Launched in 2011, VinylPlus is the renewed 10-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 is the EU-28 plus Norway and Switzerland.

This Report summarises VinylPlus’ progress and achievements in 2015 in each of the five key sustainability challenges identified for PVC on the basis of The Natural Step (TNS) System Conditions for a Sustainable Society.

All the information reported has been independently audited and verified by 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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**FOREWORD**

2015 was a crucial year for the sustainable future of our planet. Two high-level international meetings set the global agenda and charted the road ahead to 2030 and beyond.

In September, the United Nations’ 193 Member States unanimously adopted the post-2015 development agenda at the Sustainable Development Summit 2015. Then, in December, the Paris Climate Summit (COP21) reached an historic agreement on climate change mitigation.

Faced with global challenges of this magnitude, VinylPlus is working ever harder to ensure that its Voluntary Commitment contributes to achieving the overriding environmental objectives. Issues such as the increasingly efficient use of resources, raw materials and energy, are already an integral part of the programme.

The Vinyl Sustainability Forum 2015 was a move in this direction. The theme – ‘More Vinyl, Less Carbon’ – summarised the challenges for PVC over the coming years, and also how the VinylPlus Voluntary Commitment is already contributing to addressing climate change, improving product sustainability and moving the European PVC industry towards a circular economy.

The Vinyl Sustainability Forum 2015 also confirmed the European PVC industry’s strong commitment to collection and recycling by developing schemes that are increasingly efficient and economically viable. An important part of VinylPlus’ work in 2015 focused precisely on how to recycle greater volumes of PVC, while at the same time ensuring the safety of recycled PVC.

The December 2015 Communication ‘Closing the loop – An EU action plan for the Circular Economy’ highlights the need to develop systems for ensuring the quality of recycled materials. The issue of ‘chemicals of concern’ in recycling streams features in the action plan. Indeed, uncertainty over the regulatory framework has major negative consequences for investment in the research and development of new products and markets for recycled PVC. We call therefore on the European Commission to propose pragmatic solutions allowing continuation and development of such PVC recycling, taking into account its resource efficiency benefits. VinylPlus is intensifying its dialogue with institutions and is fully committed to contribute to a solution ensuring concerns about health and the environment are addressed.

At the same time, our industry is engaged in major efforts to develop and use safer, more sustainable formulations. By the end of 2015, lead-based stabilisers had been replaced in the EU-28. This was undoubtedly the highlight of the year for VinylPlus, and it concluded a challenging journey that saw close cooperation along the value chain to solve technical constraints.

As planned from the outset, in 2015 we conducted a full review of the objectives and targets of the Voluntary Commitment to measure and evaluate our initiatives up to now, taking into account market and technical developments, as well as the evolution of the regulatory framework.

For the additional hard work and efforts that the mid-term review required, I would like to thank the VinylPlus organisation, the member and partner companies, the sectoral associations, the Task Forces and Working Groups, TNS and all the other stakeholders involved.

I would also like to welcome the nine new VinylPlus Partners who joined in 2015 to share with us the second part of our 10-year journey.
GOVERNANCE

MANAGEMENT BOARD
VinylPlus is managed by a comprehensive board representing all European PVC industry sectors.

VinylPlus Board
Mr Dirk Breitbach – Vice Chairman (EuPC) (Compounding sector)
Mr Filipe Constant – ECVM 2010
Mr Alexandre Dangis – EuPC
Dr Brigitte Dero – General Manager (ECVM 2010)
Mr Joachim Eckstein – Vice Chairman (EuPC)
Mr Stefan Eingärtner – Deputy General Manager
Dr Josef Ertl – Chairman (ECVM 2010)
Mr Rainer Grasmück – Treasurer (ESPA)
Mr Andreas Hartleif – EuPC (Rigid PVC sector)
Dr Ettore Nanni – ESPA
Mr Nigel Sarginson – PlasticisersPlus
Mr Arjen Sevenster – Controller (ECVM 2010)
Mr Niels Rune Solgaard-Nielsen – EuPC (Rigid PVC sector)
Mr Chris Tane – ECVM 2010
Mr Remco Teulings – EuPC (Flexible PVC sector)
Mr Geoffroy Tillieux – Controller (EuPC)
Dr Michael Träger – Chairman (ECVM 2010)
Mr Joachim Tremmel – PlasticisersPlus
Mr Christian Vergeylen – EuPC (Flexible PVC sector)

Members
Mr Dirk Breitbach – Vice Chairman of VinylPlus
Prof. Alfons Buekens – Chairman of the Monitoring Committee
Mr Alexandre Dangis – VinylPlus Board Member
Dr Josef Ertl – Chairman of VinylPlus
Mr Joachim Eckstein – Vice Chairman of VinylPlus
Dr Michael Träger – Chairman of VinylPlus
Mr Rainer Grasmück – Treasurer of VinylPlus
Dr Godelieve Quisthoudt-Rowohl – Member of the European Parliament
Mr Sylvain Lefebvre – Deputy General Secretary, industriAll European Trade Union
Mr Carlos Sánchez-Reyes de Palacio – President of OCU
Mr Geoffroy Tillieux – Controller (EuPC)

MONITORING COMMITTEE
Open to all external stakeholders, the Monitoring Committee ensures an independent evaluation of the initiatives undertaken in the framework of the Voluntary Commitment, guaranteeing VinylPlus’ transparency, participation and accountability.

