

# Progress Report 2012

Reporting on the activities of the year 2011

vinyl  plus  
COMMITTED TO  
SUSTAINABLE DEVELOPMENT

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VinylPlus is built around five commitments aimed at: achieving higher recycling rates of PVC and developing innovative recycling technologies; addressing any potential concerns about organochlorine emissions; ensuring the sustainable use of additives; improving energy efficiency and the use of renewable sources and raw materials in PVC production; and promoting sustainability awareness throughout the whole PVC value chain. The new Voluntary Commitment was officially signed at the VinylPlus General Assembly 2011 which took place in Brussels on 22 June 2011.

#### Controlled-loop Management

257,084 tonnes of post-consumer PVC waste was recycled in 2011. In order to achieve the demanding target of 800,000 tonnes/year recycled by 2020, Recovinyl is developing a new operating concept to stimulate a new, dynamic 'pull market' for PVC recyclates. In addition, Vinyloop®/Texyloop® technologies confirmed their valuable

#### Sustainable Additives

Lead stabiliser consumption decreased by 71.4% in the EU-27 compared to 2007, and remains on track to achieve a complete substitution by 2015. The 2011 data on consumption of plasticisers in Europe confirm the progressive shift from classified low molecular weight phthalates to non-classified high molecular ones. A dedicated Task Force on additives was set up at the beginning of 2011.

#### Sustainable Energy Use

In October 2011, VinylPlus established the 'Energy Efficiency Task Force' and resolved to organise its work by industry sectors to better analyse specific energy consumption and define ad hoc reduction targets. A 'Renewable Materials Task Force' was established in December 2011 in order to investigate how to potentially increase the use of renewable raw materials, if they are sustainable, across the PVC value chain.

## 2011 Year Highlights

VinylPlus is the new ten-year Voluntary Commitment of the European PVC industry. Building upon the achievements of the Vinyl 2010 programme, it takes the next important steps in tackling the sustainability challenges for PVC and establishes a long-term framework for the on-going sustainable development of the industry's value chain. The scope of the programme extends to the EU-27 plus Norway and Switzerland.

performance. The presence of 'legacy additives' is one of the key priorities that VinylPlus has addressed in its Voluntary Commitment and the industry is working closely with regulators on this matter. In 2011, the 'Controlled-loop Committee' worked on the definition of 'recycled PVC' and the programme's targets based on a survey and discussions with the main converting sectors.

#### Organochlorine Emissions

The European PVC industry is committed to addressing the concerns surrounding organochlorines expressed by its stakeholders. In line with this objective, a specific workshop with external stakeholders is planned in 2012. A new audit on the ECVI Industry Charters is being completed in 2012. No accident with VCM release during transportation occurred in 2011.

#### Sustainability Awareness

In 2011, VinylPlus continued its efforts for transparent and open communication with all of its stakeholders. A 'Label and Certification Task Force' was set up in January 2011 with the objective of defining the criteria attached to the membership certificate and to recommend an approach for the implementation of a product label. The VinylPlus Monitoring Committee was formally established in the second half of 2011, with the majority of members being external stakeholders from the European Commission and Parliament, consumer groups, academia and trade unions.

# Management and Monitoring

## Management Board

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

### Members

**Mr. David Clark** – EuPC (Flexible PVC sector)

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

**Mr. Alexandre Dangis** – EuPC

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

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

**Dr. Helmuth Leitner** – Deputy General Manager (ECVM 2010)\*\*\*\*

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

**Dr. Ettore Nanni** – ESPA

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

**Mr. Ashley Reed** – ECVM 2010\*\*\*\*\*

**Dr. Josef Ertl** – Chairman (ECVM 2010)\*\*\*

**Mr. Chris Tane** – ECVM 2010\*\*\*\*\*

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

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

\*Since December 2011; representing ESPA until December 2011  
\*\*Chairman since October 2011  
\*\*\*Chairman until October 2011

\*\*\*\*Until February 2012  
\*\*\*\*\*Until December 2011  
\*\*\*\*\*Since December 2011

## Monitoring Committee

The objective of the Monitoring Committee is to supervise the implementation of the VinylPlus Voluntary Commitment, ensuring transparency and accountability. It plays a valuable role in stimulating the industry to rise to new challenges in sustainable development. The Monitoring Committee, chaired by Professor Alfons Buekens of the Free University of Brussels, 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

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

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

**Dr. Helmuth Leitner** – Deputy General Manager of VinylPlus\*\*

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

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

**Mr. Jorma Rusanen** – Political Secretary, EMCEF<sup>2</sup>

**Mr. Filipe Constant** – Chairman of VinylPlus

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

**Mr. Alexandre Dangis** – VinylPlus Board Member

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

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

**Mr. Rainer Grasmück** – Treasurer of VinylPlus

<sup>1</sup>VUB: Vrije Universiteit Brussel (Free University of Brussels – www.vub.ac.be)  
<sup>2</sup>EMCEF: European Mine Chemical and Energy Workers Federation (www.emcef.org)  
<sup>3</sup>OCU: Organización de Consumidores y Usuarios (Spanish Consumers and Users Organisation – www.ocu.org)  
<sup>4</sup>CES: Consejo Económico y Social de España (Spanish Economic and Social Council – www.ces.es)

\*Since February 2012; VinylPlus Board Member until February 2012  
\*\*Until February 2012

VinylPlus has started a remarkable journey! Finally it has become a reality; a reality made by people, with people, for people. A solid sustainable development programme which builds upon ten years of challenges and achievements with Vinyl 2010.

VinylPlus is the new ten-year Voluntary Commitment of the European PVC industry. It was developed in an open process of extensive dialogue with all stakeholders and translated into five concrete challenges based on The Natural Step's System Conditions for a Sustainable Society.

VinylPlus blends creativity and technological innovation, social responsibility and economic prosperity, environmental protection and resource efficiency. For this mix to work, it is extremely important for the entire PVC value chain to understand the value of this commitment and support VinylPlus.



# Foreword from the Chairman of VinylPlus

VinylPlus' scope is wider than Vinyl 2010's, introducing new work areas such as energy and resources efficiency, climate change and sustainability awareness, and covering all PVC waste streams, including automotive, electric & electronic and packaging. Its geographical reach goes further, adding Norway and Switzerland to the EU-27 with a clear aim at engaging globally.

But it is also important that external stakeholders such as public procurement authorities and technical specifiers recognise the value of a more and more sustainable PVC.

From our side, we can guarantee maximum efforts in driving the PVC industry into the new era of a greener economy.

