCM_PVC.pdf) and <http://www.pvc.org/upload/documents/Emulsion.pdf>

<sup>24</sup>DNV: Det Norske Veritas, a Norwegian testing and verification organisation ([www.dnv.com](http://www.dnv.com))

# Challenge 3

## Sustainable Use of Additives:

We will review the use of PVC additives and move towards more sustainable additive systems.



Photo: Courtesy of Altro

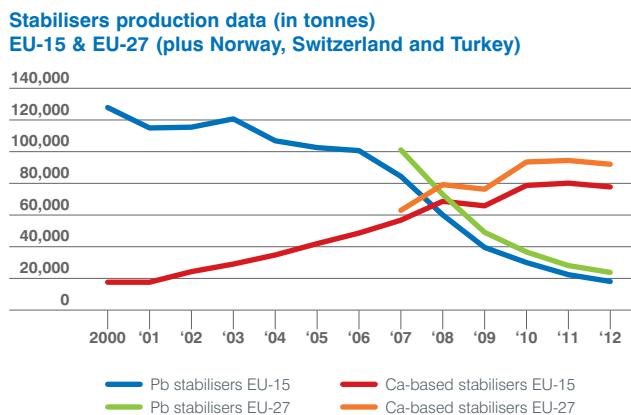
### Targets

- 1 - Lead replacement in the EU-27 by end 2015.
- 2 - Robust criteria for the 'sustainable use of additives' to be developed, with status report by end 2012.  
*Partially achieved*
- 3 - Validation of the robust criteria for the 'sustainable use of additives' in conjunction with the downstream value chain, with status report by end 2014.
- 4 - Other PVC additive producers and the downstream value chain will be invited to participate in the 'sustainable additives' initiative.

### Lead Replacement

ESPA and EuPC are committed to replacing lead stabilisers by the end of 2015 across the EU-27. The progressive replacement of lead-based stabilisers is ongoing and confirmed by the corresponding growth in calcium-based stabilisers, used as an alternative to lead-based stabilisers.

In the 2007-2012 period, lead stabiliser consumption (in the EU-27) decreased by 76,364 tonnes (-76.37%), and calcium-based stabilisers (in the EU-27 plus Norway, Switzerland and Turkey) increased by 29,470 tonnes. (For further information [www.vinylplus.eu](http://www.vinylplus.eu) and [www.stabilisers.eu](http://www.stabilisers.eu))



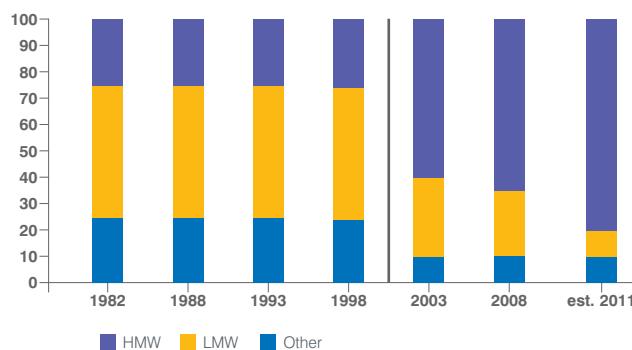
## Plasticisers

The replacement of DEHP by High Molecular Weight phthalates and/or other plasticisers is ongoing.

ECHA's re-evaluation of the restrictions on HMW phthalates DINP and DIDP in toys requested by the EU Commission is ongoing. Preliminary conclusions indicate that no additional restrictions are needed.

## EU Trend: Shifting to HMW Phthalates & other Plasticisers

Source: 2011 ECPI estimate



## Studies and Research

The human biomonitoring projects 'COPHES' and 'DEMOCOPHES' ([www.eu-hbm.info](http://www.eu-hbm.info)) were promoted by the European Commission in order to monitor certain chemicals of concern for human health, including phthalates, in almost 4,000 mothers and their children in 17 European countries at the same time, in the same way. Results show that despite the fact that concentration of chemicals varied greatly across Europe, the levels found are considered "not a matter of high concern"<sup>25</sup>.

First results of a new biomonitoring study in Germany, which is a collaboration between VCI (the German Association of the Chemical Industry – [www.vci.de](http://www.vci.de)) and UBA (the German Environmental Protection Agency – [www.umweltbundesamt.de](http://www.umweltbundesamt.de)), were presented by BASF ([www.bASF.com](http://www.bASF.com)) during the Plasticisers Conference 2012 organised by ECPI and European Plastics News in Brussels, Belgium, in December

2012. The study shows that there is no accumulation of DPHP or Hexamoll® DINCH® nor of their respective metabolites in the body due to rapid metabolism and elimination. These results are in line with ECPI's previous study on DEHP and DINP (reported in Vinyl 2010 Progress Reports in 2010 and 2011).

For further information on plasticisers, studies and research, please visit [www.plasticisers.org](http://www.plasticisers.org).

## 'Sustainable Use of Additives' Criteria

The Additives Task Force involves representatives from ECPI and ESPA, related sectors such as pigments and fillers, NGOs and major PVC converting industries. Up to 200 different additives can be used to convert PVC into the various applications, which results in a high level of complexity.

In 2012, the Task Force's work focused on two major topics:

- Updating existing LCAs and EPDs: LCAs and EPDs have been available for several product applications for a few years, but often the data utilised as far as additives are concerned does not represent the most up-to-date knowledge. Additive producers have agreed to provide the converter associations with the most recent data to help them update their EPDs and LCAs. Sectors-specific reviews should be finalised by mid 2013.
- Assessing additives based on the TNS sustainability criteria framework, which is the overarching framework retained by VinylPlus: in September 2012, ESPA organised a workshop involving a large number of its members and TNS, with the objective of increasing awareness of the TNS approach and discussing the relevance of its System Conditions in relation to stabilisers. Based on this positive experience, other additive industries are expected to be involved in early 2013.