Members
Mr Dirk Breitbach – Vice Chairman of VinylPlus
Prof. Alfons Buekens – Chairman of the Monitoring Committee
Mr Gwenole Cozigou – Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs (DG GROW), European Commission
Mr Alexandre Dangis – VinylPlus Board Member
Dr Brigitte Dero – General Manager of VinylPlus
Mr Joachim Eckstein – Vice Chairman of VinylPlus
Dr Josef Ertl – Chairman (ECVM 2010)
Mr Rainer Grasmück – Treasurer of VinylPlus
Dr Godelieve Quisthoudt-Rowohl – Member of the European Parliament
Mr Sylvain Lefebvre – Deputy General Secretary, industriAll European Trade Union
Mr Carlos Sánchez-Reyes de Palacio – President of OCU, President of the Commission on Sectoral Policies and Environment, CES
Dr Michael Träger – Chairman of VinylPlus

“VinylPlus can be considered as a frontrunner for the circular economy”

GWENOLE COZIGOU
Director, DG GROW, European Commission

IN 2015, THE CONTRIBUTORS WERE:

- Aluvia S.L.
- Bilcare Research
- Beaulieu International Group
- Aluplast GmbH
- (France)*
- Alkor Draka B.V.
- (Italy)
- (Germany)
- IN 2015, THE CONTRIBUTORS WERE:

- Alwitra GmbH & Co
- Döllken Kunststoffverarbeitung GmbH
- (Germany)
- DHM
- (France)
- Deceuninck SAS
- Deceuninck Ltd
- (Germany)
- (Italy)
- Coveris Rigid Hungary Ltd
- (Hungary)
- CIFRA
- CF Kunststofprofielen
- (Netherlands)*
- BTH Fitting Kft.
- (Hungary)
- Dyka Polska Sp. z o.o.
- Dyka BV
- (Netherlands)
- Dyka Plastic BV
- (Belgium)
- Döllken Kunststoffverarbeitung GmbH
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- Ergis SA (Poland)
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- (Germany)
- Fimalum AG
- Fibip SAF (Italy)
- FIP (Italy)
- Funda Film Solutions Srl
- (Italy)
- Gealan Fenster-Systeme GmbH
- (Germany)
- Gefco Fischer Deka GmbH
- (Germany)
- Gerflor Mipolam GmbH
- (France)
- Gerflor SAS
- (France)
- Gerflor Taras (France)
- German Ltd (Ireland)
- Giken (France)
- Griffon Enduction (France)
- Gruppo Fabbric S.r.l. (Ireland)
- Gruppo Fabbric Vignola SpA (Ireland)*
- H Productor AS (Norway)
- Heytes Bramsche GmbH
- Heytes Neugersdorf GmbH
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- Holland Colours NV (Netherlands)
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- IGi - Global Watertightings Association (Belgium)
- IKA Innovative Kunststoffbearbeitung GmbH & Co.
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- Imperial NV (Belgium)
- Industrial Sartel SL (Spain)*
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- (Germany)
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- Internorm Baulemente GmbH
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- Jinet (Spain)

* Companies that joined Vinylplus in 2015

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Konrad Hornschuch AG (Germany)
Manufactures JBA (Spain)
Marley Deutschland (Germany)
Marley Hungary (Hungary)
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Mondoplastics SpA (Italy)
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Nicalt (Italy)
Nordisk Wavin A/S (Denmark)
Norsk Wavin A/S (Norway)
Novefrance (France)*
NYLOPLAST EUROPE B.V. (Netherlands)
Omya International AG (Switzerland)
Perlen Packaging (Switzerland)
Pipetech Austria (Austria)
Pipetech Belgium NV (Belgium)
Pipetech Czech a.s. (Czech Republic)
Pipetech Deutschland GmbH (Germany)
Pipetech Easilt (Austria)
Pipetech Finland Oy (Finland)
Pipetech France (France)
Pipetech Hellas S.A. (Greece)
Pipetech Hungaria Kft. (Hungary)
Pipetech Nederland BV (Netherlands)
Pipetech Polonia SA (Poland)
Pipetech Sverige AB (Sweden)
Pipetech Polsat (Poland)
Pipetech Polsat GmbH & Co. KG (Austria)
Polyfor (UK)
Polymer-Chemie GmbH (Germany)
Profine GmbH (Germany)
Protan AS (Norway)
PUM Plastices SAS (France)
Redi (Italy)
REHAU AG & Co KG
REHAU GmbH (Austria)
REHAU Ltd (UK)
REHAU SA (France)
REHAU Sp. z o. o. (Poland)
REHAU Industries S.A. (Spain)
RENOLIT Belgium BV (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)
Reysta International GmbH
Riviers (Spain)
Roucing Engineering Plastics KG (Germany)
Salamanca Industrial Produkte GmbH (Spain)
Satter PRO-TEX GmbH (Austria)
Schico PVC Produktion GmbH & Co. KG (Germany)
Serge Ferrari SAS (France)
Sika Services AG (Switzerland)
Sika Trecol GmbH (Germany)
SIMONA AG (Germany)
Sisens Industries (Belgium)
SK-Ziegling GmbH (Germany)
SOTRA-SEPERFES SAS (France)

Stilikfer GmbH (Germany)
Tarketti AB (Sweden)
Tarketti France (France)
Tarketti GDP, SA (Luxembourg)
Tarketti Holding GmbH (Germany)
Tarketti Limited (UK)
TMG Automotive (Portugal)
Tieremeter Kunststoffe GmbH & Co. KG (Germany)
Upson Infra Oy (Finland)
Vea AG (Germany)
Vea Ibérica (Spain)
Vea Plc (UK)
Vea Polska (Poland)
Vea SAS (France)
Versalit-Industries GmbH (Germany)
Vexcom BV (Belgium)
Vulcanes SpA (Italy)
Wantia Storeys (UK)
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 Metaplast (Ireland)
Wavin Nederland BV (Netherlands)
Wavin Plastics Ltd (UK)

PVC PRODUCERS CONTRIBUTING TO VINYLPLUS IN 2015

- Imovin (Belgium, Germany, Italy, Netherlands, Norway, Spain, Sweden, UK)
- Shin-etsu PVC (Netherlands, Portugal)
- VESTOLIT GmbH & Co. KG
- VINKUIT GmbH & Co. KG (UK)
- Vyvarra Group (Belgium, France, Germany, Netherlands, UK)

STABILISER PRODUCERS CONTRIBUTING TO VINYLPLUS IN 2015

- Akrochemos
- Akdeniz Kempa A.S.
- Asau Products SA
- Baehrlicher GmbH
- Chemzon Polymer-Additive AG
- Galeta Chemicals
- IKA GmbH & Co. KG
- Lamberti spa
- PMI Group
- Riegers SpA

PLASTISER PRODUCERS CONTRIBUTING TO VINYLPLUS IN 2015

- BASF SE
- DEZA a.s.
- Emerald Performance Materials
- Evonik Performance Materials
- ExxonMobil Chemical Europe Inc.
- Persorty Ovo AB

VINYLPLUS PARTNERS

CHALLENGE 1

CONTROLED-LOOP MANAGEMENT:

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

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. Ongoing.