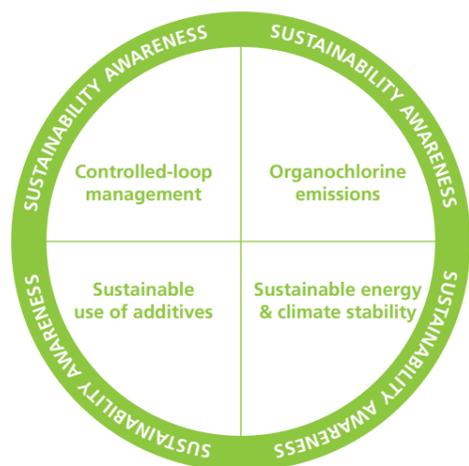
In this first VinylPlus Annual Report, our challenges and the progress made so far are reported. Further technical information is published on our web portal [www.vinylplus.eu](http://www.vinylplus.eu), where an online progress tracker allows visitors to follow our journey towards the agreed targets.

**Filipe Constant**, Chairman of VinylPlus

# Voluntary Commitment Challenges and Achievements

In developing the new VinylPlus programme, the industry has chosen to work in an open process of extensive stakeholder dialogue, including different industry sectors, NGOs, regulators, civil-society representatives and end-users. Consistent with the commitment of the European PVC industry, five key challenges need to be overcome to secure a sustainable future for PVC, in line with the move towards a more sustainable society.

The first four challenges within the VinylPlus programme deal with the production and use of PVC along the value chain, whilst the fifth challenge addresses the need to increase awareness about sustainability and to create a dialogue with all stakeholders. Each of the challenges is based on the TNS (The Natural Step [www.naturalstep.org](http://www.naturalstep.org)) System Conditions for a Sustainable Society.



VinylPlus is committed to the following guiding principles:

- Voluntary action** – getting on with tackling the sustainability challenges of PVC in a proactive way.
- Measurable targets and deadlines**
- Continuous improvement** – to always accept that the journey to sustainability requires constant evaluation and learning along the way.
- Collaboration** – ways of working together within the industry to find solutions that no single player can implement, and reaching out to a much broader stakeholder group.
- Transparency** – opening-up, sharing and recognising the gap between where we are now and where we aim to be.
- Scientific rigour and research** – making sure technologies, processes and materials are assessed according to strong and scientifically-based sustainability principles.
- Dialogue** – creating more debate with external contacts and those who have something to say about PVC, in a positive, listening and learning frame of mind.
- Responsibility** – no one is going to secure a place for PVC in the sustainable future other than the industry itself.
- Seeking business prosperity** – we need successful businesses along the value chain of PVC – that means making an acceptable return on investment, and being competitive; at the same time as seeking the route to sustainable development.
- Priority to sustainability innovation** – research, design and innovation should have no goal other than improving the sustainability potential of PVC including its market competitiveness, as well as openly challenging components, materials and practices that do not make sense in terms of sustainable development.

This Report summarises VinylPlus' progress and achievements under each of the five challenges during 2011. For detailed descriptions of the projects and activities please visit [www.vinylplus.eu](http://www.vinylplus.eu)



# Challenge

# 1

# 257,084

## TONNES RECYCLED

Despite continuing adverse market conditions and the slow-down of the construction sector, the consolidation of the collection and recycling schemes allowed to limit the losses in recycled volumes compared to 2010.

### Controlled-loop Management:

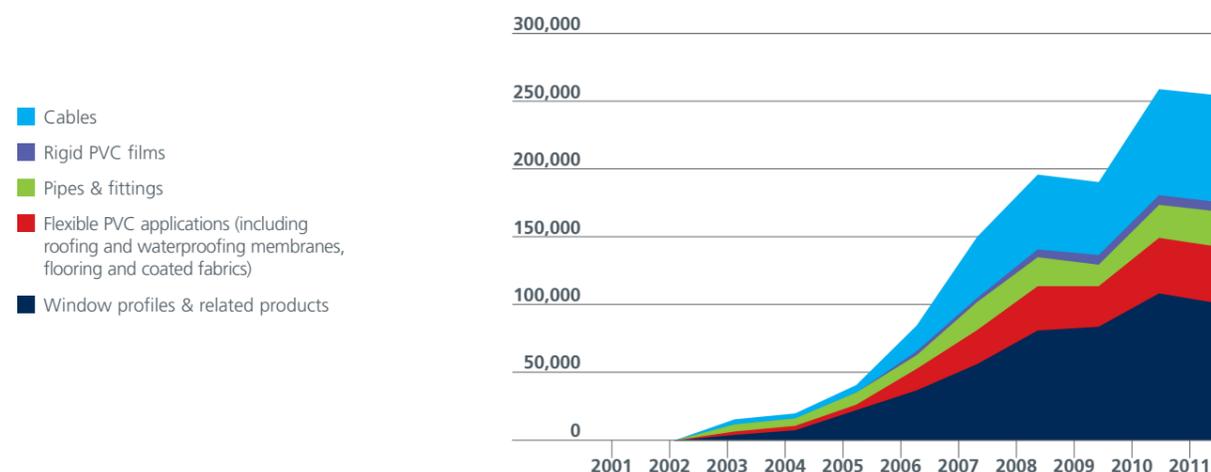
*We will work towards the more efficient use and control of PVC throughout its life cycle.*

#### Targets

- 1 - Recycle 800,000 tonnes/year of PVC by 2020.
- 2 - Exact definitions and reporting concept to be available by end 2011.
- 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

Photo: Courtesy of Van Werven

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



### Recycling Target

PVC recycling is vital to ensure a sustainable future for PVC. VinylPlus aims at achieving a quantum leap in recycling rates, up to 800,000 tonnes/year by 2020, covering all PVC waste streams, whether regulated by EU Directives or not. 100,000 tonnes/year will be recycled through innovative technologies.

### Recovinyl

Recovinyl ([www.recovinyl.com](http://www.recovinyl.com)) is the organisation set up to support the development of PVC waste collection and recycling. Recovinyl has progressively integrated the various collection and recycling initiatives that were previously managed by the EuPC sectoral projects.

In 2011, Recovinyl has been active in 16 European Countries, with a registered recycled volume of 253,086 tonnes of post-consumer PVC waste. (For further information [www.vinylplus.eu](http://www.vinylplus.eu))

In the framework of the new Voluntary Commitment, Recovinyl will play a major role in ensuring that 800,000 tonnes of PVC are collected, recycled and used in new products every year by 2020. This challenging target requires a new mind set for Recovinyl.

2011 was therefore a year of transition, which saw the development of a new operating concept to stimulate a new, dynamic 'pull market' for PVC recyclates, by integrating

converters and recyclers into an innovative certification system, which, from now on, will also cover the regulated waste streams (automotive, electric & electronic and packaging).