During 2012, the Task Force also continued to work on the development of the criteria for the evaluation of the 'sustainable use of additives'. Further development will continue in 2013, taking into account the results of the ESPA workshop and with the objective of making the criteria measurable and transparent.

<sup>25</sup>[www.cy2012.eu/index.php/en/news-categories/areas/employment-social-policy/press-release-european-projects-measure-chemicals-in-people-across-europe-for-the-first-time](http://www.cy2012.eu/index.php/en/news-categories/areas/employment-social-policy/press-release-european-projects-measure-chemicals-in-people-across-europe-for-the-first-time)

# Challenge 4

## Sustainable Energy Use:

*We will help to minimise climate impacts through reducing energy and raw material use, potentially endeavouring to switch to renewable sources and promoting sustainable innovation.*



Photo: Courtesy of Deceuninck

### Targets

- 1 - Establish Energy Efficiency Task Force by end 2011.  
*Achieved*
- 2 - PVC resin producers to reduce their specific energy consumption, targeting 20% by 2020.
- 3 - Define targets for specific energy reduction for converters by end 2012. *Partially achieved*
- 4 - Energy Efficiency Task Force to recommend suitable environmental footprint measurement by end 2014.
- 5 - Establish Renewable Materials Task Force by end first Quarter 2012. *Achieved*
- 6 - Renewable Materials Task Force's status report by end 2012. *Achieved*

### Energy Efficiency

PVC resin producers are committed to reducing their energy consumption, targeting 20% by 2020. The Energy Efficiency Task Force proposal to adopt as baseline the data collected by IFEU<sup>26</sup> was validated by the ECVM Production Committee.

Initial verification of the data collected by ECVM member companies based on the IFEU methodology is expected by Q1 2014.

Converters will also strive to increase their efficient use of energy. Due to the complexity and variety of situations found in the converting sectors, setting an overall target, even by subsector, would be meaningless. It was therefore decided to proceed in a step by step approach.

Individual PVC converting companies will be invited to input their data in the EuPlastVoltage benchmarking system as of

<sup>26</sup>IFEU: Institut für Energie- und Umweltforschung Heidelberg GmbH (German Institute for Energy and Environmental Research – [www.ifeu.de](http://www.ifeu.de))

June 2013. This system was set up to measure the progress of plastics converting companies as a whole towards increased energy efficiency.

Each company will provide its consumption data for 2007 and 2012 as well as its targets for 2020. Individual companies will then report on their progress on a yearly basis. Companies' data and targets will be aggregated at the level of the PVC converting industry and results reported in the VinylPlus Progress Report as of next year. Target will be revised over time taking into account the internal commitment of the companies joining the reporting system.

### Sustainable Footprint

In 2012, VinylPlus established an ad hoc Task Force to manage the assessment of the available environmental and sustainability footprints in order to recommend a suitable footprint measurement by the end of 2014.

The Task Force will initially focus its efforts on providing guidance for a Product Environmental Footprint (PEF), whereas socio-economic aspects, human health and safety parameters will be covered at a second stage to develop a Sustainable Product Footprint. It was also agreed that it is important to focus on 'articles', including their use phase, instead of 'substances' and that the environmental footprint should be a multidimensional indicator.

During 2012, the Task Force collected and evaluated the main existing standards and initiatives on environmental footprints. Following the publication of the draft 'Product Environmental Footprint (PEF) Guide'<sup>27</sup> by the European Commission in summer 2012, the Task Force is analysing it in relation to the available EPDs for PVC products, in order to evaluate whether additional data are required to produce PEFs for the PVC industry.

### Renewable Raw Materials

Established in December 2011, the Renewable Materials Task Force is focusing its work on investigating on renewable alternative resources to oil for the production of PVC. PVC is made from salt (57% – salt availability is largely unlimited) and oil (43%).

In 2012, the Task Force screened potential alternative renewable resources, including plant-based sugars and starches, sugar beets and CO<sub>2</sub>. At a second stage, the application will be evaluated and technically tested specifically for PVC. This evaluation will carefully consider the increasing awareness of a potential competition for land use between food crops on the one hand, and crop-based energy or industrial raw materials on the other. It will take into account the trend to source energy or raw materials from agricultural waste whenever possible.



PVC window profiles provide excellent thermal insulation

<sup>27</sup><http://ec.europa.eu/environment/eussd/pdf/footprint/PEF%20methodology%20final%20draft.pdf>

# Challenge 5

## Sustainability Awareness:

We will continue to build sustainability awareness across the value chain – including stakeholders inside and outside the industry – to accelerate resolving our sustainability challenges.



### Targets

- 1 - VinylPlus web portal to go online in summer 2011.  
Achieved
- 2 - VinylPlus Monitoring Committee, which will meet a minimum of twice a year, will be established by end 2011. Achieved
- 3 - A VinylPlus Membership Certificate will be launched end 2011. Achieved
- 4 - A public, and independently audited, VinylPlus Progress Report will be published annually and proactively promoted to key stakeholders. With the first edition being published in 2012. Achieved
- 5 - Annual external stakeholder meetings will be organised, commencing in 2012. Achieved

- 6 - A VinylPlus product label will be launched by end 2012.  
Partially achieved
- 7 - ECVM will take an active role in promoting VinylPlus within international PVC industry organisations worldwide.
- 8 - ESPA stabiliser producers will actively promote VinylPlus outside the EU-27.
- 9 - VinylPlus will increase the number of programme participants by 20% compared to 2010 by end 2013
- 10 - VinylPlus will engage with five global brand holders by end 2013.
- 11 - A review of progress towards the globalisation of the approach will be undertaken by end 2015.

## **Independent Monitoring**

The Monitoring Committee (see members list at p. 04) is the independent body that guarantees openness, transparency and accountability in VinylPlus' initiatives at the same time as it provides advice, comments and suggestions.

In 2012, the VinylPlus Monitoring Committee formally met twice, in April and in November.

To ensure maximum transparency, the minutes of the Monitoring Committee meetings are public and published on the VinylPlus website ([www.vinylplus.eu](http://www.vinylplus.eu)) following formal approval at the next meeting.