RECYCLING TARGET

In 2015, 514,913 tonnes of PVC waste were recycled within the Vinylplus framework. The windows and profiles sector continues to recycle increasing volumes, accounting for around 40% of the total. A significant increase of recycled PVC was registered in Italy, thanks in reinforcement of the Recovinyl network.

Recovinyl

Recovinyl’s mission (www.recovinyl.com) is to facilitate PVC waste collection and recycling by acting as a mediator between recyclers and converters. Recovinyl also registers and certifies volumes of PVC recycled, based on the EU-CertPlast (www.eucertplast.eu) protocol.

In 2015, Recovinyl increased the number of companies in its network to 177. It registered and certified 508,154 tonnes of recycled PVC. The collection of PVC was volatile, with better results in Q2 and Q4. Recyclers faced lower demand from ppe manufacturers. Recyclers and converters remained quite concerned over uncertainties in the implementation of relevant EU regulations such as REACH*, CLP* and Waste*.
Industry-Sector Projects for PVC Waste Management

The development and consolidation of collection and recycling schemes for window profiles continued in 2015, with a further increase in recycled volumes compared to the previous year. In Germany, Rewindo\(^\text{12}\) recycled 100,000 tonnes of window profiles (reported as part of Recovinyl volumes). EPPA\(^\text{13}\) activities focused on communications, with the aim of further stimulating recycling, and on advocacy related to legacy additives, which remains a priority for the short term. The projects included active participation in the development of a ‘Practical Guidance for Plastics Recycling under REACH and Waste Legislation in Germany’, in collaboration with the competent authorities and other industry associations; and the evaluation of the socio-economic impact of using recycled PVC from windows as a contribution to EU discussions on the circular economy.

TEPPFA is continuing to work on the legacy additives issue together with VinyPlus and EuPC. Uncertainties linked to the EU regulatory framework on the use of recycled PVC caused the piping industry to postpone investments in new products such as multi-layer pipes with recyclates. Advocacy and communications activities continued in 2015 to promote high-quality PVC pipes and the use of recyclates in high-quality, long-life products. ESWA\(^\text{14}\) recycled 3,249 tonnes of roofing and waterproofing membranes in 2015 through its project Roofcollect\(^\text{15}\) (www.roofcollect.com). The volumes recycled decreased compared to 2014, due to the lack of availability of waste for collection and organisational changes in some recycling companies. Still, ESWA remains in line with its commitment to recycle at least 50% of collectable, available used roofing membranes. Contact was made with an Italian company, which could lead to the collection and pre-treatment of roofing membranes in Italy.

EPFLOOR\(^\text{16}\) collected 4.101 tonnes of roofing waste and produced 3,908 tonnes of R-PVC in 2015, a 19% increase on the previous year.

The National Technical University of Athens (www.ntua.gr) and the Fraunhofer IVV Institute (www.fraunhofer.de) continued to investigate a solvent-based recovery process for difficult-to-recycle PVC waste, carrying out tests on the extraction of DEHP and the recovery of PVC on a laboratory scale. Further tests on a pilot scale are foreseen for 2016. EPFLOOR was dissolved at the end of 2015, but the flooring industry remains committed to recycling and to the Voluntary Commitment, and a new organisational structure is under evaluation.

The 2015 annual report by VITO\(^\text{17}\) stated that TEPPFA members used close to 88,000 tonnes of PVC recyclates in 2014, a 10.6% increase over 2013, mainly thanks to the addition of new members.

TEPPFA activities focused on the consolidation of the project and the development of new products. The project is being extended to include the production of PVC pipes for industrial and civil engineering applications.

In 2015, VinylPlus started to support the recycling consortium Resysta\(^\text{18}\) (www.resysta.com/en/), which produces a wood-like material based on rice husk and PVC, homogeneously connected in the polymer matrix, and recyclable after use. The consortium includes a number of VinylPlus partner companies across several industry sectors. During the year, collection and sorting technologies suitable for Resysta\(^\text{19}\) products were examined, and other recyclers and converters in the VinyPlus/Renovin network were contacted to exchange knowledge. From 2016, volumes of PVC recycled in Resysta\(^\text{20}\) products (183 tonnes in 2015) will be included in VinyPlus statistics.

In 2015, ERP\(^\text{21}\) started to cooperate with the recycling company Neihardt (www.neihardt-recycling.com) on the recycling of pharmaceutical blister packaging. Neihardt can separate PVC and aluminium, and in 2015 it recycled 727 tonnes of PVC-aluminium blisters, producing 485 tonnes of R-PVC.

In addition, ERP member CIFRA\(^\text{22}\) recycled 440 tonnes of food packaging in 2015. In total, 24,371 tonnes of PVC rigid films were recycled in 2015 within the VinylPlus framework.

Other Recycling Projects

The Ebene project on end-of-life professional furniture was initiated in France in 2014 by SFECC\(^\text{23}\) with the objectives of assessing the flow of PVC furniture waste; identifying and testing logistical solutions for this type of waste; and consolidating knowledge about PVC incineration (as some furniture waste will still require incineration). SFECC is cooperating with Valdelia, the French eco-agency dedicated to recycling professional furniture waste (www.valdelia.org/en/), providing it with information and developing recycling solutions for both rigid and flexible PVC. The information collected from the Ebene project was provided to the European Ecolabel Bureau. This helped allay concerns over PVC incineration, and none of the initial remarks on it were retained in the Ecolabel draft criteria on furniture of October 2015.

In 2015, VinylPlus started to support the recycling consortium Resysta\(^\text{24}\) (www.resysta.com/en/), which produces a wood-like material based on rice husk and PVC, homogeneously connected in the polymer matrix, and recyclable after use. The consortium includes a number of VinylPlus partner companies across several industry sectors. During the year, collection and sorting technologies suitable for Resysta\(^\text{25}\) products were examined, and other recyclers and converters in the VinyPlus/Renovin network were contacted to exchange knowledge. From 2016, volumes of PVC recycled in Resysta\(^\text{26}\) products (183 tonnes in 2015) will be included in VinyPlus statistics.

