

PROGRESS REPORT 2014

REPORTING ON 2013 ACTIVITIES

vinyj **plus**
COMMITTED TO SUSTAINABLE DEVELOPMENT

This Report summarises VinylPlus' progress and achievements in 2013 in each of the five sustainable development challenges identified for PVC in the Voluntary Commitment of the European PVC industry.

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. For detailed descriptions of the projects and activities please visit www.vinylplus.eu.

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The CONE, artistic conic spinning structure made of PVC assembled tubes, at the New Orleans Voodoo Festival

PHOTO: COURTESY OF M. KRETZER, RESPONSIVE DESIGN STUDIO, ZÜRICH

2013

Year Highlights

FIVE KEY CHALLENGES HAVE BEEN IDENTIFIED BASED ON THE NATURAL STEP SYSTEM CONDITIONS FOR A SUSTAINABLE SOCIETY.

Controlled-loop Management

PVC recycled volumes registered a significant increase to 444,468 tonnes in 2013, despite continued adverse economic conditions. The consolidation of waste streams contributed to this achievement, as did the involvement of the converters contributing industrial waste in the Recovinyl system. VinylPlus also started to investigate the possibility of increasing recycling volumes in regulated PVC waste streams such as automotive trim and household packaging.

EU regulations impacting 'legacy additives' were a critical challenge in 2013, and VinylPlus has further strengthened its cooperation with the competent authorities.

Organochlorine Emissions

A Task Force of experts was set up to assess the risks of transporting major raw materials, and it mapped out an action plan to identify and assess the measures in place.

No transport accidents leading to VCM release were recorded in 2013.

Launched in 2011, VinylPlus is the renewed ten-year Voluntary Commitment to Sustainable Development by the European PVC industry. The VinylPlus programme was developed through open dialogue with stakeholders, including industry, NGOs, regulators, civil society representatives and PVC users. The regional scope of the programme is the EU-27 plus Norway and Switzerland.

Sustainable Use of Additives

The use of lead-based stabilisers declined by 81% in the EU-27 compared to 2007, progressing towards the target of completing their substitution by the end of 2015. The replacement of Low Molecular Weight by High Molecular Weight phthalates and other plasticisers is also continuing.

In 2013, the Additives Task Force defined practical methods to assess additives based on TNS sustainability criteria, while converter associations started to update existing LCAs and EPDs. Sector-specific reviews should be finalised by the end of 2014.

Sustainable Use of Energy and Raw Materials

The Energy Efficiency Task Force initiated data collection by ECVM member companies based on the methodology agreed with consultant IFEU. During 2013, the Sustainable Footprint Task Force analysed the European Commission's Product Environmental Footprint (PEF) scheme and its guidance in relation to the available EPDs for PVC products. The Renewable Materials Task Force continued to investigate renewable alternatives to raw materials, and confirmed that technical solutions do exist for producing some raw materials from renewable resources or waste.

Sustainability Awareness

With the objective of raising sustainability, joint communication projects supported by VinylPlus were implemented by European industry sector federations and national PVC associations in 2013.

Selected as a 'Flagship Initiative' by the European Chemical Industry Council (CEFIC) due to the innovative and leading-edge work of the programme, VinylPlus was presented at the 21st Inogen Wordview[®] Conference.

In April 2013, the first VinylPlus Sustainability Forum was organised in Istanbul, Turkey, aiming to engage a wider range of industry and external stakeholders.

In November 2013, VinylPlus officially became a member of the Green Industry Platform, a joint initiative of the United Nations Industrial Development Organization (UNIDO) and the United Nations Environment Programme (UNEP). VinylPlus also took part in a roundtable at European Development Days, the European Commission's annual forum on international affairs and development cooperation.

Management and Monitoring

Management Board

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

VinylPlus Board

Mr Bernhard Borgardt – EuPC¹

Mr Dirk Breitbach – Compounding sector

Mr Filipe Constant – Chairman (ECVM 2010)^{2(a)}

Mr Alexandre Dangis – EuPC

Dr Brigitte Dero – General Manager (ECVM 2010)^(b)

Mr Joachim Eckstein – Vice Chairman (EuPC)

Mr Stefan Eingärtner – Deputy General Manager^(c)

Dr Josef Ertl – ECVM 2010

Mr Rainer Grasmück – Treasurer (ESPA³)

Mr Andreas Hartleif – EuPC (Rigid PVC sector)

Mr Roberto Jacono – EuPC (Flexible PVC sector)^(d)

Mr Michael Kundel – EuPC (Flexible PVC sector)

Mrs Dominique Madalinski – EuPC (Flexible PVC sector)^(e)

Dr Ettore Nanni – ESPA

Mr Nigel Sarginson – PlasticisersPlus^{4(d)}

Mr Arjen Sevenster – Controller (ECVM 2010)

Mr Niels Rune Solgaard Nielsen – EuPC (Rigid PVC sector)^(f)

Mr Chris Tane – ECVM 2010

Mr Hans Telgen – EuPC (Rigid PVC sector)^(g)

Mr Geoffroy Tillieux – Controller (EuPC)

Dr Michael Träger – Chairman (ECVM 2010)^(h)

Mr Joachim Tremmel – PlasticisersPlus^(d)

(a) Chairman until September 2013 (Board Member since September 2013)

(b) Since January 2014 (Deputy General Manager until December 2013)

(c) Since January 2014 (General Manager until December 2013)

(d) Since December 2013

(e) Until December 2013

(f) Since April 2013

(g) Until April 2013

(h) Since September 2013

Monitoring Committee

The Monitoring Committee was set up as an independent body open to external stakeholders with the aim of guaranteeing VinylPlus' transparency, participation and accountability. The Committee plays an active role in evaluating VinylPlus' actions and initiatives, provides advice and stimulates the industry to rise to new challenges in sustainable development.

The Monitoring Committee, chaired by Professor Alfons Buekens of the Free University of Brussels, currently includes representatives from the European Commission, the European Parliament, trade unions and consumer associations, as well as representatives from the European PVC industry.

Members

Mrs Soledad Blanco – Directorate-General Environment, European Commission^(a)

Prof. Alfons Buekens – VUB⁵, Chairman of the Monitoring Committee

Mr Filipe Constant – Chairman of VinylPlus^(b)

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

Mr Alexandre Dangis – VinylPlus Board Member

Dr Brigitte Dero – 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 Union⁶

Mr Carlos Sánchez-Reyes de Palacio – President of OCU⁷, President of the Commission on Sectoral Policies and Environment, CES⁸

Dr Michael Träger – Chairman of VinylPlus^(c)

(a) Retired on 1 August 2013

(b) Until September 2013

(c) Since September 2013

¹ EuPC: European Plastics Converters (www.plasticsconverters.eu)

² ECVM 2010: the formal legal entity of ECVM (The European Council of Vinyl Manufacturers – www.pvc.org) registered in Belgium

³ ESPA: The European Stabiliser Producers Association (www.stabilisers.eu)

⁴ PlasticisersPlus: the formal legal entity of ECPI (The European Council for Plasticisers and Intermediates – www.plasticisers.org) in Belgium

⁵ VUB: Vrije Universiteit Brussel (Free University of Brussels – www.vub.ac.be)

⁶ IndustriAll European Trade Union (www.industriall-europe.eu)

⁷ OCU: Organización de Consumidores y Usuarios

(Spanish Consumers and Users Organisation – www.ocu.org)

⁸ CES: Consejo Económico y Social de España (Spanish Economic and Social Council – www.ces.es)

Foreword from the Chairman of VinylPlus

2013 was full of activity for VinylPlus, as we made significant progress towards all our sustainability goals and contributed to a lively debate on EU regulations.

The volume of recycled PVC increased 23% to 444,468 tonnes, keeping us fully on track to meet our target in one of our five sustainability challenges. We were particularly pleased to see VinylPlus partners' innovative and upgraded recycled products and their commitment to make PVC into a truly circular economy. We hope that innovation in recycled products can soon become part of the normal business proposition, also thanks to a market accepting and demanding them.

We also engaged in a discussion over EU regulations – in particular REACH – on legacy additives in recycled PVC, something that highlights the complexity of our efforts to promote sustainability in different areas. Excessive restrictions on the use of recyclates containing legacy additives might in fact undermine the development of recycling schemes, making it harder to reach future recycling targets. Several sectoral groups and task forces provided facts and positive suggestions to the debates. Authorities will now have to devise a regulatory framework that balances consumer and environmental protection with resource efficiency and recycling.

Progress was also made in our other challenges, related to organochlorine emissions, sustainable use of additives, energy use and sustainability awareness.

In 2013, VinylPlus increased its global reach and activities, an important mission as we try to spread our best practices and encourage voluntary initiatives like our own. The Beijing-based China Plastics Piping Association proposed to encourage the phasing out of lead by 2015 – a move that really pleased us, as it was inspired by our Voluntary Commitment. In November, VinylPlus became a member of the Green Industry Platform, a joint initiative of the United Nations Industrial Development Organization (UNIDO) and the United Nations Environment Programme (UNEP), to catalyse, mobilise and mainstream action on Green Industry around the world. We will continue to help promote a more sustainable model of industrial production on global level, by spreading our approach, experience and best practices.