## **Annual Reporting**

As part of the Voluntary Commitment, progress, developments and achievements are published in the yearly Progress Report.

For 2012, the content of the Progress Report has been independently verified by SGS, whilst tonnages of PVC waste recycled and expenditure have been audited and certified by KPMG. The Natural Step has made a commentary on the overall work progress of VinylPlus.

## **External Stakeholder Dialogue and Communication**

VinylPlus is committed to building sustainability awareness across the value chain and to a frank and open dialogue with all of its stakeholders. In 2012, with the objective of increasing the effectiveness of its communications across different sectors and geographic areas, VinylPlus supported and participated in different initiatives and events promoted by PVC sector groups and/or national organisations. Results, outcomes and best practices will be shared with the value chain in 2013. Information on the different projects is available at [www.vinylplus.eu](http://www.vinylplus.eu).

## **Engaging Globally**

As part of its work of promoting the Voluntary Commitment approach across the PVC industry worldwide, VinylPlus actively participates in knowledge and best practices sharing with the Australian Vinyls Council, the US Vinyl Institute, SAVA (the Southern African Vinyls Association) and other international organisations. Representatives from the different PVC regional associations meet every year at The Global Vinyl Council as well as in other industry conferences and events.

In April 2012, the VinylPlus Voluntary Commitment and programme were presented at the SAVA's first PVC conference held in Midrand, South Africa. VinylPlus' participation was "eagerly awaited" at the 'Best Practice PVC' conference<sup>28</sup>, as the Product Stewardship Programme

signed by SAVA in January 2012 is very much inspired by the Vinyl 2010 and VinylPlus sustainability programmes.

A chapter on VinylPlus was included in the presentation 'Developments and Trends in Plasticisers Towards the Sustainable Use of Plasticisers' given by ECPI at 5<sup>th</sup> Annual International Plasticisers and Upstream Summit 2012, which took place in Hong Kong, in September 2012.

On the occasion of the XIII Latin American Symposium on Polymers & XI Iberoamerican Congress on Polymers (SLAP 2012), held in Bogotá, Colombia, in September 2012, VinylPlus was invited to present its Voluntary Commitment by the PVC Andean Forum. At that occasion, VinylPlus was interviewed by the Latin American magazine *Tecnología del Plástico*.

In October 2012, an article about VinylPlus was published in the Journal of Material Cycles and Waste Management<sup>29</sup>.

## **■ United Nations CSD Partnership**

From 20 to 22 June 2012, VinylPlus participated in Rio+20, the United Nations Conference on Sustainable Development. The presence of VinylPlus at the Earth Summit was a continuation of the work initiated in 2004 when Vinyl 2010 was registered as a Partnership with the Secretariat of the United Nations Commission on Sustainable Development (UNCSD). During these three days, VinylPlus participated in a number of fora and debates on the role of Partnerships where the progress made by the European PVC industry was showcased.

Furthermore, VinylPlus Voluntary Commitment has been included in the Rio+20 Registry of Commitments<sup>30</sup> and the recycling target of 800,000 tonnes/year of PVC was quoted in the UN Summary of Voluntary Commitments registered at Rio+20<sup>31</sup>.

In addition, VinylPlus Deputy General Manager, Brigitte Dero, was featured on a series of video interviews with selected Partnership Drivers<sup>32</sup> and Vinyl 2010/VinylPlus were included as best practice case study<sup>33</sup> in the International Chamber of Commerce Green Economy Roadmap<sup>34</sup>, launched at Rio+20 with a press briefing and a side event.

## **■ Conferences and Exhibitions**

The VinylPlus General Assembly 2012 took place in Lisbon, Portugal, on 27 April 2012, and saw the participation of 150 people from all around the world.

In May 2012, VinylPlus participated with a poster presentation on its Voluntary Commitment at the 15<sup>th</sup> ERSCP (European Roundtable on Sustainable Consumption and Production) which took place in Bregenz, Austria.

<sup>28</sup>[www.savinyls.co.za](http://www.savinyls.co.za)

<sup>29</sup>Official Journal of the Japan Society of Material Cycles and Waste Management and the Korea Society of Waste Management – October 2012, Volume 14, Issue 4, pp 281-285

<sup>30</sup><http://www.uncsd2012.org/index.php?page=view&type=1006&menu=153&nr=91>

<sup>31</sup><http://www.uncsd2012.org/index.php?page=view&type=111&menu=14&nr=790>

<sup>32</sup>[www.uncsd2012.org/partnerships.html](http://www.uncsd2012.org/partnerships.html)

<sup>33</sup><http://www.iccwbo.org/Advocacy-Codes-and-Rules/Document-centre/2012/ICC-Green-Economy-Roadmap-best-practices-and-calls-for-collaboration/>

<sup>34</sup><http://www.iccwbo.org/Advocacy-Codes-and-Rules/Document-centre/2012/ICC-Green-Economy-Roadmap-Executive-Summary/>



Photo: Courtesy of Gerflor

#### PVC floor covering for sports: a safe and comfortable solution

To share experience and verify potential proactive approaches in terms of Sustainable Public Procurement, VinylPlus participated in EcoProcura 2012 held in Malmö, Sweden, in September 2012.

In December 2012, ECPI and European Plastics News organised the Plasticisers Conference 2012 in Brussels, Belgium. There were two presentations on VinylPlus – one on learning and progress of the Sustainability Programme and a second one on soft PVC recycling in the EU-27.

#### ■ VinylPlus Web Portal and Social Media

Online communications and social media are a consolidated part of the VinylPlus communications programme. Videos and multimedia materials are available at [www.vinylplus.eu](http://www.vinylplus.eu).

#### VinylPlus Partner Certificate and Product Label

A Label and Certification Task Force was set up in January 2011, and since July 2011 the ‘Official Partner Certificate’ that companies can use in their internal and external communication is in place. The Certificate is released on a yearly basis to the companies which support the VinylPlus Voluntary Commitment.