The vast majority of pharmaceutical blister packs in Europe are made with rigid PVC and aluminium films. The PVC film is thermoformed to hold the tablets in cavities and sealed to a cover film made of aluminium, which makes the recycling of pharmaceutical blister packs far from easy.
RecoMed is a partnership project between the British Plastics Federation (BPF) and Avion Consulting (the UK agent of Recovinyl), launched in the UK in 2014. The RecoMed PVC take-back scheme provides the NHS (National Health Service) and private hospitals that register for the collection service with recycling containers and communications materials, and then carries out collections. After an initial trial with two hospitals, RecoMed involved six hospitals in 2015 and collected 719.5 kg of PVC. Since the potential for collection from hospitals is significant (in the UK there are around 1,500 hospitals), efforts are now being made to communicate the project and get other hospitals involved. New potential partners have already been identified.

In Denmark, the WUPPI scheme focuses on the collection and recycling of rigid PVC. Set up in 2003, WUPPI now operates in more than 80% of the country’s municipalities.

**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.

In 2015, studies by BiPRO (www.bipro.de) and FABES (www.fabes-online.de) were completed. The BiPRO study had been commissioned by the European Commission to “assess the possibility of granting a derogation to specific types of plastics and rubber waste in the EU waste list”**. The FABES study had been commissioned by VinylPlus in order to evaluate migration models for cadmium, lead, tin and zinc in rigid and flexible PVC (including DEHP for the latter).

According to the FABES study, the levels of migration of substances from recycled PVC are very low, and hence water used to wash recycled PVC meets the most stringent environmental standards. For this reason, the European PVC industry remains convinced that the recycling of PVC waste from B&C (building and construction) products offers a manageable and cost-effective way to keep legacy additives in their safest place and represents the best option in terms of resource and energy efficiency, as well as waste treatment hierarchy.

In order to consolidate the results of the FABES study, additional measurements are currently being made.

**RoHS 2 Directive**

As reported in last year’s VinylPlus Progress Report, in 2014 the European Commission appointed the consultancy Öko Institut (www.oeko.de) to produce a report on 21 substances that could be prioritised for restriction in electric and electronic equipment (EEE) under the RoHS 2 Directive**. Based on the methodology proposed by UBA, PVC was included in the Öko Institute’s prioritisation list for possible future restriction. No concrete intention to restrict PVC has been announced. The European Commission is now expected to publish a final methodology paper.

**SDS-R Project**

The tool developed by EUPC and PRE to help recyclers prepare Safety Data Sheets for Recyclates (SDS-R) continued to be updated in line with the Globally Harmonised System (GHS), while taking into account the status of the REACH regulation. In 2015, the tool was translated into seven additional languages and is now available in 14 languages.

**CONTROLLED-LOOP COMMITTEE**

As part of the VinylPlus mid-term review, in 2015 the Controlled-Loop Committee carried out a detailed analysis of estimated volumes of PVC expected to be recycled by 2020, involving all the main PVC industry sectors. Key findings, also supported by a report from the consultancy firm Consultic (www.consultic.de/en), include a best-case estimate as well as a worst-case scenario for the case of regulatory constraints on both DEHP in flexible and lead in rigid PVC.
Since regulatory constraints related to the presence of legacy additives are still considered the major threat to recycling post-consumer waste, the Controlled-Loop Committee continued and will continue to give its technical support to ongoing discussions, including those at EU Member-State level.

Large-scale trials of EcoLoop feedstock recycling technology (www.ecoloop.eu) foreseen for 2015 were delayed by technical problems in the operation of the plant.

In the framework of the ReMapPlus initiative – in which VinylPlus closely cooperates with leading research and technology institutes and academics – two promising projects were conceived, both led by the Belgian Textile Research Centre Centexbel (www.centexbel.be). The first project addresses chemical recycling solutions for difficult-to-recycle PVC waste. The second, CELFI, is investigating the inclusion of PVC waste in wood-plastic composites (www.centexbel.be/projects/celfi). An onsite visit to a flooring recycling plant near Cologne, Germany, was organised with a number of research partners to show them and discuss day-to-day recycling challenges.

In 2016, the Controlled-Loop Committee will continue to monitor the development and implementation of the EU regulatory framework in order to make technical contributions to ongoing discussions. The Committee will also focus on PVC energy recovery. Particular attention will be paid to those plants that recover energy from waste and recycle chlorinated components.

A new brochure – ‘Building the Future with Recycled PVC’ – is being developed, highlighting the variety of products by VinylPlus Partners already available on the market. Specifiers and end users will be able to focus their purchasing choices on the sustainability benefits derived from the use of recyclates, including reduced carbon emissions.
“We will review the use of PVC additives and move towards more sustainable additive systems.”

1. Lead replacement in the EU-27 by end 2015 (extended to the EU-28 in 2016). > achieved
2. Robust criteria for the ‘sustainable use of additives’ to be developed, with status report by end 2012. > achieved in 2014
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. > partially achieved
4. Other PVC additive producers and the downstream value chain will be invited to participate in the ‘sustainable additives’ initiative. > ongoing

Pb (LEAD) REPLACEMENT

By the end of 2015, ESPA members had completed the replacement of lead-based stabilisers in all their formulations sold in the EU-28 market. Hence, products made from virgin PVC resin by European converters will no longer contain lead as of 2016.

All ESPA members’ CEOs have signed an official letter, confirming that their companies no longer place any lead-based stabiliser on the EU-28 market for use in PVC as of 31 December 2015. ESPA members are in the process of opening their books to an external auditor to document the effective completion of the substitution.

PLASTICISERS

The European plasticisers market continues to reflect regulatory changes. The market share of High Molecular Weight Ortho-phthalates and other plasticisers is growing rapidly as they replace DEHP.

Studies and Research

An epidemiology study, commissioned by ECPI and carried out by Maastricht University (www.maastrichtuniversity.nl), was completed and submitted for publication. The study examined the reliability of scientific papers that report an association between phthalate exposure and health effects such as obesity, asthma and reduced fertility.