For all this hard work and for efforts on a range of other sustainability initiatives, I would like to thank the VinylPlus organisation, the member companies, the PVC Network, sectoral associations, Task Forces and external stakeholders. I would like in particular to thank the four founding associations and their members. They continued their financial commitment despite persistently adverse economic conditions, and they committed to maintain it for the current year too.

It has been a pleasure to work with such committed, hard-working people and organisations, and I look forward to another fruitful year.



MICHAEL TRÄGER, *Chairman of VinylPlus*

A handwritten signature in black ink, reading "M. Träger". The signature is fluid and cursive, written in a professional style.

CHALLENGE 1

Controlled-loop Management: "We will work towards the more efficient use and control of PVC throughout its life cycle."

Recycle 800,000 tonnes/year of PVC by 2020.

Exact definitions and reporting concept to be available by end 2011.
] achieved

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.

Address the issue of 'legacy additives' and deliver a status report within each annual VinylPlus Progress Report.

Recycling Target

VinylPlus was fully on track in 2013 to achieve its recycling targets, with a total of 444,468 tonnes of PVC recycled. This significant increase in recycled volumes was mainly due to the consolidation of waste streams and the involvement of converters, contributing industrial waste in the Recovinyl system.

RECOVINYL

Recovinyl (www.recovinyl.com) aims to facilitate PVC waste collection and recycling in the framework of the Voluntary Commitment. Having already established significant volumes of PVC recycling with Vinyl 2010, Recovinyl's strategy now is to consolidate and increase the steady supply of PVC waste being recycled in Europe by creating demand for recycled PVC material from the converting industry ('pull-market').

PVC RECYCLED WITHIN THE VINYL 2010 AND VINYLPLUS FRAMEWORKS

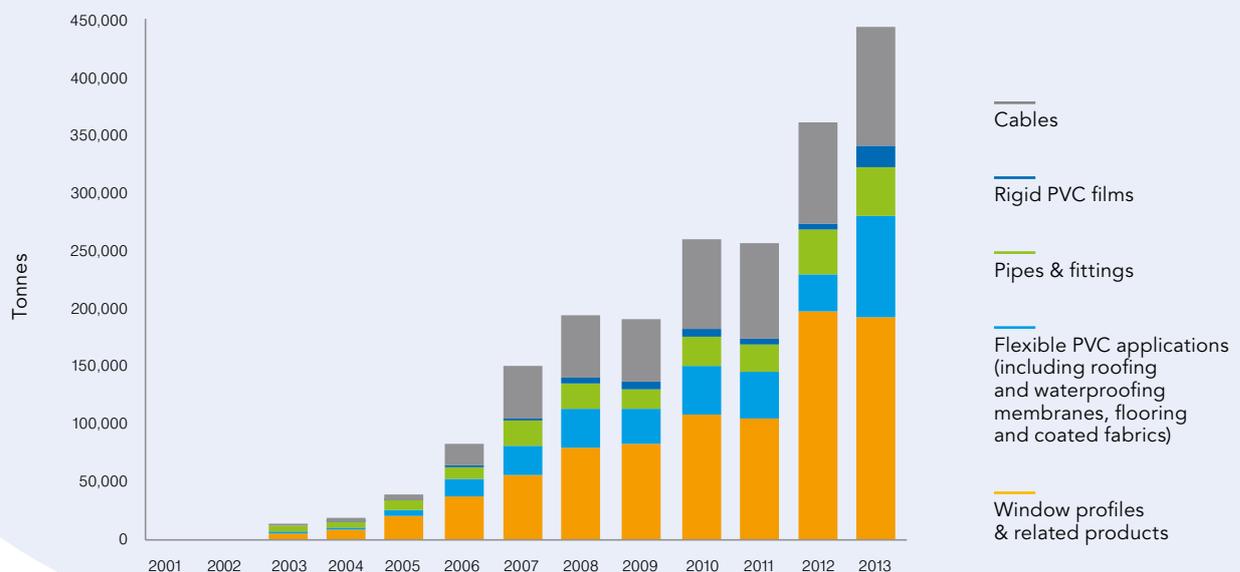




PHOTO: COURTESY OF PROTAN

PVC insulating roofing membranes provide durable protection against external and internal elements

In 2013, Recovinyl focused on implementing this 'pull-market' concept. It helped and motivated converters to use more recyclates, and it set up three levels of agreement and corresponding audit protocols – Standard, Advanced and EuCertPlast – to certify PVC recyclers and accredited convert companies who purchase recyclates to manufacture new products and applications. To date, the Recovinyl network comprises 147 companies: 99 recyclers with standard contracts; 15 with advanced; 23 with EuCertPlast; and 10 converters.

Recovinyl registered and certified 435,083 tonnes of recycled PVC in 2013 using the new definitions. (For further information see www.vinylplus.eu)

INDUSTRY-SECTOR PROJECTS FOR PVC WASTE MANAGEMENT

EPPA⁹ estimates that the window and profile sector can contribute around 240,000 tonnes to VinylPlus' recycling target by 2020. To achieve this, the EPPA's expert group considers it will be essential to implement a plan focused on France, Germany and the UK. The 'legacy additives' issue might however have a negative effect on recycling: the REACH Regulation requirements, in particular, might cause some uncertainty over public procurement of PVC products

and converters' intentions to use more recyclates in PVC window profiles. So in 2013, EPPA continued its work to demonstrate the safe use of PVC in window frames. (For further information see www.vinylplus.eu and www.eppa-profiles.org)

In the framework of VinylPlus, TEPPFA¹⁰ members are committed to utilising 60,000 tonnes of recycled PVC in new pipe products and to try to use a further 60,000 tonnes by 2020. The annual report by VITO¹¹ stated that TEPPFA members used 78,000 tonnes of PVC recyclate in 2012. Nevertheless, uncertainties over the REACH Regulation on the use of (PVC) recyclate containing legacy substances might have negative effects on recycling: it has already pushed several pipe manufacturers to postpone investments in multi-layer pipes containing recyclate. (For further information see www.vinylplus.eu and www.teppfa.org)

In 2013, ESWA¹² recycled 4,271 tonnes of roofing and waterproofing membranes through its project Roofcollect[®], a 65% increase on 2012. Among the final products using the recycled PVC is an interesting sound-absorbing foil that can be placed under hardwood and laminated flooring and also used in soundproof mats for pipe insulation. Strong efforts were made to boost collection and recycling in the Dutch and Belgian markets in 2013. (For further information see www.vinylplus.eu and www.roofcollect.com)

EPFLOOR¹³ collected 3,700 tonnes of flooring waste for recycling in 2013, a slight increase on the previous year. EPFLOOR implemented the Turquoise project, aimed at finding new solutions for PVC flooring waste recycling in France. Shredding company SITA (www.sita.fr) conducted positive tests and the resulting recycled material proved to be suitable for extrusion, calendaring and injection moulding. EPFLOOR also participated in the VinylPlus' ReMapPlus project for difficult-to-recycle mixed, soft PVC waste. Other R&D projects are being prepared in the framework of the Horizon 2020 research programme. The joint ERFMI¹⁴/EPFLOOR Task Force on new technologies for flooring recycling selected a solvent-based recovery process for further investigation. The process will be further developed on a laboratory scale in 2014, and design for a pilot-scale plant could be delivered by the end of the year. (For further information see www.vinylplus.eu)

444,468
TONNES
RECYCLED

⁹ EPPA: European PVC Window Profile and Related Building Products Association, an EuPC sectoral association (www.eppa-profiles.org)

¹⁰ TEPPFA: European Plastic Pipes and Fittings Association, an EuPC sectoral association (www.teppfa.org)

¹¹ VITO: Vlaamse Instelling voor Technologisch Onderzoek (Flemish Institute for Technological Research – www.vito.be)

¹² ESWA: European Single Ply Waterproofing Association, an EuPC sectoral association (www.eswa.be)

¹³ EPFLOOR: European PVC Floor Manufacturers, an EuPC sectoral group (www.epfloor.eu)

¹⁴ ERFMI: European Resilient Flooring Manufacturers' Institute (www.erfmi.com)



High-value application for recycled PVC: flooring for hydroponic greenhouses

EPCoat (IVK Europe¹⁵ PVC Coated Fabrics Sector Project) recycled 3,449 tonnes of PVC coated fabrics (reported as part of Recovynil volumes) through its collection and recycling scheme during 2013. Coated fabrics consist of a polyester fibre web whose surface is coated with soft PVC. (For further information see www.vinylplus.eu)

ERPA¹⁶: in 2013, CIFRA¹⁷ recycled 1,000 tonnes of 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) 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. In addition, 845 tonnes of PVC rigid films were recycled by ERPA members Alfatherm (www.alfatherm.it) and Vulcaflex (www.vulcaflex.eu). In total, 19,431 tonnes of PVC rigid films were recycled in 2013 within the VinylPlus framework. (For further information see www.vinylplus.eu)

OTHER RECYCLING PROJECTS

In 2012, a project on an innovative and efficient collection and recycling system for plastics from the building sector was initiated in Sweden, in cooperation with Recovynil, EPPA, TEPPFA and EPFLOOR. The project was delayed in 2013, following the decision by the Swedish Environmental Research Institute (IVL – www.ivl.se) to join the project as a co-financing body, and also because of the difficulty of finding the right renovation and/or demolition site to collect plastic waste and sort it in a suitable way. Results are now expected in 2014.