After a Europe-wide screening of the existing label schemes, at the beginning of 2012 BRE Global (UK-based

certification experts on responsible sourcing for building and construction products – [www.bre.co.uk](http://www.bre.co.uk)) was asked to develop a label criteria scheme together with VinylPlus and in collaboration with TNS.

The criteria scheme combines elements from BRE’s ‘Responsible Sourcing’ (BES 6001) with the VinylPlus five challenges.

During the year, the label concept has been discussed at the VinylPlus Board meetings and with other industry groups. All related industries and associations, and in particular the converter associations, submitted their proposals and comments. An organisational concept, an external audit concept and a cost plan were developed for the label management.

The product label concept was developed on schedule by end 2012. In order to help converters become more familiar with the scheme and understand what marketing benefit it could represent, the VinylPlus Board decided to offer all the converting industries the possibility to do more trial runs and ‘dry audits’ before the label’s official launch.

# VinylPlus Partners

## In 2012, contributors were:

A. Kolckmann GmbH (Germany)  
Alfatherm SpA (Italy)  
Aliaxis Group (Belgium)  
Alkor Folien GmbH (Germany)  
Alkor Kunststoffe GmbH (Germany)  
Altro (UK)  
Aluplast Austria GmbH (Austria)  
Aluplast GmbH (Germany)  
AMS Kunststofftechnik GmbH (Germany)  
Amtico International (UK)  
Armstrong DLW AG (Germany)  
Bilcare Research GmbH (Germany)  
BM SLU (Spain)  
BT Bautechnik Impex GmbH & Co. KG (Germany)  
BTH Fitting Kft. (Hungary)  
CIFRA (France)  
CTS-Cousin-Tessier SAS (France)  
CTS-TCT Polska Sp. z o.o. (Poland)  
Debolon dessauer bodenbeläge GmbH & Co. KG (Germany)  
Deceuninck Ltd (UK)  
Deceuninck NV (Belgium)  
Deceuninck Polska Sp. z o.o. (Poland)  
Deceuninck SAS (France)  
Dervissis Andreas (Greece)\*  
DHM (UK)\*  
Dietzel GmbH (Austria)  
Döllken Kunststoffverarbeitung GmbH (Germany)\*  
Dyka BV (Netherlands)  
Dyka Plastics NV (Belgium)  
Dyka Polska Sp. z o.o. (Poland)  
ELBTAL PLASTICS GmbH & Co. KG (Germany)\*  
Ergis-Eurofilms SA (Poland)  
Eurocell Profiles Ltd (UK)  
FDT FlachdachTechnologie GmbH & Co. KG (Germany)  
Finstral AG (Italy)  
FIP (Italy)  
Flag SpA (Italy)  
Floridienne Chimie SA (Belgium)  
Forbo Coral NV (Netherlands)  
Forbo Flooring UK Ltd (UK)  
Forbo Sarlino SAS (France)  
Forbo-Giubiasco SA (Switzerland)  
Forbo-Novilon BV (Netherlands)  
Gealan Fenster-Systeme GmbH (Germany)  
Georg Fischer Deka GmbH (Germany)  
Gerflor Mipolam GmbH (Germany)  
Gerflor SAS (France)

Gerflor Tarare (France)  
Gernord Ltd (Ireland)  
Girpi (France)  
H Producter AS (Norway)\*  
Heubach GmbH (Germany)  
Heytex Bramsche GmbH (Germany)  
Heytex Neugersdorf GmbH (Germany)  
IKA Innovative Kunststoffaufbereitung GmbH & Co. KG (Germany)  
Industrias Rehau SA (Spain)  
Inoutic/Deceuninck GmbH (Germany)  
IVC NV (Belgium)\*  
Jimten (Spain)\*  
Juteks d.d. (Slovenia)  
Karl Schoengen KG (Germany)  
Klöckner Pentaplast GmbH Co. KG (Germany)  
Konrad Hornschuch AG (Germany)  
KWH Pipe Oy AB (Finland)  
Manufacturas JBA (Spain)\*  
Marley Deutschland (Germany)  
Marley Hungária (Hungary)  
Mehler Technologies GmbH (Germany)  
MKF-Ergis Sp. z o.o. (Poland)  
MKF-Folien GmbH (Germany)  
Mondoplastico SpA (Italy)  
MWK Kunststoffverarbeitungs GmbH (Germany)  
Nicoll (France)  
Nicoll Italy (Italy)\*  
Nordisk Wavin A/S (Denmark)  
Norsk Wavin A/S (Norway)  
NYLOPLAST EUROPE BV (Netherlands)  
Paccor Hungary (Hungary)  
Perlen Packaging (Switzerland)  
Pipelife Austria (Austria)  
Pipelife Belgium NV (Belgium)  
Pipelife Czech s.r.o (Czech Republic)  
Pipelife Deutschland GmbH (Germany)  
Pipelife Eesti AS (Estonia)  
Pipelife Finland Oy (Finland)  
Pipelife Hellas SA (Greece)  
Pipelife Hungária Kft. (Hungary)  
Pipelife Nederland BV (Netherlands)  
Pipelife Polska SA (Poland)  
Pipelife Sverige AB (Sweden)  
Poliplast (Poland)  
Poloplast GmbH & Co. KG (Austria)  
Polyflor (UK)  
Polymer-Chemie GmbH (Germany)  
Primo Dammark A/S (Denmark)  
Profialis NV (Belgium)  
Profialis SAS (France)