The LCA study on DINP, commissioned by ECPI and finalised by the consultancy PE INTERNATIONAL in 2014, was validated by Denkstatt in 2015. The LCA and the DINP eco-profile have been published and are available for use by the supply chain.

In 2015, ECPI worked with renowned independent consultants to develop a Weight of Evidence methodology to assess the classification and labelling of DINP, DCHP and DnHP. Key conclusions show that DINP does not warrant any classification.

REACH Authorisation

In September 2014, ECHA’s Committees for Risk Assessment (RAC) and Socio-economic Analysis (SEAC) expressed their support for authorising companies that applied for Authorisation to continue to use DEHP in both virgin and recycled PVC and DBP in specific applications.

Despite a thorough evaluation and favourable opinions from the RAC and SEAC, in November 2015 the EU Parliament adopted a motion opposing the Commission’s proposal to authorise recycling of soft PVC containing DEHP. A final decision should be taken by the European Commission.

* PE INTERNATIONAL, sustainability consultancy (www.pe-international.com)
** Denkstatt: Sustainability consultancy (www.denkstatt-group.com)
*** Weight of Evidence (WoE): a quantitative method for combining evidence in support of a hypothesis
***** http://echa.europa.eu/addressing-chemicals-of-concern/authorisations/applications-for-authorization-previous-consultations

The replacement of lead stabilisers in PVC pipes by TEPPFA members was completed in 2012.
National Regulatory Updates

The evaluation and Risk Management Option Analysis (RMOA) conducted by the French authorities on DINCH and DOTP concluded that no danger or risk is identified under REACH; therefore, no additional risk management measures are needed.

In 2014, the European Commission and Member States endorsed a four-year re-evaluation showing no risk for DINP and DIDP in all current consumer applications\(^1\). In spite of this, Denmark in 2015 communicated to ECHA its intention to submit a dossier proposing that DINP be classified as a reproductive agent under the CLP Regulation. The plasticisers industry will participate in a public consultation expected in 2016, bringing robust scientific evidence to support the conclusion that such classification is not justified.

Nearly 4,000 tonnes of PVC flooring were recycled in 2015 in the framework of VinylPlus, a 19% increase on the previous year.

CRITERIA FOR THE SUSTAINABLE USE OF ADDITIVES

EPDplus is an approach and methodology developed by VinylPlus to evaluate the use of substances utilised as additives in PVC products from the perspective of sustainable development. It integrates the current standard Environmental Product Declarations (EPDs) with TNS criteria for sustainability. One EPDplus for a building and construction PVC application was finalised in early 2015.

The EPDplus evaluation methodology will be further developed by the dedicated Task Force with the close cooperation of all stakeholders, and will be aligned with the EU Product Environmental Footprint (PEF) concept when the latter is established, integrating it with the additional elements on which EPDplus stands.

Additive producers continued to provide converter associations with the most recent data to help them update their LCAs and EPDs. In 2015, ESPA completed LCAs for two of its main family of calcium-based stabilisers, and it will continue to develop additional LCAs for the remaining families of stabilisers. ECPI published an LCA for DINP. An update of LCAs and EPDs is now foreseen for other families of additives, such as lubricants and flame retardants.

In August 2015, the Swedish Chemicals Agency submitted a dossier proposing that DCHP be identified as a substance of very high concern (SVHC). The dossier was subsequently withdrawn, but is expected to be re-submitted in 2016.

\(^1\) A restriction is maintained on toys and childcare articles that can be put in the mouth. For further information: Evaluation of new scientific evidence concerning DINP and DIDP (http://echa.europa.eu/documents/10162/37104/363e-aa1d-4044-92e6-519f76374730)

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.”

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. As reported in 2015, the results of the first verification showed that the energy needed to produce a tonne of PVC had decreased by an average of 10.2%. On this basis, the Energy Efficiency Task Force confirmed the target for PVC resin producers by 2020 as part of the VinylPlus mid-term review.

Tests to evaluate the energy consumption of some converter companies continued in 2015. Due to significant differences in the converters’ plants and production processes, in several cases separate data could not be collected for PVC and other products. A first analysis and evaluation of the available data is foreseen in Q1 2016.

SUSTAINABLE FOOTPRINT

In November 2015, TEPPFA participated in the ‘Mid-term Conference on the Environmental Footprint Pilot Phase’. The conference was organised by the European Commission’s DG Environment, and TEPPFA shared and discussed feedback from the pilot phase of the product group ‘hot and cold water pipe systems’. The VinylPlus Task Force will continue to monitor the development of the European Commission’s Product Environmental Footprint (PEF) scheme. Completion of the PEF pilot phase is expected in 2017.

RENEWABLE RAW MATERIALS

Following the publication of the ‘VinylPlus Status Report on Renewables™’ in May 2015, the Renewable Materials Task Force confirmed that no further actions were required on renewable raw materials, and that this target could be considered for now as complete but any new developments would be monitored, especially those outside Europe. Technical solutions exist to produce PVC and many additives from renewable resources. The barriers are economics and availability, both subject to market forces extending well beyond the PVC industry. It is also useful to remember that, even though PVC is based on a non-renewable resource, its long life and closed-loop management help to ensure resource efficiency and environmental gains.

\(^2\) http://mvplus.ee/environmentalfootprint/conference_2015_en.htm

### 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.”

| 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 by 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. | launch achieved in 2014; implementation being reviewed |
| 7. | ECVM will take an active role in promoting VinylPlus within international PVC industry organisations worldwide. | ongoing |
| 8. | ESPA will actively promote VinylPlus outside the EU-28. | ongoing |
| 9. | VinylPlus will increase the number of programme participants by 20% compared to 2010 by end 2013. | not achieved |
| 10. | VinylPlus will engage with five global brand holders by end 2013. | partially achieved |
| 11. | A review of progress towards the globalisation of the approach will be undertaken by end 2015. | achieved |

### INDEPENDENT MONITORING

The VinylPlus Monitoring Committee (see p. 5) is the independent body ensuring the programme’s transparency, credibility and accountability. Chaired by Professor Allons Buikens, 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. The Committee met formally twice in 2015, in April and in November. To ensure maximum transparency, the minutes of each Monitoring Committee meeting are published on the VinylPlus website (www.vinylplus.eu), after formal approval at the following meeting.