In 2013, VinylPlus also launched a joint project with the European Automotive Trim Suppliers Association (EATS¹⁸), which represents approximately 60% of the EU market for automotive trim. The aim of the project was to verify how EATS members are currently dealing with post-industrial PVC waste. Verifications showed that the current destinations of post-industrial PVC waste are reuse (38.5%), recycling (24.5%), incineration (7%) and landfill (30%). Visits were conducted to EATS members' plants to examine the possibility of increasing the sustainability of automotive PVC waste. Improvement actions are expected in 2014.

In France, the possibility of extending the selective collection of plastic household packaging to all kinds of packaging (instead of just bottles) is under evaluation. A pilot experiment has been under way since April 2012 in 51 municipalities, representing 3.7 million inhabitants. If this extended collection is fully implemented, it could give access to a stream of rigid PVC packaging (blisters and trays) estimated at 25-30,000 tonnes/year. Tests on a semi-industrial scale are ongoing to verify the technical recyclability of the rigid PVC packaging coming from the sorting facilities.

In Denmark, VinylPlus continued to support the WUPPI¹⁹ project (www.wuppi.dk) in 2013. Good progress was made towards financial self-sufficiency. TEPPFA actively participated in an EPA study on WUPPI effectiveness in view of the revision of the PVC ecotax in 2014.

VINYLOOP®

VinyLoop® is a physical, solvent-based technology that is able to recycle difficult-to-treat, end-of-life PVC waste, and produces high-quality R-PVC (recycled PVC) compounds. In 2013, the VinyLoop Ferrara plant produced 4,875 tonnes of R-PVC (+3.7% compared to 2012). During the year, VinyLoop® concentrated its efforts on improving the efficiency of the treatment of scraps containing fibres, and achieved a significant increase in tarpaulin recycling (802 tonnes, +55% compared to 2012).

The permanent innovation content of the process is shown by the recent application for nine new patents, mainly concerning engineering know-how.

In 2013, VinyLoop Ferrara decided to make its technology available for licensing worldwide to companies that are interested in treating scraps with the VinyLoop® process. (For further information see www.vinylplus.eu and www.vinyloop.com)

¹⁵ IVK Europe: Industrieverband Kunststoffbahnen e.V. (Association of Coated Fabrics and Films – www.ivk-europe.com)

¹⁶ ERPA: European Rigid PVC Film Association, an EuPC sectoral association (www.pvc-films.org)

¹⁷ CIFRA: Calandrage Industriel Français – a French calendaring company (www.cifra.fr)

¹⁸ EATS: European Automotive Trim Suppliers Association, an EuPC sectoral association (www.trimsuppliers.eu)

¹⁹ WUPPI: Danish company set up to collect and recycle rigid PVC (www.wuppi.dk)

Legacy Additives

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

PHTHALATES

The REACH Regulation required the submission of Authorisation requests for virgin LMW phthalates by August 2013 (they can be used without Authorisation up to February 2015). For recyclates containing LMW phthalates, the Competent Authorities for REACH and CLP (CARACAL) issued their interpretation in March 2013. According to this recyclers have two options when recycling waste into a pellet, regrind or regranulate containing a substance subject to Authorisation (e.g. DEHP, BBP). Either they must complete the Authorisation process on time (meaning their products will remain REACH-compliant), or they must sell the recyclates as waste after the February 2015 sunset date, in which case the recyclate will not be subject to Authorisation but to waste legislation. Export *stricto sensu* (i.e. transporting a substance outside the EU) would not constitute a use and hence no application for Authorisation would be required. The opinion of ECHA's²⁰ Risk Assessment Committee (RAC) on the application for Authorisation is expected to be released in September 2014.

Concerning the RoHS 2 Directive²¹, DG Environment has to review by summer 2014 whether LMW phthalates may continue to be used in electrical and electronic equipment. Plastics Recyclers Europe

PVC coated fabrics waste from Serge Ferrari ready to be recycled at the VinyLoop® plant in Ferrara, Italy



PHOTO: COURTESY OF VINYLPLUS

(PRE – www.plasticsrecyclers.eu), with the support of VinylPlus, initiated a test campaign measuring the exposure to DEHP at three recycling facilities. Results showed safe exposure levels, 10 times lower than DNEL (derived no-effect level).

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.

Around 20 lead-based substances were added to the REACH Candidate List²² by the end of 2012, including some that are used as PVC stabilisers. As a first consequence, articles containing these substances are subject to Article 33 of REACH, concerning the "duty to communicate information on substances in articles".

In March 2013, ECHA launched a public consultation on the following restriction proposal from Sweden: "Lead and its compounds shall not be (...) used in articles (...), which are supplied to the general public and which can be placed in the mouth by children, if the concentration of lead (...) is equal to or greater than 0.05% by weight". VinylPlus submitted comments focused on recycling, in particular asking for exemptions for garden hoses, small pipes, cable ducts and shoe soles, which it considers outside the restriction's scope. The consultation ended on 21 September 2013, and in December 2013, the Risk Assessment Committee stated in its conclusions that outdoor shoe soles were indeed outside the scope. Subsequently a public consultation on the socio-economic aspects of the proposed restriction was launched by the ECHA's Committee for Socio-economic Analysis (SEAC) on 17 December 2013, running until 14 February 2014.

Since restrictions on lead might severely affect recycling, VinylPlus and the Dutch consultant Tauw²³ in March 2012 initiated a study on the socio-economic impact of recycling waste streams containing lead. The study assessed the impact of possible regulations limiting lead content in PVC articles for building and construction over the time span 2015-2050. The study concluded that a lead limit of < 0.1% (w/w as Pb) in PVC articles, without exception for recycling, would have significant negative impacts both economically (loss of

²⁰ ECHA: European Chemicals Agency (<http://echa.europa.eu>)

²¹ RoHS 2 Directive: EU legislation restricting the use of hazardous substances in electrical and electronic equipment. The recast RoHS Directive 2011/65/EU (RoHS 2) entered into force on 21 July 2011

²² <http://echa.europa.eu/candidate-list-table>

²³ Tauw: independent European consulting and engineering company (www.tauw.com)

jobs, fewer companies, loss of added value for the EU economy) and for the environment (less recycling, more CO₂ emissions, greater use of resources). An exemption for recyclates use up to 1% lead limit in building products would be the best option if restrictions are to be applied.

This would allow the continuation of recycling development, job creation, reductions in CO₂ emissions and the conservation of natural resources.

In 2013, a modelling study on lead migration into water from sewage pipes conducted by the German institute Fabes (www.fabes-online.de) was completed. The study demonstrated very low levels of migration, well within Environmental Quality Standards for surface water.

SDS-R PROJECT

To support recyclers in their compliance with the REACH Regulation requirements, EuPC and PRE²⁴ have developed an online database of polymers and applications, where recyclers can enter basic information (statistical or analytical) and obtain Safety Data Sheets for Recyclates (SDS-R).

SDS-Rs are regularly updated on the basis of regulatory changes, input from recyclers and new information coming from Registration dossiers.



PHOTO: COURTESY OF REHAU

Controlled-loop Committee

Thanks to the work done by the Controlled-loop Committee, the new VinylPlus definition of recycling is now fully embedded in all applications, and Sector Groups are following a consistent approach. In 2013, the wall coverings industry also joined the Committee.

To help achieve the target of recycling 100,000 tonnes/year of difficult-to-recycle PVC using innovative technologies, a sub-committee team visited the EcoLoop plant in Germany (www.ecoloop.eu) to finalise arrangements for large-scale trials using flooring waste prepared by AgPR²⁵. Another sub-group visited the Alzchem (www.alzchem.com) calcium carbide plant in Bavaria: even if quality insurance requirements for its process are more stringent, it could be an option for some categories of waste. ReMapPlus workshops, with participants from technology institutes, business and associations, were also held, and several interesting R&D paths have been identified.

Following the publication of the European Commission's 'Green Paper on a European Strategy on Plastic Waste in the Environment', the PVC industry responded to the public consultation emphasising the importance of waste collection and of developing 'market pull' for recyclates. It also pointed to the importance of avoiding barriers to recycling in the form of regulations or negative perceptions.

The Committee is also assisting SFEC (Syndicat Français des Enducteurs Calandriers, the French Association of Calenderers – www.sfec-services.org) in supporting recycling opportunities and recovery options for end-of-life professional furniture, after France adopted a regulation targeting high-recycling rates for professional furniture.

PVC window profiles guarantee excellent thermal insulation, contributing to energy efficiency of buildings

²⁴ PRE: Plastics Recyclers Europe (www.plasticsrecyclers.eu)

²⁵ AgPR: Association for the Recycling of PVC Floor-Coverings (www.agpr.de)



CHALLENGE 2

Organochlorine Emissions: “We will help to ensure that persistent organic compounds do not accumulate in nature and that other emissions are reduced.”