To be certified, recyclers will be asked to deliver volumes of consistent quality, to provide Reach compliant safety data sheets and ensure full transparency (origin, application and recycled content). Certified converters, on the other hand, will report on external certified sources of recycled PVC.

This system should bring long-term advantages to both certified recyclers and converters:

- Converters will be able to demonstrate the use of recycled materials in their products.
- Converters will have easier access to larger volumes of better quality recyclates.
- Recyclers' professionalism will grow in line with increasing regulatory requirements, such as REACH.
- Converters and recyclers will be able to benefit from incentives related to the reduction of their carbon and other environmental footprints, thanks to the external certifications of the use of recycled material.

### PVC Waste Management Sector Projects

In Germany, window collection and recycling schemes are well consolidated with Rewindo<sup>5</sup> while in other European countries, systems stimulated by Recovinyl are in place. In June 2011, the first Environmental Product Declaration for PVC windows

and profiles was published by EPPA<sup>6</sup>. A second upgraded and extended version is being developed. (For further information [www.vinylplus.eu](http://www.vinylplus.eu) and [www.eppa-profiles.org](http://www.eppa-profiles.org))

TEPPFA<sup>7</sup> confirmed its commitment to supporting the activities of VinylPlus and Recovinyl. A study carried out by VITO (the Flemish Institute for Technological Research – [www.vito.be](http://www.vito.be)) in 2011 shows that TEPPFA member companies used 43,000 tonnes of PVC recyclates in 2010. Therefore the volume for Europe, including non member companies, is estimated at 50,000 tonnes. In 2011, TEPPFA published EPDs for its most important product groups, based on an LCA study carried out by VITO and validated by Denkstatt<sup>8</sup>. (For further information [www.vinylplus.eu](http://www.vinylplus.eu) and [www.teppfa.org](http://www.teppfa.org))

In 2011, ESWA<sup>9</sup> recycled 1,633 tonnes of end-of-life roofing and waterproofing membranes through its project Roofcollect<sup>®</sup>. (For further information [www.vinylplus.eu](http://www.vinylplus.eu))

With 3,040 tonnes of collected post-consumer flooring waste to be recycled, EPFLOOR<sup>10</sup> registered a 24.2% increase in 2011 compared to the previous year. EPFLOOR is committed to supporting joint industry efforts for the development of recycling technology for mixed soft PVC waste. (For further information [www.vinylplus.eu](http://www.vinylplus.eu))

EPCoat<sup>11</sup> (EuPC/IVK PVC Coated Fabrics Sector Group) recycled 3,000 tonnes of post-consumer PVC coated fabrics (reported as part of Recovinyl volumes) through its IVK collection and recycling scheme during 2011. (For further information [www.vinylplus.eu](http://www.vinylplus.eu))

ERPA<sup>12</sup>-CIFRA<sup>13</sup>: in 2011, CIFRA recycled 250 tonnes of PVC/PE post-consumer waste, in addition to 2,200 tonnes of PVC rigid films recycled into ultra lightweight modular structures (GEOlight<sup>™</sup>). Including the volumes recycled within the framework of Recovinyl, a total of 3,000 tonnes of PVC rigid films were recycled by ERPA-CIFRA in 2011.

### Innovative Recycling

#### Vinyloop<sup>®</sup>

Vinyloop<sup>®</sup> is a recycling technology based on a physical process involving solvents, that produces high quality R-PVC (recycled PVC) compounds. The Vinyloop<sup>®</sup> process has proven to be one of the most efficient available recycling

methods for regenerating composite structures containing at least 70% of PVC. Until now, traditional recycling methods were not able to achieve such a high level of purity in recycled PVC compounds. This process allows for PVC to be separated from other materials such as polyester fibres, natural textiles, metals, rubber and polyolefin, to name a few. The latest innovations implemented at the plant resulted in high-level purity R-PVC, free of contaminants.

In 2011, the Vinyloop<sup>®</sup> plant in Ferrara processed 7,540 tonnes of waste (+33% vs. 2010). Nevertheless, two main factors – limited capacity of the plant and high energy and steam costs in Italy – affected the financial results despite the very good operational year. However, the results of a recent simulation, based on average European energy and steam costs, indicate that a plant with a capacity of 20,000 tonnes/year (potentially financed through cooperation of processors and/or waste management companies) would have a largely positive EBIT (earnings before interest and taxes) elsewhere in Europe.

### Legacy Additives

The 'legacy additives' issue (substances which use in PVC products has been discontinued but which are contained in recycled PVC) may negatively affect the use of PVC recyclates. This is one of the key priorities addressed by VinylPlus in its Voluntary Commitment. VinylPlus will help regulators to assess the barriers caused for recycling efforts, if further restrictions were to be applied to such substances. The industry will have to make sure that these substances are used in applications where such use is safe.

### Cadmium Stabilisers

Cadmium stabilisers were used in several PVC applications until a 100-ppm limit was introduced in 1991 (Directive 91/338/EEC, now included in Annex XVII<sup>14</sup> of REACH) for most applications except for profiles and roofing.

In the framework of the Vinyl 2010 Commitment, the use of cadmium was voluntarily stopped in the EU-15 in the year 2000 and in the EU-27 by 2007. Nevertheless, cadmium being present in profiles waste will only peak between 2015 and 2020, due to the long-life span of these applications.

In line with REACH requirements, a new EU Commission Regulation was published in 2011 (EC No 494/2011)

<sup>5</sup>Rewindo: Fenster-Recycling-Service ([www.rewindo.de](http://www.rewindo.de))

<sup>6</sup>EPPA: European PVC Window Profile and Related Building Products Association, an EuPC sector group ([www.eppa-profiles.org](http://www.eppa-profiles.org))

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

<sup>8</sup>Denkstatt GmbH: Austrian sustainability consultancy ([www.denkstatt.at](http://www.denkstatt.at))

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

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

<sup>11</sup>EPCoat: EuPC PVC Coated Fabrics Sector Group

<sup>12</sup>ERPA: European Rigid PVC Film Association ([www.pvc-films.org](http://www.pvc-films.org))

<sup>13</sup>CIFRA: Calandrage Industriel Français – a French calendering company ([www.cifra.fr](http://www.cifra.fr))

<sup>14</sup>Annex XVII: Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles of the REACH Regulation <http://www.reach-compliance.eu/english/REACH-ME/engine/sources/reach-annexes/launch-annex17.html>



Photo: Courtesy of Tuti Industrial

# Challenge 2

**THE PARTICIPATING COMPANIES IN VINYLPLUS ARE COMMITTED** to addressing any concerns related to the release of persistent chlorinated organic compounds along the entire life cycle of PVC

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

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

regarding the placing on the market of polymers containing cadmium. This regulation integrates now, for all applications, the prohibition of placing articles from a specified list of polymers (including PVC) on the market if they contain cadmium above a concentration limit of 100 ppm. Specific rigid PVC applications are exempt as long as the cadmium originates from recycled waste and its concentration does not exceed 0.1% of the plastic material. Furthermore, it includes the obligation to mark articles containing recovered PVC.