### ANNUAL REPORTING

The Progress Report 2016 has been independently verified by SGS, while tonnages of PVC waste recycled and expenditures have been audited and certified by KPMG. The Natural Step made a commentary on the overall work and progress of VinylPlus.

### EXTERNAL STAKEHOLDER DIALOGUE AND COMMUNICATIONS

VinylPlus is committed to building sustainability awareness along the value chain and among stakeholders both inside and outside the industry.

**Engaging Globally**

As part of the commitment to promote its approach to the worldwide PVC industry, in April VinylPlus contributed to VinylIndia® 2015, the 5th International PVC & Chlor-Alkali Conference in Mumbai. VinylPlus made a presentation on the European PVC industry.

It is also committed to frank and open dialogue with all stakeholders, third parties, institutions and organisations in technical, political and social communities.

The 3rd stakeholder meeting organised by VinylPlus took place in Copenhagen, Denmark, in September 2015. The objective was to discuss in depth the role of PVC in the circular economy with influential Danish stakeholders. The main topic was controlled-loop management of PVC waste, including the key issue of legacy additives. The meeting, facilitated by TNS, was attended by about 20 representatives of the Danish EPA, the City of Copenhagen, environmental NGOs, academia, leading Scandinavian construction companies and the waste sector. It gave VinylPlus valuable input and greater insight into stakeholders’ perspective on the circular economy.

In 2015, VinylPlus published three new brochures: ‘On the Road to Sustainability: The ongoing Progress of VinylPlus’, highlighting how the European PVC value chain managed to become a role model for achieving sustainable change in industry; ‘How Regulation & Industry Innovation Have Eliminated Dioxins Emissions from PVC Production & Waste Incineration’; and ‘How Acid Gases from PVC Energy Recovery are Neutralized’, outlining how hydrogen chloride is neutralised in modern incinerators.

A set of criteria for a VinylPlus product label certification scheme was finalised. The feasibility of its implementation is under review.

### Communications

VinylPlus continued to proactively promote VinylPlus worldwide, through its continuous efforts to reduce its environmental and climate footprint through its continuous efforts to reduce its environmental and climate footprint and to develop new green products, services and jobs that will support a more sustainable world.”

Christopher Yvetot

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PHOTO: COURTESY OF RENOLIT
PHOTO: VINYLPLUS
"UNEP welcomes all Sector initiatives such as VinylPlus, which recognize the challenges, set targets, engage stakeholders and demonstrate progress. 2015 will set the sustainability agenda through 2030 and beyond. No matter how you react, the trends that are driving the planet are driving the market. The private sector can see this as a new set of regulations, restrictions and red tape, or as a historic, immediate opportunity to innovate, grow new markets, and build new relationships with customers and other stakeholders to help society meet the challenge of change. UNEP stands ready to work with those visionaries."

ARAB HOBALLAH
UNEP

and its sustainability programme. The conference attracted more than 650 participants representing 335 companies from 15 countries.

VinylPlus also continued to actively share experience, knowledge and best practices with the other regional PVC associations in the GVC (Global Vinyl Council). In 2015 the GVC’s bi-annual meetings were organised in Cannes, France in April and in Tokyo, Japan in October.

United Nations

The VinylPlus Voluntary Commitment was included in the Rio+20 Registry of Commitments in 2012. Since November 2013, VinylPlus has been a member of the Green Industry Platform (GIP), the global high-level, multi-stakeholder partnership led by the United Nations Industrial Development Organization (UNIDO) and the United Nations Environment Programme (UNEP).

In 2015, Christophe Yvetot, UNIDO Representative to the EU, and Arab Hoballah, Chief of Sustainable Lifestyles, Cities and Industry of UNEP, participated as keynote speakers in the Vinyl Sustainability Forum.

Stakeholders Events, Conferences and Exhibitions

In March, VinylPlus contributed to the PVC Formulation 2015 conference in Cologne, Germany, with a speech on ‘The PVC industry in Europe and sustainable development’. The event showcased the latest innovations in PVC resins, vinyl compounds and additives, as well as market trends.

In March also, the Chairman of the Controlled-Loop Committee presented ‘PVC cables – a clear demonstration of the circular economy’ at the Cable 2015 conference, in Cologne, Germany.

With the theme ‘More Vinyl, Less Carbon’, the 3rd Vinyl Sustainability Forum in April 2015 in Cannes, France, brought together around 130 stakeholders from academia, government bodies, the UN, the European Commission, NGOs, retailers and all sectors of the PVC industry. Discussion focused on how the VinylPlus Voluntary Commitment is contributing to address climate change, by improving energy and resource efficiency and product sustainability, and moving the European PVC industry towards a circular economy; and how PVC products can contribute to reducing CO2 emissions.

In October, VinylPlus participated in the Brussels Sustainable Development Summit 2015 organised by VITO. It contributed a poster and an oral presentation on ‘Moving the European PVC industry towards a low-carbon circular economy’ in a session dedicated to ‘Innovative value chains for sustainable process industry’.

42 AgPR: Association for the Recycling of PVC floor-coverings (www.agpr.de)
43 KRV: the German plastic pipes industry association (www.krv.de)
44 AGPU: Arbeitsgemeinschaft PVC und Umwelt – the German association of the PVC value chain (www.agpu.com)
45 PVC Forum Italia: the Italian association of the PVC value chain (www.pvcforum.it)
**FINANCIAL REPORT**

In 2015, further savings were made through reorganisation and gains in efficiency, especially in the Recovinyl scheme, but also in sectoral initiatives. Expenditure by VinylPlus for 2015, including EuPC and its members, amounted to €5.02 million.