Engage with external stakeholders in the discussion of organochlorine emissions during 2012.
] *achieved*

Develop a plan to deal with stakeholder concerns on organochlorine emissions by end 2012.
] *achieved*



PHOTO: COURTESY OF GERFLOR

Compliance with the PVC resin Industry Charters by first Quarter 2012.
] *partially achieved*

Risk assessment for the transportation of major raw materials, in particular VCM, by end-2013.
] *partially achieved*

Target zero-accident rate with VCM release during transportation in the next 10 years.

Hygiene, safety, comfort, performance: PVC flooring represents an advanced solution for modern sport structures

Safe Transport

There were no transport accidents with VCM release in 2013.

A Task Force of experts was set up with the support of the ECVN Production Committee to assess the risk of transporting major raw materials. The kick-off meeting took place in December 2013. A preliminary overview of the instructions and measures in place was carried out, and actions for completing the assessment were agreed. The Task Force will use the work of the

Transport Risk Assessment Issue Team set up by Cefic (the European Chemical Industry Council – www.cefic.org) in 2012. Information is also being collected on management systems, the reporting of past accidents and past risk assessments carried out at company level.

The experts cautioned that several risk assessment tools exist, but that all have yielded different results. Experience also shows that results obtained by different teams evaluating the same risk and using the same method are usually different. Results therefore only have relative value, such as demonstrating that one route is safer than another.



PHOTO: ED KINGSFORD

CHALLENGE 3

Sustainable Use of Additives: "We will review the use of PVC additives and move towards more sustainable additive systems."

Lead replacement in the EU-27 by end 2015.

Robust criteria for the 'sustainable use of additives' to be developed, with status report by end 2012.
 ▶ *partially achieved*

Validation of the robust criteria for the 'sustainable use of additives' in conjunction with the downstream value chain, with status report by end 2014.

Other PVC additive producers and the downstream value chain will be invited to participate in the 'sustainable additives' initiative.

Lead Replacement

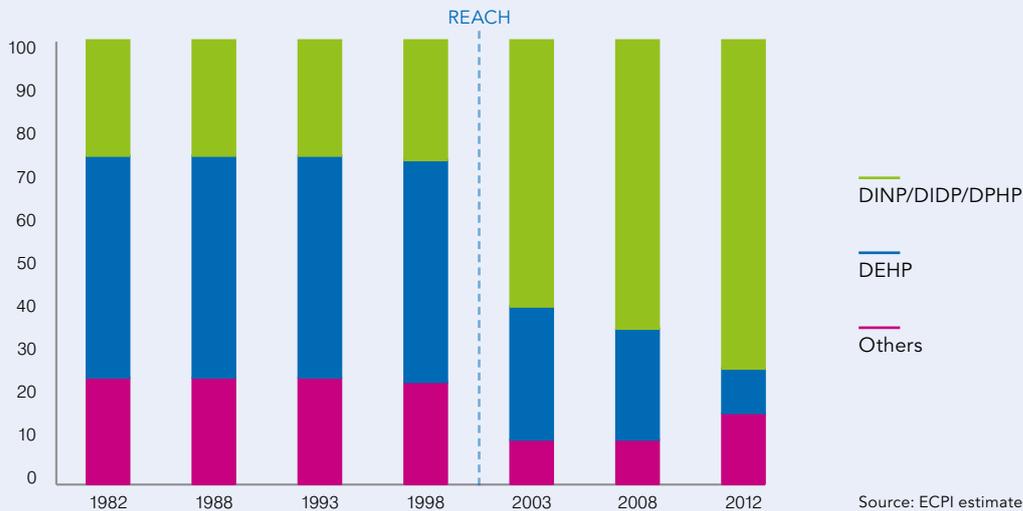
ESPA and EuPC are committed to replacing lead-based stabilisers by the end of 2015 across the EU-27. In 2014, the commitment will be extended to the EU-28. Lead-based stabilisers are being progressively replaced by calcium-based stabilisers, which are used as an alternative.

-81.4% LEAD SUBSTITUTION IN THE PERIOD 2007-2013

STABILISERS CONSUMPTION DATA IN THE EU-27



EU TREND: Shifting to HMW Phthalates & Other Plasticisers



In the 2007-2013 period, use of lead stabilisers decreased by 81,372 tonnes (-81.4%) in the EU-27, while use of calcium-based stabilisers increased by 30,643 tonnes in the EU-27 plus Norway, Switzerland and Turkey. (For further information see www.vinylplus.eu and www.stabilisers.eu)

Plasticisers

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

RESTRICTIONS RE-EVALUATION ON DINP AND DIDP

On 28 August 2013, the European Chemicals Agency (ECHA) published its final report on the re-evaluation of the restrictions on DINP and DIDP in toys and childcare articles that can be placed in the mouth.

According to the conclusions, "a risk from mouthing of toys and childcare articles with DINP and DIDP cannot be excluded if the existing restrictions were lifted". However, "no further risks were identified" and hence "no further risk management measures are needed to reduce the exposure of children" to these two HMW phthalates.

Taking into account ECHA's report and the RAC opinion, it can be concluded that DINP and DIDP are safe for use in all current applications: "No risk is expected from combined exposure to DINP and DIDP for children exposed via food and the indoor environment". For adults, the available biomonitoring data confirmed that "exposure from food and the indoor environment are not very significant" and, in the case of dermal exposure, "it is not anticipated to result into a risk".

In January 2014, the European Commission confirmed its agreement with the ECHA's report and concluded that "in the light of the absence of any further risks from the uses of DINP and DIDP, the evaluation of potential substitutes has been less pertinent".

REACH AUTHORISATION

The Low Molecular Weight phthalates DEHP and DBP are undergoing the REACH Authorisation process. Results are expected in 2014.

Since no applications for BBP and DIBP were received by ECHA, the use of these substances will be phased out in the EU by 21 February 2015.

PVC for leisure and sport





PVC flooring: enhanced walking comfort, good footfall sound reduction, anti-slip, warm, particularly durable surface coating

ROHS 2 DIRECTIVE

A public consultation on the assessment of DEHP, BBP and DBP as hazardous substances in electrical and electronic equipment was concluded in December 2013. The Commission's decision is expected in 2014.

ECOLABEL

There is an ongoing dialogue between the PVC industry and DG Environment/JRC aiming to avoid unjustified discrimination. Industry has submitted comments regarding the labelling of footwear, furniture, televisions and computers.

A final decision is expected in May 2014.

'Sustainable Use of Additives' Criteria

The Additives Task Force involves representatives from ECPI, 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 various applications, which results in a high level of complexity.

In 2013, the Task Force continued to work on two key topics:

- Defining practical methods to assess additives based on TNS sustainability criteria, the overarching framework used by VinylPlus: TNS and VinylPlus identified gaps between existing methods (e.g. EPDs) and TNS criteria, and additional schemes will be set up to ensure that these gaps are addressed. While not all the criteria can be fully addressed simultaneously, it is important to keep them in mind from the beginning to ensure that the global picture is addressed. This task will be pursued in 2014.
- Updating existing Life Cycle Assessments and Environmental Product Declarations: LCAs and EPDs have been available for a few years for several product applications (e.g. pipes), but had to be based on the available, generic data as far as additives are concerned. Implementing their commitment, additive producers started to provide the converter associations with the more specific data to update their EPDs and LCAs. Sector-specific reviews should be finalised by the end of 2014.

CHALLENGE 4

Sustainable Use of Energy and Raw Materials: “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.”

Establish Energy Efficiency Task Force by end 2011.

› *achieved*

PVC resin producers to reduce their specific energy consumption, targeting 20% by 2020.

Define targets for specific energy reduction for converters by end 2012.

› *partially achieved*

Energy Efficiency Task Force to recommend suitable environmental footprint measurement by end 2014.

Establish Renewable Materials Task Force by end first Quarter 2012.

› *achieved*

Renewable Materials Task Force’s status report by end 2012.

› *achieved*

Energy Efficiency

PVC resin producers are committed to reducing their energy consumption for the production of EDC, VCM and PVC, targeting a 20% reduction by 2020.

In 2012, the Energy Efficiency Task Force agreed with the ECVM Production Committee to adopt as baseline the data collected by IFEU²⁶ for the 2009 energy benchmarking (energy consumption 2007-2008). This followed the methodology prescribed by the EU authorities and covered the entire European VCM and PVC industry.

An initial verification of the data collected by ECVM member companies based on the IFEU methodology will take place in 2014, using data from 2012-2013. This will be combined with a revision of the VCM and PVC eco-profiles.

The kick-off meeting took place on 19 December 2013 and the data collection phase should be concluded by the end of April 2014. A final report is expected by November 2014.



VinylPlus is committed to reducing non-renewable energy use

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.

As reported last year, in 2012 it was agreed that individual PVC converter companies would have been invited to input their consumption data and targets in the EuPlastVoltage benchmarking system. This system was set up to measure the progress of plastics converter companies as a whole towards increased energy efficiency.