EuPC and ECVM have elaborated a 'Guidance document on the implementation of the labelling obligation related to the use of recycle in PVC products in line with Regulation EU 494/2011'<sup>15</sup> published in December 2011.

■ **Low Molecular Weight Phthalates**

In summer 2011, Denmark proposed a restriction on the commercialisation of articles containing DEHP, BBP, DBP and DIBP in indoor air and skin contact applications. The EU opened a public consultation until 16 March 2012.

By the time this Report is published, the producers of these substances will have contributed with a full technical dossier, while VinylPlus' comments will have focused on how such restrictions could make flexible PVC recycling almost impossible for several large applications, such as car mats or industrial flooring.

A study is being undertaken by VinylPlus to assess the acceptability of the use of PVC recyclates containing DEHP (and to a lesser extent BBP, DBP and DIBP) from a human health risk perspective.

■ **Lead**

In December 2010, the Norwegian Climate and Pollution Agency announced a proposal to ban the use of consumer products containing lead, lead compounds, medium-chain chlorinated paraffins (MCCPs), pentachlorophenol (PCP) and perfluorooctanoic acid (PFOA).

In August 2011, ECVM and EuPC sent a joint letter to the Norwegian Agency underlining the adverse impact that such a ban would have on PVC recycling.

In September 2011, VinylPlus decided to launch a tender for a study on lead in PVC recyclates, similar to the study on cadmium carried out by the VITO institute.

■ **SDS-R Project**

To support recyclers in their compliance with the REACH Regulation requirements, EuPC and EuPR<sup>16</sup> have developed an online database of polymers and applications where recyclers can enter basic information (statistical or analytical) to obtain the specific required Safety Data Sheets for Recyclates (SDS-R).

The website ([www.sdsrtool.eu](http://www.sdsrtool.eu)) has been available since November 2010. The version 2.0 of the SDS-R in seven languages was launched in April 2011 with an updated version in 13 languages to be launched in Q2 2012.

Regular SDS-R updates will be necessary on the basis of new information coming from Registration dossiers, regulatory changes and input from recyclers.

■ **Controlled-loop Committee**

The Controlled-loop Committee is composed of representatives of PVC resin and additives producers, converters, and Recovinyl. In 2011, its main activities were:

- Contribution towards the VinylPlus recycling targets based on a top down market survey with external consultants, and bottom up discussion with the main PVC converting industries (window profiles, pipes, roofing, flooring, films, etc.).
- Agreement on the definition of 'recycled PVC' as "a discarded PVC product or semi-finished product that is diverted from waste for use within a new product. Processing waste is included, provided it cannot be re-used in the same process that generated the waste".
- Assessment of material flows and volumes for each industry sector.
- Support and guidance to Recovinyl in the development and implementation of its new 'pull market' concept.
- Screening of all the available technologies for non-mechanical or innovative recycling of PVC: a short list was developed, to be further discussed in 2012.
- Addressing the issue of 'legacy additives', including the launch of the lead study which will be completed in 2012.

<sup>15</sup>The guidance document is available at [http://www.plasticsconverters.eu/uploads/2011-12-09\\_EuPC%20guidance%20on%20Cd%20recyclate%20exemption%20labelling.pdf](http://www.plasticsconverters.eu/uploads/2011-12-09_EuPC%20guidance%20on%20Cd%20recyclate%20exemption%20labelling.pdf)

<sup>16</sup>EuPR: European Plastics Recyclers ([www.plasticsrecyclers.eu](http://www.plasticsrecyclers.eu))

### Organochlorines

The European PVC industry has committed to addressing the concerns on organochlorines expressed by stakeholders. In line with this objective, a specific workshop with external stakeholders is planned for 2012. The workshop will not only focus on organochlorine, but will also address all the concerns raised by the external stakeholders surveyed by TNS back in 2010. The specific organochlorine issue will be covered with contributions by Euro Chlor<sup>17</sup>, ECVM and academics.

A new verification took place based on the performance during the second half of 2011, limited to the *criteria found partially or not compliant*, which will be followed up by on site audits by DNV in 13 plants across nine different countries, starting in February 2012. The results will be available by the time this Progress Report is published and posted on the VinylPlus website.

### Safe Transport

With reference to the target of zero-accident rate with VCM release during transportation, no such accidents occurred in 2011.



Speed ramp made of recycled PVC

### PVC Resin Industry Production Charters

PVC resin manufacturers have signed Industry Charters<sup>18</sup> for the production of PVC by the suspension (VCM & S-PVC Charter) and emulsion (E-PVC Charter) processes, aimed at reducing their environmental impact and improving eco-efficiency in the production phase.

Compliance with the ECVM Industry Charters was audited in 1998 and 2002 (VCM & S-PVC) and in 2005 (E-PVC) by DNV<sup>19</sup>. Following EU enlargement, a new verification was performed by DNV in 2010. The results showed 90% compliance achieved across all applications of the verification standards, 4% partial compliance (i.e. one non-compliant result) and 3% non-compliance; 3% of all applications of the standards could not be verified.

<sup>17</sup>Euro Chlor is the organisation representing the European chlor-alkali industry. It groups nearly all chlorine producers in Europe as well as chlorine-related associations for derivatives, solvents and paraffins. ([www.eurochlor.org](http://www.eurochlor.org))

<sup>18</sup>The ECVM Industry Charters are available at [www.pvc.org/Sustainability/Industry-Responsible-care/European-Council-of-Vinyl-Manufacturers-ECVM-Charters](http://www.pvc.org/Sustainability/Industry-Responsible-care/European-Council-of-Vinyl-Manufacturers-ECVM-Charters)

<sup>19</sup>DNV: Det Norske Veritas, a Norwegian testing and verification organisation ([www.dnv.com](http://www.dnv.com))

# Challenge

# 3

# -81.8%

LEAD SUBSTITUTION IN THE PERIOD 2000 - 2011

Complete phase-out is expected by 2015.