Profine GmbH (Germany)  
Protan AS (Norway)  
Redi (Italy)  
REHAU AG & Co. (Germany)  
REHAU GmbH (Austria)  
REHAU Ltd (UK)  
REHAU SA (France)  
REHAU Sp. z o.o. (Poland)  
RENOLIT Belgium NV (Belgium)  
RENOLIT Cramlington Ltd (UK)  
RENOLIT Hispania SA (Spain)  
RENOLIT Ibérica SA (Spain)  
RENOLIT Milano Srl (Italy)  
RENOLIT Nederland BV (Netherlands)  
RENOLIT Ondex SAS (France)  
RENOLIT SE (Germany)  
Riuvert (Spain)  
Roechling Engeneering Plastics KG (Germany)\*  
Rollepaal (Netherlands)\*  
S.I.D.I.A.C. (France)  
Salamander Industrie Produkte GmbH (Germany)  
Sattler (Austria)  
Schüco International KG (Germany)  
Serge Ferrari SAS (France)\*  
Sika Manufacturing AG (Switzerland)  
Sika-Trocal GmbH (Germany)  
Solvay Benvic Italia SpA (Italy)  
SOTRA-SEPEREF SAS (France)  
Stockel GmbH (Germany)  
Tarkett AB (Sweden)  
Tarkett France (France)  
Tarkett GDL SA (Luxembourg)  
Tarkett Holding GmbH (Germany)  
Tarkett Limited (UK)  
Tessenderlo Chemie NV (Belgium)  
Tönsmeier Kunstoffe GmbH & Co. KG (Germany)  
Upofloor Oy (Finland)  
Uponor Suomi Oy (Finland)  
Veka AG (Germany)  
Veka Ibérica (Spain)  
Veka Plc (UK)  
Veka Polska (Poland)  
Veka SAS (France)  
Verseidag-Indutex GmbH (Germany)  
Vescom BV (Netherlands)  
Vulcaflex SpA (Italy)  
Wavin Baltic (Lithuania)  
Wavin Belgium BV (Belgium)  
Wavin BV (Netherlands)  
Wavin France SAS (France)

Wavin GmbH (Germany)  
Wavin Hungary (Hungary)  
Wavin Ireland Ltd (Ireland)  
Wavin Metalplast (Poland)  
Wavin Nederland BV (Netherlands)  
Wavin Plastics Ltd (UK)  
WR Grace (France)

## PVC producers supporting the Voluntary Commitment in 2012

Arkema (France and Spain)\*\*  
Borsodchem (Hungary)  
Ineos Vinyls (Belgium, France, Germany, UK, Netherlands, Norway, Sweden)  
Shin-Etsu PVC (Netherlands, Portugal)  
SolVin (Belgium, France, Germany, Spain)  
Vestolit GmbH & Co. KG (Germany)  
Vinnolit GmbH & Co. KG (Germany, UK)

## Stabilisers producers supporting the Voluntary Commitment in 2012

Akcros Chemicals  
Akdeniz Kimya A.S.  
Arkema  
Asua Products SA  
Baerlocher GmbH  
Chemson Polymer-Additive AG  
Floridienne Chimie  
Galata Chemicals  
IKA GmbH & Co. KG  
Lamberti SpA  
PMC Group  
Reagens SpA  
The Dow Chemical Company

## Plasticisers producers supporting the Voluntary Commitment in 2012

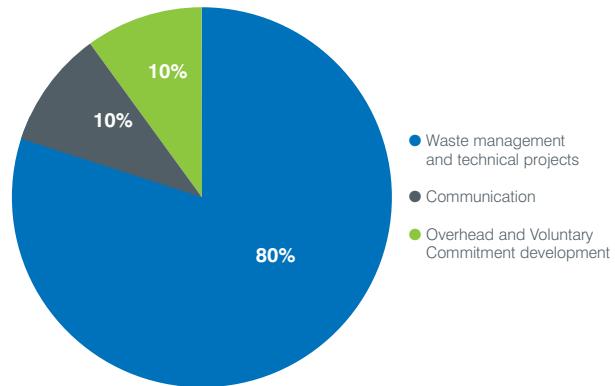
BASF SE  
Evonik Industries AG (Germany)  
ExxonMobil Chemical Europe Inc.  
Perstorp Oxo AB (Sweden)

\* Companies that joined VinylPlus in 2012  
\*\* 1<sup>st</sup> half 2012

## Financial Report

In 2012, the 'market pull' approach was introduced restructuring the existing Voluntary Commitment projects. This led to a significant reduction of the Recovinyl expense, although a part of the decrease can also be attributed to some projects being now fully funded separately. In parallel, deployment of projects into regulated applications (e.g. packaging) has been continued and investments made in new 'pull projects' and studies supporting ongoing recycling.

VinylPlus total expenditure in 2012: €6.95 million



### Waste management and technical projects (Figures in €,000s)

	2012	2011
EPCoat	232*	173**
EPFLOOR	730	743
EPPA	557	638**
ERPA – Pack upgrade	150	75
ESWA/Roofcollect®	147	133
Recovinyl	2,820	4,274
Studies, start-up & pull concept	200	7
TEPPFA	743	834**
<b>Total projects</b>	<b>5,577</b>	<b>6,877</b>

\*The EPCoat project was partially supported by Recovinyl in 2011. The full project cost is shown here for 2012.

\*\*Some projects did close their accounts or an audit could be undertaken only after this statement was made in the last year Progress Report. The EPCoat net operational cost could be documented to amount to €173,298.04 in 2011 (a difference of €15,588.91 to the amount reported last year). Moreover, the operational cost for the EPPA project was underestimated by €42,727 and TEPPFA's costs were underestimated by €40,763.08 in 2011. The corrected amounts have been reported here.

# Verification Statements

## KPMG CERTIFICATION OF EXPENDITURE

Independent Accountants' Report on Applying Agreed-Upon Procedures

To the Management of VinylPlus

We have performed the procedures agreed with you and enumerated below with respect to the costs of the supported charges for the different projects of VinylPlus, as included in the VinylPlus Progress Report for the period from January 1, 2012 to December 31, 2012 prepared by the management of VinylPlus.