²⁶ IFEU: Institut für Energie- und Umweltforschung Heidelberg GmbH (German Institute for Energy and Environmental Research – www.ifeu.de)

Nevertheless, the benchmark application on which the EuPlastVoltage system is based is not sector-specific, and in 2013 it was decided to transfer it to UNIDO (United Nations Industrial Development Organization), so that the application could be available also for other industrial sectors. PVC converters data collection will now start once the application transfer is completed.

The Task Force concluded that updating the EPDs will provide much of the data needed to produce PEFs for the PVC industry. The Task Force will monitor the EU PEF pilot phase which started in 2013, and in which TEPPFA is directly participating for the product group 'hot and cold water supply pipes'.

In a second stage, socio-economic aspects, human health and safety parameters could be also covered in order to develop a Sustainable Product Footprint.

Sustainable Footprint

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

During 2013, the Task Force continued to collect and evaluate the main existing standards and initiatives on environmental footprints. In particular the Task Force analysed the European Commission's Product Environmental Footprint (PEF) scheme and its guidance in relation to the available EPDs for PVC products.

PVC membranes: esthetic and functional solutions for private and public structures

Renewable Raw Materials

Established in December 2011, the Renewable Materials Task Force is investigating renewable alternative resources for the production of PVC. In 2013, the Task Force continued to investigate the existing options, always making the highest priority the sustainable use of raw materials, rather than simply the use of renewable ones. After verification, it was concluded that technical solutions do exist to produce some raw materials from renewable resources or waste.





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.”

VinylPlus web portal to go online in summer 2011.

› *achieved*

VinylPlus Monitoring Committee, which will meet a minimum of twice a year, will be established by end 2011.

› *achieved*

A VinylPlus Membership Certificate will be launched end 2011.

› *achieved*

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*

Annual external stakeholder meetings will be organised, commencing in 2012.

› *achieved*

A VinylPlus product label will be launched by end 2012.

› *partially achieved*

ECVM will take an active role in promoting VinylPlus within international PVC industry organisations worldwide.

ESPA stabiliser producers will actively promote VinylPlus outside the EU-27.

VinylPlus will increase the number of programme participants by 20% compared to 2010 by end 2013.

› *not achieved*

VinylPlus will engage with five global brand holders by end 2013.

› *partially achieved*

A review of progress towards the globalisation of the approach will be undertaken by end 2015.

PVC hi-tech textiles are used for hangars, aircraft, sports hall, hospital tents, speedway, water storage and distribution



Independent Monitoring

The VinylPlus Monitoring Committee (see p. 6) formally met twice in 2013, in April and in November.

To ensure maximum transparency, the minutes of the Monitoring Committee meetings are published on the VinylPlus website (www.vinylplus.eu) after formal approval at the following meeting.

Annual Reporting

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

The Progress Report 2014 has been independently verified by SGS, whilst tonnages of PVC waste recycled and expenditure have been audited and certified by KPMG.

The Natural Step made a commentary on the overall work and progress of VinylPlus.

The Progress Report is directly distributed to national and European institutions, including the European Commission, and to interested stakeholders. It is used in conferences and events, and made available on the VinylPlus website.

Following the distribution of the Progress Report 2013, VinylPlus was very pleased to receive support and encouragement in July 2013 from the cabinet of Antonio Tajani, European Commission Vice-President and Commissioner for Industry and Entrepreneurship.

External Stakeholder Dialogue and Communication

VinylPlus is committed to building sustainability awareness across the value chain, including stakeholders both inside and outside the industry, and to a frank and open dialogue with all stakeholders. Raising sustainability awareness is a key component of the programme, as progress will depend on spreading understanding and participation throughout the industry, as well as in wider society. At the European level, VinylPlus cooperates with PVC Sector Groups and national organisations to promote its Voluntary Commitment and communicate more effectively across different sectors and geographic areas, widening its scope. Within this framework, in 2013 VinylPlus supported nine communications projects, headed by five national PVC organisations and four sector federations.

ENGAGING GLOBALLY

As part of VinylPlus' promotion of its approach across the worldwide PVC industry, the VinylPlus Voluntary Commitment and programme were presented in April at Vinyl India 2013, the 3rd PVC & Chlor-Alkali Conference. This was held in Mumbai and involved more than 600 participants representing 280 companies from over 26 countries.

In May 2013, VinylPlus participated in the PVC Networking Event organised by the Australian Vinyl Council in Sidney, Australia. A keynote speech, *'Taking Product Stewardship to the Next Level'*, provided an update on the progress and direction of the European industry's Voluntary Commitment.

In September, at the 2013 International Plastic Pipe Exchange Conference, held in Xi'an, China, the VinylPlus Voluntary Commitment was referred to as an example to be followed. The Beijing-based China Plastics Piping Association (CPPA) announced the adoption of a policy to encourage companies to eliminate lead by 2015, mirroring the European PVC industry's Voluntary Commitment.



Brigitte Dero speaking at European Development Days 2013

In October 2013, an update on VinylPlus activities and achievements was presented and received with great interest at the 1st PVC Sustainability Event in Manila in the Philippines, hosted by local PVC producer Philippines Resin Industries. The event was attended by over 100 delegates from national authorities, eco-labelling organisations, scientific institutes and industry.

UNITED NATIONS

Following the registration of Vinyl 2010 as a Partnership with the Secretariat of the United Nations Commission on Sustainable Development (UNCSD) in 2004, and the inclusion of the VinylPlus Voluntary Commitment in the Rio+20 Registry of Commitments²⁷, in 2013 VinylPlus continued to proactively dialogue with the UN.

In April, Ambassador Tomas Anker Christensen, Senior Advisor at the United Nations Office for Partnerships, participated as keynote speaker in the first VinylPlus Sustainability Forum, which was held in Istanbul, Turkey. His speech, *'The United Nations Vision on Partnerships for Sustainable Development'*, encouraged and motivated the industry in its efforts towards sustainability and was greatly appreciated by all participants. The speech inspired this year's theme for the Vinyl Sustainability Forum: 'Enhancing the value of Partnerships'.

In November 2013, VinylPlus became a member of the Green Industry Platform (GIP), a joint initiative of the United Nations Industrial Development Organization (UNIDO) and the United Nations Environment Programme (UNEP). Launched at the Rio+20 UN Conference on Sustainable Development, the Green Industry Platform is a global, high-level, multi-stakeholder partnership to catalyse, mobilise and mainstream action on Green Industry around the world. The official Green Industry Platform 'Statement of Support' was signed by VinylPlus Deputy-General Manager Brigitte Dero in Guangzhou, China, on 9 November at the Green Industry Conference, jointly organised by UNIDO and the Ministry of Industry and Information Technology of the People's Republic of China²⁸.

In November, VinylPlus was also invited as a speaker at European Development Days, the European Commission's annual forum on international affairs and development cooperation, in the roundtable hosted by UNIDO on the theme *'Moving towards Green Industry – Mobilising the Private Sector for Environmental Sustainability'*²⁹.

STAKEHOLDERS EVENTS, CONFERENCES AND EXHIBITIONS

On 25-26 April 2013, VinylPlus organised its first Sustainability Forum, in Istanbul, Turkey, on the theme *'Smart, sustainable and inclusive growth for Europe and beyond'*. The Vinyl Sustainability Forum is an annual event bringing together representatives from the entire PVC industry value chain as well as policy makers, consumer groups, retailers, architects and NGOs. The 2013 edition saw the participation of 120 delegates.

On 5 June 2013, as part of EU Green Week, VinylPlus and TEPPFA, in conjunction with EurActiv, jointly organised a satellite event at the European Parliament focused on recycling, REACH legacy substances and long-life products made with recyclates.

In September, VinylPlus made a poster presentation on its Voluntary Commitment contributions to the sustainability of buildings at the Sustainable Building Conference 2013 in Graz, Austria.

In December, VinylPlus' contribution to the Plasticisers Conference 2013, organised by ECPI and European Plastics News in Brussels, Belgium, focussed on legacy additives.

Ambassador Tomas Anker Christensen speaking at the Vinyl Sustainability Forum 2013



PHOTO: VINYLPLUS

²⁷ <http://www.uncsd2012.org/index.php?page=view&type=1006&menu=153&nr=91>

²⁸ <http://www.greenindustryplatform.org/?p=1755>

²⁹ <http://www.greenindustryplatform.org/?p=1796>; <http://eudevdays.eu/topics/moving-towards-green-industry-0>

ENGAGING WITH BRAND HOLDERS

ECPI and PVC Forum Italia held two joint meetings in Italy in 2013 as part of VinylPlus' communications strategy. The first was organised with Leroy Merlin, a major, global do-it-yourself retailer, to present the Voluntary Commitment approach and achievements with an emphasis on the safety of PVC applications. The second was organised with CNMI (Camera Nazionale della Moda Italiana – The National Chamber for Italian Fashion), an organisation representing 150 fashion companies, including global brand holders. The meeting provided an opportunity to explain and promote the European PVC industry's programmes for sustainability, underlining the progress made, first by Vinyl 2010 and now with VinylPlus.