### Sustainable Additives:

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

#### Targets

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



# Challenge

# 4

Photo: Courtesy of Sotra-Seperef

**THE VINYLPLUS VOLUNTARY COMMITMENT** will help to minimise our climate impacts by **reducing energy and raw material consumption**, through process improvements and the use of PVC recyclates, and by increasing the **use of renewable resources**.

### Sustainable Energy Use:

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

#### Targets

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

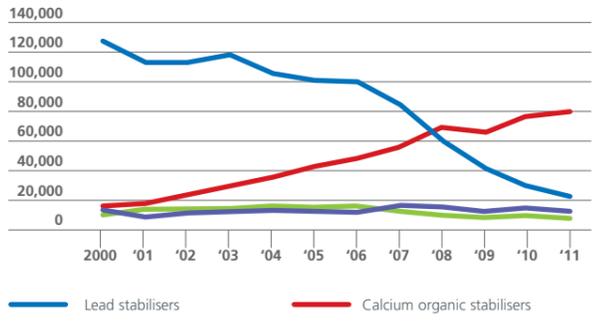
### Lead Replacement

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

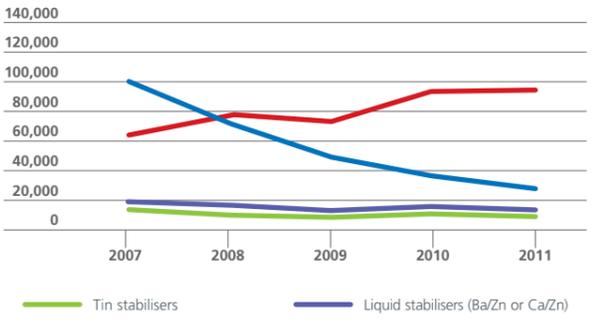
In the 2000-2011 period, lead stabiliser consumption (in the EU-15) decreased by 103,972 tonnes (-81.8%), and calcium organic stabilisers (in the EU-15 plus Norway, Switzerland and Turkey) increased by 62,108 tonnes. Overall, lead stabiliser consumption decreased by 71.4% in the EU-27 compared to 2007. (For further information [www.vinylplus.eu](http://www.vinylplus.eu) and [www.stabilisers.eu](http://www.stabilisers.eu))

#### Stabilisers production data (in tonnes)

EU-15 (plus Norway, Switzerland and Turkey)



EU-27 (plus Norway, Switzerland and Turkey)



### Plasticisers

The 2011 data on consumption of plasticisers in Europe confirm the progressive shift from classified Low (DEHP, BBP, DBP, DIBP) to non-classified High (DINP, DIDP, DPHP) Molecular Weight phthalates and – to a smaller extent – to some non-phthalate plasticisers.

**'Sustainable Use of Additives' Criteria**  
A dedicated Task Force on additives was set up at the beginning of 2011. Initially composed of ECPI and ESPA members, the Task Force has progressively been enlarged to involve representatives of other additive industries such as pigments and fillers, an independent environmental scientist and representatives of the major PVC converting industries.

In 2011, the HMW share in the total consumption of phthalates in Europe was close to 88%. Non-phthalate plasticisers are estimated at around 18% of the total sales of plasticisers.

A set of basic criteria for the evaluation of a 'sustainable use of additives' has been developed and included as part of the VinylPlus Voluntary Commitment. The challenge for 2012 is to further develop these criteria, making them measurable and transparent. A clear way forward needs to be found, in a sustainability context, and until that is achieved external stakeholders may continue to be concerned. It is sensible to allow time for these issues to be addressed in an open and positive dialogue.

In September 2011, the REACH Committee gave a favourable opinion on a Commission's proposal to include DIBP in Annex XIV<sup>20</sup>, joining the other most commonly used low phthalates DEHP, BBP and DBP.

#### Studies and Research

An independent environmental marine food chain accumulation study<sup>21</sup> shows evidence that non-classified high phthalates did not biomagnify in a marine food web, and do not bioaccumulate.

The preliminary results of an ongoing environmental monitoring study of high phthalates in the Netherlands indicate that high phthalate levels are not increasing in the environment.

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

<sup>20</sup>Annex XIV: the list of substances subject to authorisation requirements of the REACH Regulation (<http://echa.europa.eu/web/guest/addressing-chemicals-of-concern/authorisation/recommendation-for-inclusion-in-the-authorisation-list/previous-recommendations>)

<sup>21</sup>C. E. Mackintosh et al (Simon Fraser University and Institute of Ocean Sciences), *Distribution of Phthalate Esters in a Marine Aquatic Food Web: Comparison to Polychlorinated Biphenyls*, Environmental Science & Technology 2004, 38, 2011-2020



PVC recycling in the Netherlands

**Energy Efficiency**

In October 2011, VinylPlus established the Energy Efficiency Task Force and decided to organise the Task Force's work by industry sectors to better analyse the specific energy consumption and define ad hoc reduction targets. VinylPlus will manage the know-how transfer between the groups to ensure consistency across targets and reporting systems.

With regards to the PVC resin producers' commitment to reducing their specific energy consumption, targeting 20% by 2020, the first ECVI Energy Efficiency Task Force meeting was held in October 2011. The Task Force suggested the adoption, as the baseline, of the data collected by IFEU (the German Institute for Energy and Environmental Research – [www.ifeu.de](http://www.ifeu.de)) for the 2009 energy benchmarking, which follows the methodology prescribed by the EU authorities and covered the entire European VCM and PVC industry.

Member companies from other parts of the value chain initiated discussions within their specific industry associations to develop their own potential energy reduction targets.

In relation to the commitment to assessing the available environmental/sustainability footprints and recommending a suitable footprint measurement by the end of 2014, VinylPlus has established an ad hoc Working Group, which already includes representatives from an NGO.

**Renewable Raw Materials**

The Renewable Materials Task Force was established in December 2011, ahead of the target deadline. The main objective of this Task Force is to investigate how to possibly increase the use of renewable raw materials, if they are sustainable, across the PVC value chain.

The Task Force will work on a common definition of what is 'renewable', reviewing the existing alternative raw materials along the value chain (for important volumes). The Task Force will also screen the market searching for new solutions and propose suitable targets for the VinylPlus programme.

The knowledge gained by the Task Force will be shared with all the VinylPlus members along the value chain, helping them to develop potential implementation scenarios.

# Challenge 5

THE MONITORING COMMITTEE guarantees openness, transparency and accountability of VinylPlus' initiatives.

Photo: Courtesy of Ansini Ltd

**Sustainability Awareness:**

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

**Targets**

- 1 - VinylPlus web portal to go online in summer 2011.
- 2 - VinylPlus Monitoring Committee, which will meet a minimum of twice a year, will be established by end 2011.
- 3 - A VinylPlus Membership Certificate will be launched end 2011.
- 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.
- 5 - Annual external stakeholder meetings will be organised, commencing in 2012.