<table>
<thead>
<tr>
<th>WASTE MANAGEMENT AND TECHNICAL PROJECTS</th>
<th>TOTAL EXPENDITURE INCLUDING EuPC AND ITS MEMBERS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2014</td>
</tr>
<tr>
<td>EP-Coat</td>
<td>198</td>
</tr>
<tr>
<td>EPFLOOR &amp; flooring projects</td>
<td>570</td>
</tr>
<tr>
<td>EPPA</td>
<td>413</td>
</tr>
<tr>
<td>ERPA – Pack upgrade</td>
<td>-42*</td>
</tr>
<tr>
<td>PlasticsEurope France Blister</td>
<td>11</td>
</tr>
<tr>
<td>ESWA/Roofcollect®</td>
<td>139</td>
</tr>
<tr>
<td>Recovinyl</td>
<td>2,100</td>
</tr>
<tr>
<td>Studies, start-up &amp; pull concept</td>
<td>75</td>
</tr>
<tr>
<td>TEPPFA</td>
<td>807</td>
</tr>
<tr>
<td>EATS (Automotive trimmings recovery)</td>
<td>14</td>
</tr>
<tr>
<td>Ebene (Furniture recycling)</td>
<td>15</td>
</tr>
<tr>
<td>Medical applications recycling</td>
<td>20</td>
</tr>
<tr>
<td>Reysta® consortium</td>
<td>0</td>
</tr>
<tr>
<td><strong>TOTAL PROJECTS</strong></td>
<td>4,319</td>
</tr>
</tbody>
</table>

* Reversal of accrual made in 2013
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 1st 2015 to December 31st 2015, 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-recognized supervisory body for statutory auditing. VinylPlus’ management is responsible for the overview, analytical accounting and supporting documents. The scope of the 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 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 2015 and verify the mathematical accuracy of this.

The total expenses amount to KELFR 5,021.

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

b. Verify that these costs are recorded in the financial statements 2016 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 1st 2015 and December 31st 2015.

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 31st 2015.

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 16.21% of total expenses.

Note that financial statements of VinylPlus AISBL, TEPPFA AISBL, Recovinyl AISBL and EPFLOOR 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
Represented by

DOMINIC ROUSSELLE, Réviseur d’Entreprises
Mont-Saint-Guibert, March 18th 2016

KPMG LIMITED REVIEW OF TONNAGES

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 EPFA of the EuPC, by the sector associations ESWA and TEPPFA of the EuPC, by IVK/EPCoat and by Recovinyl Inpa during the period January 1st 2015 to December 31st 2015.

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

<table>
<thead>
<tr>
<th>PROJECT</th>
<th>TYPE OF PVC</th>
<th>TONNAGE RECYCLED IN 2014</th>
<th>TONNAGE RECYCLED IN 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>IVK/EPCoat (incl. Recovinyl)</td>
<td>Coated fabrics</td>
<td>8,941*</td>
<td>10,833*</td>
</tr>
<tr>
<td>EPFLOOR</td>
<td>Flooring</td>
<td>3,314*</td>
<td>3,938*</td>
</tr>
<tr>
<td>EPFA (incl. Recovinyl)</td>
<td>Window profiles &amp; profile related PVC</td>
<td>203,962**</td>
<td>232,757**</td>
</tr>
<tr>
<td>ESWA – ROOFCOLLECT and Recovinyl</td>
<td>Flexible PVC</td>
<td>96,536 tons which consist of:</td>
<td>87,537 tons which consist of:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Flexible PVC</td>
<td>4,045*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Flexible PVC applications</td>
<td>92,411**</td>
</tr>
<tr>
<td>TEPPFA (incl. Recovinyl)</td>
<td>Pipes &amp; fittings</td>
<td>55,225</td>
<td>49,412**</td>
</tr>
<tr>
<td>EPFA via Recovinyl (incl. CRFA and Pack-Ugrade Project)</td>
<td>Rigid PVC film</td>
<td>20,214**</td>
<td>24,371**</td>
</tr>
<tr>
<td>Recovinyl (incl. Vinyloop Ferrara)</td>
<td>Cables</td>
<td>92,826</td>
<td>106,044</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>481,018</td>
<td>514,913</td>
</tr>
</tbody>
</table>

* Tonnage including Norway and Switzerland** Tonnage including 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 Réviseurs d’Entreprises SCRL
Represented by

DOMINIC ROUSSELLE, Réviseur d’Entreprises
Mont-Saint-Guibert, March 18th 2016
SGS INDEPENDENT VERIFICATION STATEMENT ABOUT THIS VINYLPLUS PROGRESS REPORT 2016

Established in 1878, SGS is the world’s leading inspection, verification, testing and certification company. We are recognized 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 2016”. This report presents the commitments and achievements made by the VinylPlus project in 2015.

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 made in the report are reliable; this report reflects the effort that VinylPlus has made to comply with its new Voluntary Commitments of June 2011.

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 Limited Review 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 2016” represents VinylPlus’ performance in 2015 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
Certification Manager
Certification and Business Enhancement
18 March 2016

TNS COMMENTARY ON VINYLPLUS PROGRESS REPORT FOR 2015

The Natural Step acts as an external advisor, stakeholder intermediary and capacity builder to VinylPlus, advocating for sustainability. We comment here upon the big picture context, progress and forward outlook at the mid-way point in the 10-year commitment.

A landmark year in a rapidly changing world

The year 2015 will be remembered as a breakthrough year for sustainable development. It was marked by some clear shifts in public awareness, calls for action from religious, political and business leaders and two global agreements - the COP21 Paris Climate Agreement and the launch of the UN Sustainable Development Goals (SDGs).

These signals point toward future markets that will be very different from those of today. The world is now starting to ask for more ambition and the opportunities for sustainable innovation are growing. At the same time, scientific evidence shows we need to move faster to avoid tipping points connected to “planetary boundaries”. We risk irreversibly pushing the world into a state dangerously unfavourable to civilization. Ills such as conflict, terrorism, inequality, corruption, mass migration and social discontent are all connected with each other, with ecological instability and with markets.

What does this mean for VinylPlus? Our hope is to put progress in context, offer encouragement on the roadmap and foster a renewed sense of urgency.

Step-wise progress to future-proof industry

All industries must work toward a common goal, aligned with the scientific requirements for sustainability, and track performance to close the gap. VinylPlus is a role model in this regard, as it seeks to align the PVC industry with the necessary system conditions for a sustainable society2. This is about future-proofing business, a point that can easily be lost in the short-term perspective. It also offers a holistic model on how to become part of the circular economy.