ONLINE COMMUNICATIONS

Online communications are an integral part of the VinylPlus communications programme. In 2013, VinylPlus launched a new Sustainability Thinking Platform (STP) photo competition on the theme 'Smart, sustainable and inclusive growth for Europe and beyond. How do we make it happen?'. Since its launch, the STP has grown to over 2,500 members from 90 different countries. Videos and multimedia materials are available at www.vinylplus.eu.

Programme Participants

Despite the financial crisis, the net number of companies contributing to the programme through the Vinyl Foundation increased by 5.4% compared to the year 2010. This result confirms the interest in VinylPlus' sustainability objectives and targets, and motivates us to try even harder. The variety of partners shows increased involvement not only of producers and converters but also of new additive producers, compounders, recyclers and retailers.

	2010	2010 NET NUMBER ³⁰	2013
Vinyl Foundation	163	148	156

VinylPlus Partner Certificate and Product Label

Partner Certificates are awarded each year to the companies that support the VinylPlus Voluntary Commitment. The Certificate is increasingly used by partner companies to demonstrate to customers and employees their commitment to and engagement in the VinylPlus programme.

In 2013, the Product Label scheme developed in close cooperation with BRE Global (UK-based certification experts on responsible sourcing for building and construction products – www.bre.co.uk) and TNS, was concretely verified through test audits at several volunteering converter companies.

The audit feedbacks yielded useful elements for further improving the Label criteria. They also confirmed that the Label is achievable by company that have already reached a certain level of sustainability awareness and have environmental management schemes in place (i.e. responsible sourcing, recycling, energy consumption reduction and materials efficiency programmes).

Several workshops were also organised in 2013 to develop a launch strategy and to promote the use of the Label with VinylPlus partner companies.

Further legal verifications are ongoing to ensure that the Label complies fully with existing regulations and competition law.

³⁰ Net number: number of companies after deduction of plants disappearing following bankruptcy or mergers and acquisitions



VinylPlus Partners

In 2013, contributors were:

A. Kolckmann GmbH (Germany)	Inoutic/Deceuninck GmbH (Germany)	SOTRA-SEPEREF SAS (France)
Alfatherm SpA (Italy)	Jimten (Spain)	Tarkett AB (Sweden)
Aliaxis Group (Belgium)	Juteks d.o.o. (Slovenia)	Tarkett France (France)
Altro (UK)	Klöckner Pentaplast GmbH & Co. KG (Germany)	Tarkett GDL SA (Luxembourg)
aluplast Austria GmbH (Austria)	Konrad Hornschuch AG (Germany)	Tarkett Holding GmbH (Germany)
aluplast GmbH (Germany)	KWH Pipe Oy AB (Finland)	Tarkett Limited (UK)
alwitra GmbH & Co (Germany)*	Manufacturas JBA (Spain)	Tessenderlo Chemie NV (Belgium)
AMS Kunststofftechnik GmbH & Co. KG (Germany)	Marley Deutschland (Germany)	TMG Automotive (Portugal)*
Amtico International (UK)	Marley Hungária (Hungary)	Tönsmeier Kunststoffe GmbH & Co. KG (Germany)
Armstrong DLW AG (Germany)	Mehler Technologies GmbH (Germany)	Upofloor Oy (Finland)
BM S.L. (Spain)	MKF-Ergis Sp. z o.o. (Poland)	Uponor Infra Oy , former Uponor Suomi Oy (Finland)
BT Bautechnik Impex GmbH & Co. KG (Germany)	MKF-Folien GmbH (Germany)	Veka AG (Germany)
BTH Fitting kft (Hungary)	Molecor (Spain)*	Veka Ibérica (Spain)
CIFRA (France)	Mondoplastico SpA (Italy)	Veka Plc (UK)
Coveris Rigid Hungary Ltd , former Paccor Hungary (Hungary)	Nicoll (France)	Veka Polska (Poland)
CTS Cousin Tessier SAS (France)	Nicoll Italy (Italy)	Veka SAS (France)
CTS-TCT Polska Sp. z o.o. (Poland)	Nordisk Wavin A/S (Denmark)	Verseidag-Indutex GmbH (Germany)
debolon dessauer bodenbeläge GmbH & Co. KG (Germany)	Norsk Wavin A/S (Norway)	Vescom BV (Netherlands)
Deceuninck Ltd (UK)	NYLOPLAST EUROPE B.V. (Netherlands)	Vulcafex SpA (Italy)
Deceuninck NV (Belgium)	Omya International AG (Switzerland)*	Wardle Storeys (UK)*
Deceuninck Polska Sp. z o.o. (Poland)	Perlen Packaging (Switzerland)	Wavin Baltic (Lithuania)
Deceuninck SAS (France)	Pipelife Austria (Austria)	Wavin Belgium BV (Belgium)
DHM (UK)	Pipelife Belgium NV (Belgium)	Wavin BV (Netherlands)
Dickson Saint Clair (France)*	Pipelife Czech s.r.o. (Czech Republic)	Wavin France SAS (France)
Dietzel GmbH (Austria)	Pipelife Deutschland GmbH (Germany)	Wavin GmbH (Germany)
Döllken Kunststoffverarbeitung GmbH (Germany)	Pipelife Eesti AS (Estonia)	Wavin Hungary (Hungary)
Dyka BV (Netherlands)	Pipelife Finland Oy (Finland)	Wavin Ireland Ltd (Ireland)
Dyka Plastics NV (Belgium)	Pipelife Hellas S.A. (Greece)	Wavin Metalplast (Poland)
Dyka Polska Sp. z o.o. (Poland)	Pipelife Hungária Kft. (Hungary)	Wavin Nederland BV (Netherlands)
Elbtal Plastics GmbH & Co. KG (Germany)	Pipelife Nederland BV (Netherlands)	Wavin Plastics Ltd (UK)
Epwin Window Systems (UK)*	Pipelife Polska SA (Poland)	W.R. Grace S.A. (France)
Ergis Eurofilms SA (Poland)	Pipelife Sverige AB (Sweden)	
Eurocell Profiles Ltd (UK)	Poliplast (Poland)	
FDT FlachdachTechnologie GmbH & Co. KG (Germany)	Poloplast GmbH & Co. KG (Austria)	
Finstral AG (Italy)	Polyflor (UK)	
FIP (Italy)	Polymer-Chemie GmbH (Germany)	
Flag SpA (Italy)	PROFIALIS NV (Belgium)	
Floridienne Chimie SA (Belgium)	PROFIALIS SAS (France)	
Forbo Coral NV (Netherlands)	Profine GmbH (Germany)	
Forbo Flooring UK Ltd (UK)	Protan AS (Norway)	
Forbo Sarlino SAS (France)	PUM Plastiques SAS (France)*	
Forbo Giubiasco SA (Switzerland)	Redi (Italy)	
Forbo-Novilon BV (Netherlands)	REHAU AG & Co (Germany)	
Gallazzi SpA (Italy)*	REHAU GmbH (Austria)	
Gealan Fenster-Systeme GmbH (Germany)	REHAU Ltd (UK)	
Georg Fischer Deka GmbH (Germany)	REHAU SA (France)	
Gerflor Mipolam GmbH (Germany)	REHAU Sp. z o.o. (Poland)	
Gerflor SAS (France)	REHAU Industrias S.A. (Spain)	
Gerflor Tarare (France)	RENOLIT Belgium NV (Belgium)	
Gernord Ltd (Ireland)	RENOLIT Cramlington Ltd (UK)	
Girpi (France)	RENOLIT Hispania SA (Spain)	
Griffine Enduction (France)*	RENOLIT Ibérica SA (Spain)	
H Producter AS (Norway)	RENOLIT Milano Srl (Italy)	
Heubach GmbH (Germany)	RENOLIT Nederland BV (Netherlands)	
Heytex Bramsche GmbH (Germany)	RENOLIT Ondex SAS (France)	
Heytex Neugersdorf GmbH (Germany)	RENOLIT SE (Germany)	
Icopal Kunststoffverarbeitungs GmbH , former MWK Kunststoffverarbeitungs GmbH (Germany)	Riuvert (Spain)	
IGI – Global Wallcoverings Association (Belgium)*	Roehling Engineering Plastics KG (Germany)	
IKA Innovative Kunststoffaufbereitung GmbH & Co. KG (Germany)	S.I.D.I.A.C. (France)	
	Salamander Industrie Produkte GmbH (Germany)	
	Sattler (Austria)	
	Schüco PWS GmbH & Co. KG (Germany)	
	Serge Ferrari SAS (France)	
	Sika Services AG , former Sika Manufacturing AG (Switzerland)	
	Sika Trocal GmbH (Germany)	
	Solvay Benvic Europe – Italia SpA (Italy)	
		PVC producers contributing to VinylPlus in 2013
		Borsodchem (Hungary)
		Ineos Vinyls (Belgium, France, Germany, UK, Netherlands, Norway, Sweden)
		Shin-Etsu PVC (Netherlands, Portugal)
		SolVin (Belgium, France, Germany, Spain)
		VESTOLIT GmbH (Germany)
		Vinnolit GmbH & Co. KG (Germany, UK)
		Stabiliser producers contributing to VinylPlus in 2013
		Akros Chemicals
		Akdeniz Kimya A.S.
		Asua Products SA
		Baerlocher GmbH
		Chemson Polymer-Additive AG
		Floridienne Chimie
		Galata Chemicals
		IKA GmbH & Co. KG
		Lamberti SpA
		PMC Group
		Reagens SpA
		Plasticiser producers contributing to VinylPlus in 2013
		BASF SE
		Evonik Industries AG (Germany)
		ExxonMobil Chemical Europe Inc.
		Perstorp Oxo AB (Sweden)