6 - A VinylPlus product label will be launched by end 2012.

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

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

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

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

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

### Independent Monitoring

VinylPlus continues the best practice established by Vinyl 2010 and maintains an independent and critical Monitoring Committee, with the majority of members being external stakeholders (see page 04 for the full list). The Monitoring Committee guarantees openness, transparency and accountability of VinylPlus' initiatives at the same time that it provides advice, comments and suggestions.

The VinylPlus Monitoring Committee was formally established in the second half of 2011, with the first meeting taking place on 6 December 2011. It will meet at least twice a year.

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

### Annual Reporting

A verified and audited Progress Report summarising the developments made towards achieving the targets set in the VinylPlus Voluntary Commitment will be published every year.

For 2011, the content of the Progress Report has been independently verified by SGS, whilst tonnages of post-consumer PVC waste recycled and expenditure have been audited and certified by KPMG. The Natural Step has made a commentary on overall progress of work on the VinylPlus sustainability challenges.

### External Stakeholder Dialogue and Communication

A frank and open dialogue with all stakeholders, third parties, institutions and organisations within technical, political and social communities is a core part of the

European PVC industry's approach, and it is now formally part of the Voluntary Commitment. VinylPlus will intensify its efforts for transparent and open communication, and will continue to relay information about its activities to internal and external audiences. This has already involved national PVC industry organisations since a key priority is to cascade sustainability awareness down the entire value chain.

### Engaging Globally

In October 2011, the VinylPlus Voluntary Commitment and programme were presented at the Asia-Pacific Network Seminar in Indonesia. Furthermore, VinylPlus' approach and its Voluntary Commitment were presented by ECPI at the 6th Global Chlor-Vinyl Markets Conference, in Istanbul, Turkey, in June 2011, and at the 4th International Plasticsers & Upstream Conference, in Hong Kong, in September 2011.

### United Nations CSD Partnership

Building on the experience and recognition of Vinyl 2010, VinylPlus is being registered as Partnership with the Secretariat of the UN Commission on Sustainable Development. The goal is to contribute to the development of effective industrial partnerships and to the exchange of practical experiences at global level. VinylPlus' approach and its working principles were presented during an interactive workshop at the UN CSD-19 Partnership Fair in New York in May 2011.

### Conferences and Exhibitions

In 2011, VinylPlus was introduced and presented through active participation in high level conferences, events and exhibitions. In April, VinylPlus' working principles and approach were introduced to more than 400 participants at the PVC 2011 Conference in Brighton, UK, in combination with the publication of Vinyl 2010's final results. Presentations on the VinylPlus Commitment and programme were given at IdentiPlast 2011 in Madrid, Spain, at ISFR



VinylPlus Board members after signing the new Voluntary Commitment on 22 June 2011

2011 – the 6th International Symposium on Feedstock Recycling of Polymeric Materials – in Toledo, Spain, in October 2011 and at the Plasticsers Conference 2011 in Brussels, Belgium, in November 2011.

A very special event was the VinylPlus General Assembly 2011 which took place in Brussels, Belgium, on 22 June. On that occasion the Voluntary Commitment was officially signed by representatives from associations across the entire value chain. Almost 100 participants from all around the world had the opportunity to learn about the new sustainable development programme of the European PVC industry and share their thoughts and suggestions to guarantee the success of VinylPlus.

### VinylPlus Web Portal and Social Media

As of June 2011, a dedicated portal – [www.vinylplus.eu](http://www.vinylplus.eu) – is online. The portal is intended to be a reference point for external stakeholders, as well as for internal audiences.

VinylPlus pays particular attention to the world of social media which is today one of the most important and influential sources of information. Several videos have been published on a dedicated YouTube channel. VinylPlus has also been active on Twitter since 2011.

### Visible Membership and Product Participation

The Label and Certification Task Force was set up in January 2011 with the objective of defining the criteria attached to the membership certificate and to recommend an approach for the implementation of a product label.

Distribution of the 'Official Partner Certificate' began in July 2011. It is released on a yearly basis to the companies that are committed to supporting the VinylPlus work on each of the five challenges and financially contribute to the implementation of the programme.

A potential labelling scheme for PVC products is under development and will be launched by the end of 2012. The aim of such a product label will be to allow end-users, specifiers and procurement authorities to better identify PVC products, applications and technical solutions that make exceptional contributions to sustainable development, therefore enabling them to make responsible and sustainable choices.

In 2011, after having screened and evaluated more than 470 actual labels, it was decided to develop a self-declared product label, working within the ISO standards, and to liaise with existing Ecolabels for endorsement and recognition.

Having identified Building & Construction applications as the first priority for VinylPlus, in the second half of 2011 a survey was conducted amongst designers, architects, decision-makers and converters to assess the relevance of existing labels and their (market) needs.

# VinylPlus Partners

## In 2011, contributors were:

A. Kolckmann GmbH (Germany)  
 Akzo Nobel Nippon Paint AB (Sweden)  
 Alfatherm Spa (Italy)\*  
 Aliaxis Services (Belgium)  
 Alkor Folien GmbH (Germany)  
 Alkor Kunststoffe GmbH (Germany)  
 AMS Kunststofftechnik GmbH (Germany)  
 Aluplast Austria GmbH (Austria)  
 Amtico International (UK)  
 Armstrong DLW AG (Germany)  
 BM SLU (Spain)  
 Baquelite Liz SA (Portugal)  
 Bilcare Research GmbH (Germany)  
 BT-Bau Technik GmbH (Germany)  
 BTH Fitting Kft (Hungary)  
 CIFRA (France)  
 CTS-Cousin-Tessier SAS (France)  
 CTS-TCT Polska Sp. z o.o. (Poland)  
 CTW (Germany)  
 Commerciale Emiliana (Italy)  
 Debolon Dessauer Boden (Germany)  
 Deceuninck NV (Belgium)  
 Deceuninck (France)  
 Deceuninck (Poland)  
 Deceuninck (UK)  
 Dietzel GmbH (Austria)  
 Dyka BV (Netherlands)  
 Dyka Plastics NV (Belgium)  
 Dyla Polska Sp. z o.o. (Poland)  
 Ergis-Eurofilms SA (Poland)  
 Eurocell Profiles Ltd (UK)  
 Eurplast (Italy)  
 Finstral AG (Italy)  
 FIP (Italy)  
 Flag Spa (Italy)  
 Floridienne Chemie SA (Belgium)  
 Forbo AB (Sweden)  
 Forbo Château-Renault SAS (France)  
 Forbo Flooring NV (Netherlands)  
 Forbo-Giubiasco SA (Switzerland)  
 Forbo Reims (France)  
 Forbo Flooring Coral (UK)  
 Forbo Flooring UK Ltd (UK)  
 Forbo-Novilon BV (Netherlands)  
 Frans Bonhomme (France)\*  
 Gallazzi Spa (Italy)\*  
 Gealan Fenster-Systeme GmbH (Germany)