By 2020, VinylPlus aims to have achieved targets related to the five key sustainability challenges of PVC. The vision should be kept in mind though, and the journey must continue. Economic conditions influence the progress but we can expect those who move faster will be better positioned for tomorrow’s markets.

Our message is that VinylPlus is setting the frame for the industry of the future. We encourage all actors to use it to make coordinated step-wise progress together, to increase the pace, to ask for proactive governance, legislation and investment that supports the journey.

Reflections on progress after five years

During 2015 we provided input on VinylPlus’ mid-term review of targets. We reflected upon the working principles, whether targets are being met, the expectations of stakeholders and the existing priorities. In our report to the VinylPlus Board we stated that despite some set-backs and delays, we believe VinylPlus is on track. It is living up to original promises overall, and remains a very effective leadership vehicle for an industry facing complex sustainability issues and a lingering trust deficit. Some really tough topics are now being dealt with (at least in Europe) in a much more open, honest and sensible manner e.g. dioxins. By being open about what is known and engaging others, VinylPlus managed to get beyond the rhetoric of this emotive issue and communicate clearly the limited extent of PVC’s current contribution to this type of pollution and what can be done about it.

The review process also led to some deeper questions about the value of VinylPlus. Is this voluntary effort with all its costs and extra work really worthwhile? Is there enough enthusiasm for sustainability when industry faces tough economic challenges? Are companies using VinylPlus to deal with sustainability?  

2 http://www.thenaturalstep.org/sustainability/the-system-conditions/
questions, simply to avoid that responsibility themselves? Where is the business value for members? The conclusions remain very positive. Even if some parts of the industry and its various associations have been concerned it brings unnecessary attention to PVC, nonetheless VinylPlus is supported and seen by leaders in the industry as a serious contribution to their business strategy, values and ongoing success.

Highlights from 2015
This year’s progress report reveals the extent of activity within VinylPlus, much of it at a technical level. In addition to the mid-term review we also wish to comment upon the following:
- new ground was covered during a consultation event with regulators, NGOs and academic stakeholders in Copenhagen concerning the Controlled-Loop Management of PVC and the potential for PVC in the circular economy. More such events are needed.
- the complete phase-out of lead from virgin PVC production in Europe is an historic achievement that deserves acknowledgement. It now needs to go global.
- the expansion of the PVC recycling scheme and growth in volumes show continued promise. Studies to understand waste projections and contextualize the targets added value. Questions remain about the economic impact of regulation of legacy additives on PVC recycling.

Looking ahead
We see some clear priorities that can help unlock further progress for industry via the VinylPlus programme:
- Promoting innovation – More emphasis on exploring circular business models, rewarding materials innovation and stimulating design of solutions to minimize or avoid waste. Much effort has been on recycling existing waste streams but stakeholders also want to see a clear plan for the full controlled-loop management of PVC products in a circular economy (including guidance on appropriate applications).
- EPDplus & measuring performance – Given the growing awareness of the effects of the use of chemicals in society, we repeat our call for “an industry-wide common process for evaluating additives (European but applicable globally) which is externally trusted”. The EPDplus concept holds promise but progress has been too slow and a credible and inclusive process is needed to take it forward.
- VinylPlus Label & rewarding progress – The roll-out of the VinylPlus label for construction materials is important. Without systems to reward investment in improved performance it will not be possible for industry to credibly promote sustainable innovation.
- Communication and outreach for industry sustainability – We would like to see more individual companies demonstrate progress and actively promote the goals of VinylPlus. Furthermore, we repeat our call for greater outreach, collaboration and internationalization.

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 in a broad range of industrial, technical and everyday applications.

PVC is intrinsically a ‘low carbon’ plastic: 57% of its molecular weight is chlorine derived from common salt; 5% is hydrogen; and 38% is carbon. It consumes less primary energy in the manufacturing phase than other commonly used plastics. 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 of both 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 five leading European producers of PVC resin, which account for around 85% of the EU-28 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 11 companies that produce more than 95% of the stabilisers sold in Europe. They employ directly more than 2,000 people in the EU.

www.stabilisers.eu

THE EUROPEAN COUNCIL FOR PLASTICISERS AND INTERMEDIATES
representing the five major European producers of plasticisers and intermediates. They employ approximately 1,200 people in plasticiser production.

www.plasticisers.org
The ECVM’s formal legal entity, registered in Belgium

EPFLOOR

EPCOAT

Di-isononyl cyclohexane dicarboxylate (DINCH)

ERFMI

European Resilient Flooring Manufacturers’ Institute (www.erfmi.com)

ESPA

The European Stabiliser Producers Association (www.stabilisers.eu)

ESWA

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

EU

European Union

EUPC

European Plastics Converters (www.plasticsconverters.eu)

GHS

Globally Harmonised System of Classification and Labelling of Chemicals

GIP

Green Industry Platform (www.greenindustryplatform.org)

HMW PHTHALATES

High Molecular Weight phthalates

INDUSTRY CHARTERS

ECVM Industry Charters for the Production of VCM (1995) and for the Production of E-PVC (1998)

IVK EUROPE

Industrieverbund Kunststoffbahnen e.V (Association of Coated Fabrics and Films – www.ivk-europe.com)

KPMG

KPMG is a global network of professional firms providing audit, tax and advisory services (www.kpmg.com)

LCA

Life Cycle Assessment

LMW PHTHALATES

Low Molecular Weight phthalates

Pb

Lead

PEF

Product Environmental Footprint

PLASTICISERSPLUS

The ECPI’s legal entity, based in Brussels, Belgium

REACH

Registration, Evaluation, Authorisation and Restriction of Chemicals

RoHS


R-PVC

Plasticised PVC

SDS-R

Safety Data Sheet for Recyclates

SGS

Société Générale de Surveillance, the world’s leading testing and verification organisation (www.sgs.com)

S-PVC

Suspension polyvinyl chloride

SVHC

Substances of Very High Concern

TEPPFA

The European Plastic Pipes and Fittings Association, an EuPC sectoral association (www.teppfa.eu)

TNS

The Natural Step (www.naturalstep.org)

UN

United Nations

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

Dutch company set up to collect and recycle rigid PVC (www.wuppi.dk)