* Companies that joined VinylPlus in 2013

Financial Report

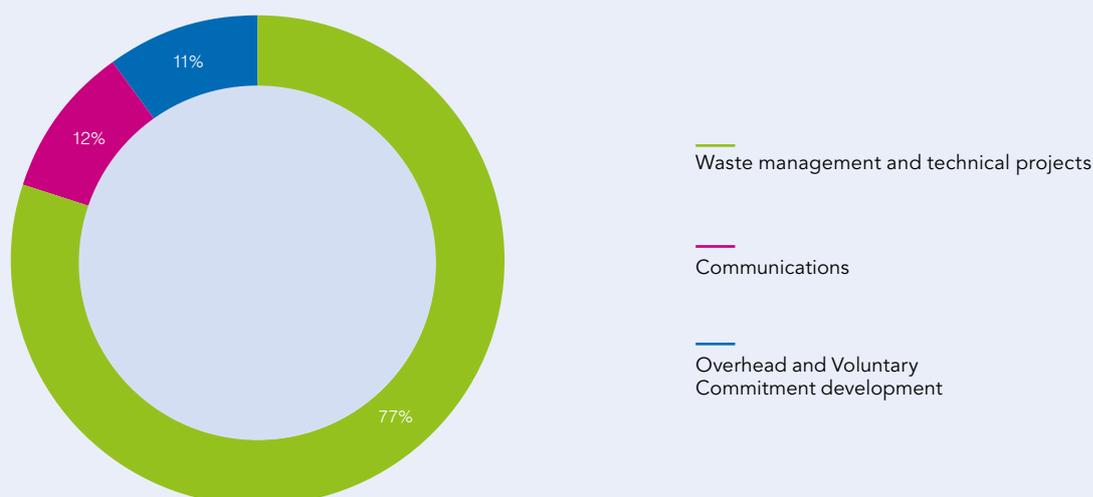
In 2013, the 'pull-market' approach was further implemented. This led to a significant reduction of the Recovynyl, EPPA and TEPPFA expenses. In general, within all projects there was a push for improved efficiency, enabling to allocate funds for research in new recycling projects. In parallel, deployment of projects into regulated applications (e.g. automotive) has been continued and investments made in new 'pull projects' and studies supporting ongoing recycling.

WASTE MANAGEMENT AND TECHNICAL PROJECTS FIGURES IN €1,000S	TOTAL EXPENDITURE INCLUDING EUPC AND ITS MEMBERS	
	2012	2013
EPCoat	241*	183
EPFLOOR	730	815
EPPA	609*	507
ERPA – Pack upgrade	150	-19**
PlasticsEurope France Blister	-	44
ESWA/Roofcollect®	147	147
Recovynyl	2,820	2,353
Studies, start-up & pull concept	200	221
TEPPFA	822*	552
EATS (Automotive trimmings recovery)	-	38
TOTAL PROJECTS	5,728	4,842

* Some projects did close their accounts after this statement was made in the last year Progress Report. Costs of those projects have been adjusted after a final audit could be undertaken and the corrected amounts reported here. The EPCoat project cost could be documented to amount to €241,324 in 2012 (instead of €231,617 as reported last year). Total cost for the EPPA project was €608,607 instead of €556,835 and TEPPFA's costs were €822,161 instead of 742,865.

** Reversal of accrual made in 2012.

VINYLPLUS TOTAL EXPENDITURE IN 2013: €6.3 MILLION



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, 2013 to December 31, 2013 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 2013 and verify of the mathematical accuracy of this.

The total expenses amount to KEUR 6.285.

We found no exceptions as a result of applying this procedure.

- b. Verify that these costs are recorded in the financial statements 2013 of VinylPlus AISBL.

We found no exceptions as a result of applying this procedure.

- c. For projects EPFLOOR 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, 2013 and December 31, 2013.

We found no exceptions as a result of applying this procedure.

- d. For projects EPFLOOR 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, 2013.

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 12,31% of total expenses.

Note that financial statements of VinylPlus AISBL, TEPPFA AISBL, Recovinyl AISBL and EuPC AISBL of which EPFLOOR is a sector group 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
Louvain-la-Neuve, 28 March 2014



KPMG CERTIFICATION OF TONNAGES

KPMG Advisory, a Belgian civil CVBA/SCRL

Report of the independent expert concerning the work performed with regard to the tonnages of recycled PVC by initiatives of the sector groups EPFLOOR and EPPA of the EuPC, by the sector associations ESWA and TEPPFA of the EuPC, by IVK/EPCoat and by Recoviny! Inpa during the period January 1st 2013 to December 31st 2013.

In accordance with the assignment, which was entrusted to us by VinylPlus, we give an overview of our work performed with regard to the following tonnages for the different projects of VinylPlus mentioned in the VinylPlus Progress Report related to the activities of the year 2013.

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

PROJECT	TYPE OF PVC	TONNAGE RECYCLED IN 2012	TONNAGE RECYCLED IN 2013
IVK/EPCoat (incl. Recoviny!)	Coated fabrics	6,364*	7,663*
EPFLOOR	Flooring	3,420*	3,618*
EPPA (incl. Recoviny!)	Window profiles & profile related PVC	198,085	192,419
ESWA – ROOFCOLLECT and Recoviny!	Flexible PVC	21,418 tons which consist of:	77,319 tons which consist of:
ESWA – ROOFCOLLECT	Flexible PVC	2,581*	4,271*
Recoviny!	Flexible PVC applications	18,837	73,048
TEPPFA (incl. Recoviny!)	Pipes & fittings	38,692	40,887
ERPA via Recoviny! (incl. CIFRA and Pack-Upgrade Project)	Rigid PVC films	5,620	19,431
Recoviny! (incl. Vinyloop Ferrara)	Cables	88,477	103,131
TOTAL		362,076	444,468

* 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 assignment. Based on our work performed with regard to the provided information,

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

KPMG Advisory, a Belgian civil CVBA/SCRL

ELS HOSTYN,

Partner
Brussels, March 20th 2014



SGS INDEPENDENT VERIFICATION STATEMENT ABOUT THIS VINYLPLUS PROGRESS REPORT 2014

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 80,000 employees, we operate a network of more than 1,650 offices and laboratories around the world.

SGS was commissioned by VinylPlus to provide an independent verification of the "Progress Report 2014". This report presents the commitments and achievements made by the VinylPlus project in 2013.

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 desk-top 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 2014" represents VinylPlus' performance in 2013 in a reliable way; this report reflects the effort of VinylPlus to comply with its new Voluntary Commitments of June 2011.

IR PIETER WETERINGS

SGS Belgium NV
S&SC Certification Manager
Brussels, 21 March 2014



TNS commentary on VinylPlus Progress Report for 2013

The Natural Step (an international sustainability NGO) acts as a 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.

This progress report further demonstrates the complexity of making any serious change with specific and established materials. Nonetheless, our key message is that no true sustainability progress can be made without a clear and shared vision of success – seeing the wider picture. It is a strength of the VinylPlus Voluntary Commitment that its members share a positive vision of PVC's role in a sustainable society and have a clear focus on overcoming the key challenges needed to achieve it. Whilst 2013 saw the programme move into some very specific details related to those challenges we think it important that those involved do not lose sight of the bigger aims and vision. It will continue to be a fine balance to keep between safeguarding the interests of the industry and giving leadership on its sustainability journey.

For example the **Controlled Loop Task Force (Challenge 1)** has worked hard at some issues concerning legacy substances because of the potential impact of those issues upon PVC recycling, particularly in Europe. Whilst that needs attention, the wider issues must not be neglected. The growing interest across all sectors in the concept of the circular economy reinforces the importance and economic opportunity of expanding massively the quantities of materials that are re-used and recycled in society. That means more facilities in many more areas of Europe as well as worldwide. It means more rapidly developing technologies that can handle the recycling of complicated materials, and it means a major promotion of the recycling ethic, particularly post-consumer waste. We must take care that more recycling is not jeopardised by problems with legacy additives. But we must also ensure that this issue does not distract from the major expansion in recycling volumes and infrastructure that is so urgently needed. Engaging more stakeholders in that effort is becoming an urgent priority in our view.