Georg Fischer Deka GmbH (Germany)  
 Gerflor Mipolam GmbH (Germany)  
 Gerflor SAS (France)  
 Gerflor Tarare (France)  
 Gernord Ltd (Ireland)  
 Girpi (France)  
 Hepworth Build. Prod. Ltd (UK)  
 Heubach GmbH (Germany)  
 Heytex Bramsche GmbH (Germany)  
 Heytex Neugersdorf GmbH (Germany)  
 Hunter (UK)  
 Industrias Rehau SA (Spain)  
 John GmbH (Germany)  
 Juteks D.D. (Slovenia)  
 KWH Pipe Oy AB (Finland)  
 Karl Schoengen KG (Germany)  
 Klöckner Pentaplast GmbH & Co. KG (Germany)  
 Konrad Hornschuch AG (Germany)  
 Marley Deutschland (Germany)  
 Marley Hungaria (Hungary)  
 Marley P&D (UK)  
 Mehler Technologies GmbH (Germany)  
 MKF-Ergis Sp. z o.o. (Poland)  
 MKF-Folien GmbH (Germany)  
 Mondoplastico Spa (Italy)\*  
 MWK Kunststoffverarbeitungs GmbH (Germany)  
 Nicoll (France)  
 Nitta Corp. Of Holland BV (Netherlands)  
 Nordisk Wavin A/S (Denmark)  
 Norsk Wavin A/S (Norway)  
 Nyloplast Europe BV (Netherlands)  
 Pannunion Csomagolanyag (Hungary)  
 Perlen Packaging (Switzerland)\*  
 Pipelife Austria (Austria)  
 Pipelife Belgium NV (Belgium)  
 Pipelife Czech S.R.O. (Czech Republic)  
 Pipelife Deutschland GmbH (Germany)  
 Pipelife Eesti AS (Estonia)  
 Pipelife Finland Oy (Finland)  
 Pipelife Hellas SA (Greece)  
 Pipelife Nederland BV (Netherlands)  
 Pipelife Polska SA (Poland)  
 Pipelife Sverige AB (Sweden)  
 Poliplast (Poland)  
 Poloplast GmbH & Co. KG (Austria)  
 Polyflor (UK)  
 Polymer-Chemie GmbH (Germany)\*

Primo Danmark A/S (Denmark)  
 Profel NV (Belgium)  
 Profialis NV (Belgium)  
 Profialis SAS (France)  
 Profine GmbH (Germany)  
 Redi (Italy)  
 Rehau AG & Co. (Germany)  
 Rehau GmbH (Austria)  
 Rehau Ltd (UK)  
 Rehau SA (France)  
 Rehau Sp. Zo.o. (Poland)  
 Renolit SE (Germany)  
 Renolit Belgium NV (Belgium)  
 Renolit Czech S.R.O. (Czech Republic)  
 Renolit GOR Spa (Italy)  
 Renolit Hispania SA (Spain)  
 Renolit Ibérica SA (Spain)  
 Renolit Milano Srl (Italy)  
 Renolit Nederland BV (Netherlands)  
 Renolit Ondex SAS (France)  
 Renolit Cramlington Ltd (UK)  
 Riuvet (Spain)  
 Roechling Engineering Plastics KG (Germany)  
 S.I.D.I.A.C. (France)  
 Sattler (Austria)  
 Schueco PWS GmbH & Co. (Germany)  
 Sika-Trocral GmbH (Germany)  
 Solvay Benvic Italia Spa (Italy)  
 Solvay Benvic Ibérica (Spain)  
 Sotra-Seperef SAS (France)  
 Stockel GmbH (Germany)  
 Tarkett AB (Sweden)  
 Tarkett GDL SA (Luxembourg)  
 Tarkett GmbH & Co. KG (Germany)  
 Tarkett Marley Floors Ltd (UK)  
 Tarkett SAS (France)  
 Tessengerlo Chemie NV (Belgium)  
 The Altro Group Pcl (UK)  
 Tönsmeier GmbH & Co. KG (Germany)\*  
 Upofloor (Finland)  
 Uponor Suomi Oy (Finland)  
 Uralita Sistemas de Tuberías SA (Spain)  
 Veka AG (Germany)  
 Veka Ibérica (Spain)  
 Veka Plc (UK)  
 Veka Polska (Poland)  
 Veka SAS (France)  
 Verseidag-Indutex GmbH (Germany)

Vescom BV (Netherlands)  
 Vulcaflex Spa (Italy)\*  
 Wavin BV (Netherlands)  
 Wavin Baltic (Lithuania)  
 Wavin Belgium BV (Belgium)  
 Wavin France SAS (France)  
 Wavin GmbH (Germany)  
 Wavin Hungary (Hungary)  
 Wavin Ireland Ltd (Ireland)  
 Wavin Metalplast (Poland)  
 Wavin Nederland BV (Netherlands)  
 Wavin Plastics Ltd (UK)

## PVC producers supporting the Voluntary Commitment in 2011

Anwil (Poland)  
 Arkema (France, Spain)  
 Borsodchem (Hungary)  
 Ercros (Spain)  
 Ineos Vinyls (Belgium, France, Germany, UK, Netherlands, Norway, Sweden)  
 Oltchim (Romania)  
 Novacke Chemické Zavody (Slovak Republic)  
 Shin-Etsu PVC (Netherlands, Portugal)  
 SolVin (Belgium, France, Germany, Spain)  
 Spolana A.S. (Czech Republic)  
 Vestolit GmbH & Co. KG (Germany)  
 Vinnolit GmbH & Co. KG (Germany, UK)

## Stabilisers producers supporting the Voluntary Commitment in 2011

Akdeniz Kimya (Turkey)  
 Akcross Chemicals (UK)  
 Asua (Spain)  
 Arkema (France)  
 Baerlocher (Germany)  
 Chemson Polymers-Additives AG (Austria)  
 Floridienne Chimie (Belgium)  
 Galata Chemicals (Germany)  
 Lamberti (Italy)  
 Reagens (Italy)  
 The Dow Chemical Company (Switzerland)