### Scope of Work

Our engagement was carried out in accordance with:

- ➔ International Standard on Related Services ('ISRS')  
*4400 Engagements to perform Agreed-upon Procedures regarding Financial Information* as promulgated by the International Federation of Accountants ('IFAC');
- ➔ the *Code of Ethics for Professional Accountants* issued by the IFAC. Although ISRS 4400 provides that independence is not a requirement for agreed-upon procedures engagements, you have asked that we also comply with the independence requirements of the *Code of Ethics for Professional Accountants*.

We confirm that we belong to an internationally-recognised supervisory body for statutory auditing.

VinylPlus' management is responsible for the overview, analytical accounting and supporting documents. The scope of these agreed upon procedures has been determined solely by the management of VinylPlus. We are not responsible for the suitability and appropriateness of these procedures.

Because the procedures performed do not constitute either an audit or a review made in accordance with International Standards on Auditing or International Standards on Review Engagements, we do not express any assurance on the cost statement.

Had we performed additional procedures or had we performed an audit or review of the financial statements in accordance with International Standards on Auditing or International Standards on Review Engagements other matters might have come to our attention that would have been reported to you.

### Sources of Information

This report sets out information provided to us by the management of VinylPlus in response to specific questions or as obtained and extracted from VinylPlus information and accounting systems.

### Procedures and Factual Findings

a - Obtain the breakdown of costs declared in the table presenting the supported charges for the different projects of VinylPlus, as included in the VinylPlus Progress Report related to the activities of the year 2012 and verify of the mathematical accuracy of this. The total expenses amount to KEUR 6.946. We found no exceptions as a result of applying this procedure.

b - Verify that these costs are recorded in the financial statements 2012 of VinylPlus AISBL. We found no exceptions as a result of applying this procedure.

c - For projects EPFLOOR, EPPA and ESWA, for all individual expenses greater than EUR 100, agree these expenses to the supporting document and verify that they were incurred between January 1, 2012 and December 31, 2012. We found no exceptions as a result of applying this procedure.

d - For projects EPFLOOR, EPPA and ESWA, for all individual expenses greater than EUR 100, verify that these expenses are recorded in the accounts of the contractor no later than December 31, 2012. We found no exceptions as a result of applying this procedure.

e - For project Recovinyl, reconcile costs declared in the table presenting the supported charges for the different projects of VinylPlus with the income recognized in financial statements of Recovinyl AISBL. We found no exceptions as a result of applying this procedure.

f - For project not covered by the above procedures, obtain confirmation of costs from legal entity managing or contributing to the project. We found no exceptions as a result of applying this procedure, which represents 15,82% of total expenses.

Note that financial statements of VinylPlus AISBL, TEPPFA AISBL, Recovinyl AISBL are certified by KPMG.

### Use of this Report

This report is intended solely for the information and use of the management of VinylPlus board, and is not intended to be and should not be used by anyone other than these specified parties.

**KPMG Réviseurs d'Entreprises SCRL civile**  
Represented by

  
**Dominic Rousselle,**  
Réviseur d'Entreprises / Bedrijfsrevisor  
Louvain-la-Neuve, 3 April 2013

## KPMG CERTIFICATION OF TONNAGES

*KPMG Advisory, a Belgian civil CVBA/SCRL*

Report of the independent expert concerning the audit of the recycled tonnages PVC by initiatives of the sector groups EPCoat, EPFLOOR and EPPA of the EuPC, by the sector associations ESWA & TEPPFA of the EuPC and by Recovinyl Inpa during the period January 1<sup>st</sup> 2012 to December 31<sup>st</sup> 2012.

The conclusions of this audit are summarized in the below-mentioned overview:

Project	Type of PVC	Tonnage recycled in 2011	Tonnage recycled in 2012
EPCoat (incl. Recovinyl)	Coated fabrics	3,563*	6,364*
EPFLOOR	Flooring	2,788*	3,420*
EPPA (incl. Recovinyl)	Window profiles & related profiles	104,719	198,085
ESWA – ROOFCOLLECT and Recovinyl	Flexible PVC	33,694 tons which consist of:	21,418 tons which consist of:
ESWA – ROOFCOLLECT	Flexible PVC	1,633*	2,581*
Recovinyl	Flexible PVC applications	32,061	18,837
TEPPFA (incl. Recovinyl)	Pipes & fittings	23,977	38,692
ERPA via Recovinyl (incl. CIFRA and Pack-Upgrade Project)	Rigid PVC film	5,201	5,620
Recovinyl (incl. Vinyloop Ferrara)	Cables	83,142	88,477
<b>Total</b>		<b>257,084</b>	<b>362,076</b>

\*Tonnage including Norway and Switzerland

The persons responsible for establishing the table presenting the supported tonnages for the different projects of VinylPlus have provided us with all explanations and information which we required for our audit. Based on our review of the provided information, we believe that all PVC

In accordance with the assignment, which was entrusted to us by VinylPlus, we give an account of our audit of the following tonnages for the different projects of VinylPlus mentioned in the VinylPlus Progress Report related to the activities of the year 2012.

that was taken into account was recycled PVC, according to the VinylPlus Sector Definitions of Recycling and that we have not recognized any elements which are of nature to influence significantly the presented information.

**KPMG Advisory, a Belgian civil CVBA/SCRL**  
represented by

**Ludo Ruyzen,**  
Partner

Brussels, March 29<sup>th</sup> 2013

## SGS INDEPENDENT VERIFICATION STATEMENT ABOUT THIS VINYLPLUS PROGRESS REPORT 2013

Established in 1878, SGS is the world's leading inspection, verification, testing and certification company. We are recognised as the global benchmark for quality and integrity. With more than 75,000 employees, we operate a network of more than 1,500 offices and laboratories around the world.

SGS was commissioned by VinylPlus to provide an independent verification of the "Progress Report 2013". This report presents the commitments and achievements made by the VinylPlus project in 2012.

The purpose of the verification was to check the statements made in the report. SGS was not involved in the preparation of any part of this report or the collection of information on which it is based. This verification statement represents our independent opinion.