Every year TNS works with the VinylPlus team to identify targets upon which a realistic stakeholder engagement can commence. For example in 2012 we worked with VinylPlus to get more external agencies involved in tackling the tricky topic of **Organochlorine Emissions (Challenge 2)**. There were encouraging outcomes for all and we understand that VinylPlus will be publishing proposals as a result. During 2013 we had hoped that stakeholders could review and contribute to the work of the **Additives Task Force (Challenge 3)** in a similar way. It has taken more time and resources than expected to get to that point. Additives is a topic which draws many opinions from many quarters inside and outside the industry so it is not surprising that designing a more sustainable way of assessing and applying additives is taking time. The industry should be given credit for keeping to the task. In 2014 we hope to see new light shed on this target and a new level of informed debate.

Whilst work on targets above has taken most of the time in 2013 we can also see that VinylPlus has made progress on associated topics including energy. The **Labelling scheme**, upon which we have given detailed advice, should eventually bring better consumer choice towards companies making genuine progress with PVC products for the construction arena. Equally we are encouraged to see the start of work on **renewable resources**, for additives as well, as for basic raw materials. There is a rapid expansion now in bio-based technologies around the world, and VinylPlus should be connecting to that approach in terms of its own vision.

All of the above represents the hard slog that we predicted, in order to bring a material such as PVC to a place where it can be said to represent sustainable development. There is still a very long way to go but the outside world should be encouraged that there is progress and that no areas associated with this material are any longer 'off-limits'. And in that regard we are pleased to see that VinylPlus is adhering to the original agreed set of guiding principles³¹ to make sure progress continues. This should also be viewed positively in the eyes of all stakeholders.

Communicating and Awareness raising on such progress always needs more attention. Spreading the message around the world has happened in 2013 and hopefully this will continue in 2014. VinylPlus should be a role model showing what can be achieved with a collaborative approach following the principles of sustainability and genuinely engaging the rest of society. Although this is an initiative regularly highlighted by various policy makers and regulators, it is not currently well enough known about to be copied with other issues and materials, including other plastics. Major progress in resource efficiency depends on collaboration and VinylPlus should seek to communicate its own experiences in that regard. We need, for example, to see more business cases from VinylPlus member companies showing progress driven by the original vision and tackling the VinylPlus targets. We hope to see more such cases published in 2014 to attract the outside world, as well as encourage inside the industry.

Finally, we wish to comment on the fact that as global society wakes up to the challenges of behaving sustainably, the opportunity space and appetite for more ambitious targets increases. Furthermore, in spite of tough economic conditions, VinylPlus is meeting or is on track to meeting many of the targets that were set at the launch of the initiative. With a mid-term review scheduled in 2015 and increasing urgency of the need to move faster with sustainable development in society, the coming year is an opportunity for VinylPlus to reflect on progress and begin to imagine what more the industry can achieve together in the years ahead.



DAVID COOK,
Executive Ambassador
The Natural Step, Stockholm

³¹ http://www.vinylplus.eu/en_GB/about-vinylplus/our-working-principles

The European PVC Industry

Polyvinyl chloride, or 'PVC', is one of the most widely used polymers in the world. Because it is so versatile, PVC is used extensively across a broad range of industrial, technical and everyday applications.

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

Several recent eco-efficiency and LCA studies of major PVC applications have shown that in terms of energy use and GWP (Global Warming Potential), the performance of PVC is comparable to that of alternative products. In many cases, PVC applications showed advantages in terms both of lower total energy consumption and lower CO₂ emissions.

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



THE EUROPEAN COUNCIL OF VINYL MANUFACTURERS

representing the six leading European PVC resin producing companies, which account for around 75% of 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



EUROPEAN PLASTICS CONVERTERS

an association representing close to 50,000 companies in Europe, which produce over 45 million tonnes of plastic products of various types every year. They employ approximately 1.3 million people.

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



THE EUROPEAN COUNCIL FOR PLASTICISERS AND INTERMEDIATES

representing the six major European plasticiser and intermediate producers. They employ approximately 1,200 people in plasticiser production.

www.ecpi.org

Appendix 1 – Glossary

BBP	Butyl benzyl phthalate	ESWA	European Single Ply Waterproofing Association, an EuPC sectoral association (www.eswa.be)
Ca	Calcium	EU	European Union
CARACAL	Competent Authorities for REACH and CLP. CARACAL is an expert group which advises the European Commission and ECHA on questions related to REACH and CLP. It was founded as the 'European Commission Working Group on the Practical Preparations for REACH' in May 2004. As of September 2007, it was re-named 'REACH Competent Authorities (REACH CA)' and, as of March 2009, 'Competent Authorities for REACH and CLP (CARACAL)'	EuPC	European Plastics Converters (www.plasticsconverters.eu)
CIFRA	Calandrage Industriel Français (a French calendering company – www.cifra.fr)	GIP	Green Industry Platform (www.greenindustryplatform.org)
CLP	European Regulation on Classification, Labelling and Packaging of chemical substances and mixtures. The legislation introduced throughout the EU a new system for classifying and labelling chemicals, based on the United Nations' Globally Harmonised System (UN GHS)	HMW phthalates	High Molecular Weight phthalates
CSD	Commission on Sustainable Development	IFEU	Institut für Energie- und Umweltforschung Heidelberg GmbH (German Institute for Energy and Environmental Research – www.ifeu.de)
DBP	Di-n-butyl phthalate	Industry Charters	ECVM Industry Charters for the Production of VCM and S-PVC (1995) and for the Production of E-PVC (1998)
DEHP	Di(2-ethylhexyl) phthalate	IVK Europe	Industrieverband Kunststoffbahnen e.V. (Association of Coated Fabrics and Films – www.ivk-europe.com)
DIBP	Di-isobutyl phthalate	KPMG	KPMG is a global network of professional firms providing audit, tax and advisory services (www.kpmg.com)
DIDP	Di-isodecyl phthalate	LCA	Life Cycle Assessment
DINP	Di-isononyl phthalate	LMW phthalates	Low Molecular Weight phthalates
DNEL	Derived no-effect level	Pb	Lead
DNOP	Di-n-octyl phthalate	PE	Polyethylene
DPHP	Di(2-propyl heptyl) phthalate	PlasticisersPlus	The ECPI's formal legal entity in Belgium
EATS	European Automotive Trim Suppliers Association (www.trimsuppliers.eu)	PRE	Plastics Recyclers Europe (www.plasticsrecyclers.eu)
EC	European Community	PVC	Polyvinyl chloride
ECHA	European Chemicals Agency (http://echa.europa.eu)	RAC	Risk Assessment Committee
ECPI	The European Council for Plasticisers and Intermediates (www.plasticisers.org)	REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
ECVM	The European Council of Vinyl Manufacturers (www.pvc.org)	RoHS	EU legislation restricting the use of hazardous substances in electrical and electronic equipment (RoHS Directive 2002/95/EC)
ECVM 2010	The ECVM's formal legal entity registered in Belgium	RoHS 2	The new RoHS Directive 2011/65/EU (RoHS 2) entered into force on 21 July 2011
EDC	Ethylene dichloride or 1,2-dichloroethane	R-PVC	Recycled PVC
EPA	Environmental Protection Agency	SDS	Safety Data Sheet
EPCoat	IVK Europe PVC Coated Fabrics Sector Project	SDS-R	Safety Data Sheet for Recyclates
EPD	Environmental Product Declaration	SGS	Société Générale de Surveillance, the world's leading testing and verification organisation (www.sgs.com)
EPF	Environmental Product Footprint	SME	Small and Medium-Sized Enterprise
EPFLOOR	European PVC Floor Manufacturers, an EuPC sector group (www.epffloor.eu)	S-PVC	Suspension polyvinyl chloride
EPPA	European PVC Window Profile and Related Building Products Association, an EuPC sectoral association (www.eppa-profiles.org)	SVHC	Substances of Very High Concern
E-PVC	Emulsion polyvinyl chloride	TEPPFA	The European Plastic Pipes and Fittings Association, an EuPC sectoral association (www.teppfa.org)
ERPA	European Rigid PVC Film Association, an EuPC sectoral association (www.pvc-films.org)	TNS	The Natural Step (www.naturalstep.org)
ERFMI	European Resilient Flooring Manufacturers' Institute (www.erfmi.com)	UN	United Nations
ESPA	The European Stabiliser Producers Association (www.stabilisers.eu)	UNEP	United Nations Environment Programme
		UNIDO	United Nations Industrial Development Organization
		VCM	Vinyl chloride monomer
		Vinyl 2010	The first 10-year Voluntary Commitment of the European PVC industry, signed in 2000
		WUPPI	Danish company set up to collect and recycle rigid PVC (www.wuppi.dk)

PVC and Art

PVC is often perceived as material used in construction applications such as window profiles, pipes or flooring but its possibilities go way beyond those uses.

Its unique technical features allow much more creative freedom than many other materials, inspiring innovation and boosting our imagination.

For the annual contemporary art exhibition Monumenta, French artist Daniel Buren developed a temporary kaleidoscope installation filling the interior of the glass-domed hall in the Grand Palais in Paris with 377 horizontal circles with membranes of translucent PVC coloured film, produced by VinylPlus partner RENOLIT.

When the sun shines through the large glass roof, the circles flood the ground with dreamlike playful coloured halos.





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