### Verification Process

The verification consisted of checking whether the statements in this report give a true and fair representation of VinylPlus' performance and achievements. This included a critical review of the scope of the Progress Report and the balance and the unambiguity of the statements presented.

#### The verification process included the following activities:

- ➔ Desktop review of project-related material and documentation made available by VinylPlus such as plans, agreements, minutes of meetings, presentations, technical reports and more.
- ➔ Communication with VinylPlus personnel responsible for collecting data and writing various parts of the report, in order to discuss and substantiate selected statements.
- ➔ Communication with some members of the Monitoring Committee.

#### The verification did not cover the following:

- ➔ The underlying data and information on which the desktop review documentation is based.
- ➔ The tonnage of PVC waste recycled (verified by KPMG).
- ➔ The chapter Financial Report (verified by KPMG).
- ➔ The chapter KPMG Certification of expenditure.
- ➔ The chapter KPMG Certification of tonnages.

### Verification Results

Within the scope of our verification, VinylPlus has provided objective evidence of its performance in relation with its commitments in the VinylPlus programme.

It is our opinion that this "Progress Report 2013" represents VinylPlus' performance in 2012 in a reliable way; this report reflects the effort of VinylPlus to comply with its new Voluntary Commitments of June 2011.



Mr Pieter Weterings,  
SGS Belgium NV  
S&SC Certification Manager  
Brussels, 28 March 2013

## TNS commentary on VinylPlus Progress Report for 2012

The Natural Step (an international sustainability NGO) acts as critical friend and sustainability advisor to VinylPlus. We were involved in developing the targets upon which this report is based. Our role includes observing progress and advising upon the pace and direction of the VinylPlus programme.

In 2012, we saw steps being taken to consolidate the activities of the programme after the launch year. And we can now see those activities starting to bear fruit. We believe the Task Forces and other work are responding well to the most pressing tasks including those highlighted by external stakeholders.

**Controlled-loop management:** This work needs to continue its review of recycling technologies and dealing with the issues of legacy additives. For the coming year we recommend that more attention starts to be given to the whole question of recycling quantities. Whilst the amount of PVC recycled appears to have increased, certainly compared to other regions, there remains a question about the percentage of PVC recyclates compared to the amount entering the waste stream. A second priority in coming years should be to examine the spread of recycling throughout Europe. We know there are areas where more effort and investment is needed.

**Organochlorine emissions:** We were pleased to see and help facilitate the 2012 stakeholder engagement work, focussed upon dioxin emissions. We believe the statement from the industry was well balanced on a complex subject and led to a degree of consensus with external interests on where the real risk lies beyond what has already been achieved.

This new kind of dialogue should be the way in which VinylPlus continues to bring out and share the challenges.

**Sustainable use of additives:** The progress made, seeking clear sustainability criteria, has been promising. We believe there is genuine understanding in the industry and its associations that a change to more sustainable substances has to happen. Equally it is very important that the criteria and the substances to which they are applied, and the process of application, are selected carefully. That is bound to take time and must include sound discussions with parties outside the industry. The continued efforts of the Task Force, should result in clear criteria and processes in the coming months.

**Sustainability awareness:** One of our repeated observations across the full range of the VinylPlus work is to do everything possible to spread this kind of approach globally. We would like to see more activity in that regard during 2013. Otherwise the disparity in standards around the world will start to undermine the progress being made in Europe.

Furthermore, as the VinylPlus programme is now gaining momentum, we're expecting to see more companies coming forward with inspiring new innovations, business models and solutions to the challenges set forth by VinylPlus. We see it as crucial that VinylPlus lifts forward such role models to lead and inspire others in the industry whilst achieving real business results.

### Concluding comments

We must all recognise that economic circumstances have affected this sector. In the case of PVC, in Europe at least, we can be encouraged that the initiative continues. Indeed it is widely seen within the industry, in our experience, as one of the main ways in which better and more consistent business can be supported in difficult economic times. As customers, particularly in public procurement and amongst big brand names, increase their insistence upon materials that have good sustainability credentials, then we will see that the leadership given in Europe has a clear pay-off.

In conclusion, so often sustainable development is less about big breakthroughs and more about dogged pursuit of clear targets and new ways of thinking. In that regard the work of VinylPlus continues to be a role model which other industries would do well to emulate.



**David Cook,**  
Executive Ambassador  
The Natural Step, Stockholm

# Appendix 1 – Glossary

<b>Ba/Zn</b>	Barium-zinc	<b>EU</b>	European Union
<b>BBP</b>	Butyl Benzyl phthalate	<b>EuPR</b>	European Plastics Recyclers ( <a href="http://www.plasticsrecyclers.eu">www.plasticsrecyclers.eu</a> )
<b>Ca/Zn</b>	Calcium-zinc	<b>EuPC</b>	The European Plastics Converters ( <a href="http://www.plasticsconverters.eu">www.plasticsconverters.eu</a> )
<b>CIFRA</b>	Calandrage Industriel Français (a French calendering company – <a href="http://www.cifra.fr">www.cifra.fr</a> )	<b>HMW plasticisers</b>	High Molecular Weight plasticisers
<b>CSD</b>	Commission on Sustainable Development	<b>IFEU</b>	Institut für Energie- und Umweltforschung Heidelberg GmbH (German Institute for Energy and Environmental Research – <a href="http://www.ifeu.de">www.ifeu.de</a> )
<b>DBP</b>	Di-n-butyl phthalate	<b>IVK</b>	Industrieverband Kunstoffbahnen (Association of Coated Fabrics and Films – <a href="http://www.ivk-frankfurt.de">www.ivk-frankfurt.de</a> )
<b>DEHP</b>	Di(2-ethylhexyl) phthalate	<b>KPMG</b>	KPMG is a global network of professional firms providing Audit, Tax and Advisory services ( <a href="http://www.kpmg.com">www.kpmg.com</a> )
<b>DIDP</b>	Di-isodecyl phthalate	<b>LCA</b>	Life Cycle Assessment
<b>DINCH</b>	1,2-Cyclohexane dicarboxylic acid, di-isomyrl ester	<b>LMW phthalates</b>	Low Molecular Weight phthalates
<b>DINP</b>	Di-isonyl phthalate	<b>PE</b>	Polyethylene
<b>DNEL</b>	Derived No Effect Level	<b>ppm</b>	Part per million (also equivalent to 1 mg per kg)
<b>DNV</b>	Det Norske Veritas, a Norwegian testing and verification organisation ( <a href="http://www.dnv.com">www.dnv.com</a> )	<b>PVC</b>	Polyvinyl chloride
<b>DNOP</b>	Di-n-octyl phthalate	<b>REACH</b>	Registration, Evaluation, Authorisation and restriction of Chemicals
<b>DPHP</b>	Di(2-Propyl Heptyl) phthalate	<b>Rewindo</b>	Fenster-Recycling-Service ( <a href="http://www.rewindo.de">www.rewindo.de</a> )
<b>EC</b>	European Community	<b>R-PVC</b>	Recycled PVC
<b>ECHA</b>	European Chemicals Agency ( <a href="http://echa.europa.eu">http://echa.europa.eu</a> )	<b>SDS</b>	Safety Data Sheet
<b>ECPI</b>	The European Council for Plasticisers and Intermediates ( <a href="http://www.plasticisers.org">www.plasticisers.org</a> )	<b>SDS-R</b>	Safety Data Sheet for Recyclate
<b>ECVM</b>	The European Council of Vinyl Manufacturers ( <a href="http://www.pvc.org">www.pvc.org</a> )	<b>SGS</b>	Société Générale de Surveillance, the world leading testing and verification organisation ( <a href="http://www.sgs.com">www.sgs.com</a> )
<b>ECVM Charters</b>	ECVM Industry Charters for the Production of VCM and S-PVC (1995) and for the Production of E-PVC (1998)	<b>SME</b>	Small and Medium-Sized Enterprise
<b>ECVM 2010</b>	The ECVM's formal legal entity registered in Belgium	<b>S-PVC</b>	Suspension Polyvinyl chloride
<b>EDC</b>	Ethylene dichloride or 1,2-dichlorethane	<b>SVHC</b>	Substances of Very High Concern
<b>EPCoat</b>	EuPC PVC Coated Fabrics Sector Group	<b>TEPPFA</b>	The European Plastic Pipes and Fittings Association, an EuPC sectoral association ( <a href="http://www.teppfa.org">www.teppfa.org</a> )
<b>EPD</b>	Environmental Product Declaration	<b>TNS</b>	The Natural Step ( <a href="http://www.naturalstep.org">www.naturalstep.org</a> )
<b>EPF</b>	Environmental Product Footprint	<b>UN</b>	United Nations
<b>EPFLOOR</b>	European PVC Floor Manufacturers, an EuPC sector group ( <a href="http://www.epfloor.eu">www.epfloor.eu</a> )	<b>VCM</b>	Vinyl chloride monomer
<b>EPPA</b>	European PVC Window Profile and Related Building Products Association, an EuPC sectoral association ( <a href="http://www.eppa-profiles.org">www.eppa-profiles.org</a> )	<b>VINYL 2010</b>	The first 10-year Voluntary Commitment of the European PVC industry signed in 2000
<b>E-PVC</b>	Emulsion Polyvinyl chloride	<b>WUPPI</b>	Danish company set up to collect and recycle rigid PVC ( <a href="http://www.wuppi.dk">www.wuppi.dk</a> )
<b>ERPA</b>	European Rigid PVC Film Association ( <a href="http://www.pvc-films.org">www.pvc-films.org</a> )		
<b>ERFMI</b>	European Resilient Flooring Manufacturers' Institute ( <a href="http://www.erfmi.com">www.erfmi.com</a> )		
<b>ESPA</b>	The European Stabiliser Producers Association ( <a href="http://www.stabilisers.eu">www.stabilisers.eu</a> )		
<b>ESWA</b>	European Single Ply Waterproofing Association, an EuPC sectoral association ( <a href="http://www.eswa.be">www.eswa.be</a> )		

# The European PVC Industry

Polyvinyl chloride, or 'PVC', is one of the most widely used polymers in the world. Due to its very versatile nature, PVC is used extensively across a broad range of industrial, technical and everyday applications.

Made from salt (57%) and oil (43%), PVC is less oil-dependent than any other major thermoplastic. PVC is recyclable and is increasingly being recycled. The European PVC industry has been working hard to boost its collection and to improve the existing recycling technologies.

Several recent eco-efficiency and LCA studies on the main PVC applications show that in terms of energy requirement and GWP (Global Warming Potential) the performance of PVC is comparable to that of alternative products, and, in many cases, PVC applications show advantages both in terms of total energy consumption and in terms of low CO<sub>2</sub> emissions.

At European level, the PVC value chain is represented by four associations:



**The European Council of Vinyl Manufacturers**, representing eight European PVC resin producing companies which account for around 75% of the current total EU-27 PVC resin production. These businesses operate around 40 different plants spread over 21 sites and employ approximately 7,000 people. [www.pvc.org](http://www.pvc.org)



**The European Plastics Converters**, representing close to 50,000 companies in Europe producing over 50 million tonnes of plastics products of various types every year. They employ approximately 1.7 million people. EuPC estimates that around 21,000 of these businesses (many of which are SMEs) are involved in the conversion of PVC into final home and industrial products. [www.plasticsconverters.eu](http://www.plasticsconverters.eu)



**The European Stabiliser Producers Association**, representing 12 companies which produce more than 95% of the stabilisers sold in Europe. They employ approximately 5,000 people. [www.stabilisers.eu](http://www.stabilisers.eu)



**The European Council for Plasticisers and Intermediates**, representing the eight major European plasticiser and intermediate producers that employ approximately 1,200 people in plasticiser production. [www.plasticisers.org](http://www.plasticisers.org)

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