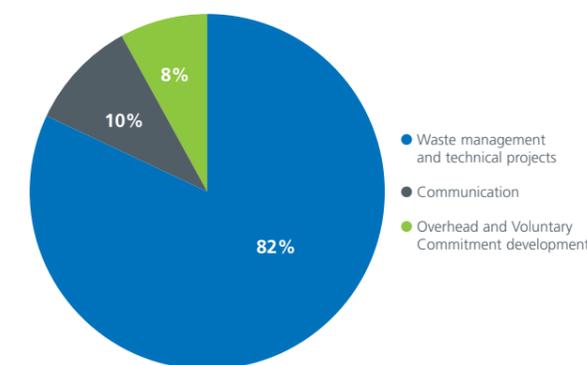
## Plasticisers producers supporting the Voluntary Commitment in 2011

BASF SE  
 Evonik Oxeno GmbH (Germany)  
 ExxonMobil Chemical Europe Inc.  
 Perstorp Oxo AB (Sweden)

## Financial Report

The expenditure related to waste management and technical projects remained mostly stable in 2011. The cost for technical studies decreased, but it should be noted that part of the efforts for the development of the new Voluntary Commitment targets, such as the different Task Forces costs, are reported under the category 'Overhead and Voluntary Commitment development', not under 'Studies' as they were in 2010.

VinylPlus total expenditure in 2011: €8.28 million



Waste management and technical projects (Figures in €1,000s)	Total expenditure including EuPC and its members	
	2011	2010
EPCoat	189*	319**
EPFLOOR	743	697
EPPA	595	591**
ERPA – Pack upgrade	75	0
ESWA/Roofcollect®	133	123
Recovinyl	4,274	3,953
Studies	7	206
TEPPFA	793	749
<b>Total projects</b>	<b>6,809</b>	<b>6,638</b>

\*The EPCoat expense could not be verified by KPMG before the date of publication of this Progress Report. A separate audit report will be issued later in the year. The EPCoat cost 2011 is an estimate to be confirmed after the audits are concluded.

\*\*Some projects did close their accounts or an audit could be undertaken only after this statement was made in the last year Progress Report. The EPCoat net operational cost could be documented to amount to €318,749.79 in 2010 (a difference of €11,719.73 to the amount reported last year). Moreover, the operational cost for the EPPA project was underestimated by €2,582.60 in 2010. The corrected amounts have been reported here.

\*Companies that joined VinylPlus in 2011, not having been partner of Vinyl 2010 the previous year

## 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, 2011 to December 31, 2011 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 or 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

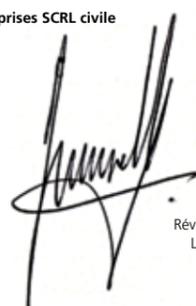
- a** - Obtain the breakdown of costs declared in the table presenting the supported charges for the different projects of VinylPlus, as included in the VinylPlus Progress Report related to the activities of the year 2011 and verify of the mathematical accuracy of this.  
The total expenses amount to KEUR 8.281.  
We found no exceptions as a result of applying this procedure.
- b** - Verify that these costs are recorded in the financial statements 2011 of VinylPlus AISBL.  
We found no exceptions as a result of applying this procedure.
- c** - For projects EPFLOOR, EPPA and ESWA, for all individual expenses greater than EUR 100, agree these expenses to the supporting document and verify that they were incurred between January 1, 2011 and December 31, 2011.  
We found no exceptions as a result of applying this procedure.
- d** - For projects EPFLOOR, EPPA and ESWA, for all individual expenses greater than EUR 100, verify that these expenses are recorded in the accounts of the contractor no later than December 31, 2011.  
We found no exceptions as a result of applying this procedure.
- e** - For project Recovynyl, reconcile costs declared in the table presenting the supported charges for the different projects of VinylPlus with the income recognized in financial statements of Recovynyl 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 14,38% of total expenses.

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

### Use of this Report

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

KPMG Réviseurs d'Entreprises SCRL civile  
Represented by



**Dominic Rousselle,**  
Réviseur d'Entreprises / Bedrijfsrevisor  
Louvain-la-Neuve, March 23, 2012

### KPMG CERTIFICATION OF TONNAGES

KPMG Advisory, a Belgian civil CVBA/SCRL

Report of the independent expert concerning the audit of the tonnages post-consumer PVC waste collected and recycled by the sector groups EPCoat, EPFLOOR and EPPA of the EuPC, by the sector associations ESWA & TEPPFA of the EuPC and by Recovynyl Inpa during the period January 1st 2011 to December 31st 2011.

In accordance with the assignment, which was entrusted to us by VinylPlus, we give an account of our audit of the following tonnages for the different projects of VinylPlus mentioned in the VinylPlus Progress Report related to the activities of the year 2011.

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

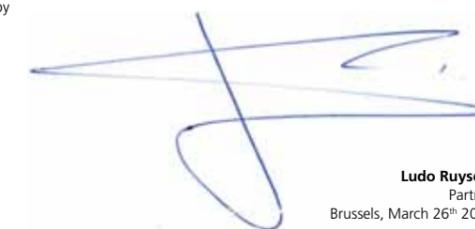
Project	Type of PVC post-consumer waste	Tonnage recycled in 2010	Tonnage recycled in 2011
EPCoat (incl. Recovynyl)	Coated fabrics	6,278*	3,563*
EPFLOOR	Flooring	2,294*	2,788*
EPPA (incl. Recovynyl)	Window profile waste & profile related waste	108,678	104,719
ESWA – ROOFCOLLECT and Recovynyl	Flexible PVC	33,218 tons which consist of:	33,694 tons which consist of:
ESWA – ROOFCOLLECT	Roofing and waterproofing membranes	1,586*	1,633*
Recovynyl	Flexible PVC applications	31,632	32,061
TEPPFA (incl. Recovynyl)	Pipes & fittings	25,172	23,977
ERPA via Recovynyl (incl. CIFRA)	Rigid PVC film	5,891	5,201
Recovynyl (incl. Vinyloop Ferrara)	Cables	79,311	83,142
<b>Total</b>		<b>260,842</b>	<b>257,084</b>

\*Tonnages including Norway and Switzerland

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

that was taken into account was post-consumer PVC waste, according to the Vinyl 2010 definition of post-consumer PVC waste (dated November 7th 2005) and that we have not recognized any elements which are of nature to influence significantly the presented information.

KPMG Advisory, a Belgian civil CVBA/SCRL  
Represented by



**Ludo Ruysen,**  
Partner  
Brussels, March 26<sup>th</sup> 2012

## SGS INDEPENDENT VERIFICATION STATEMENT ABOUT THIS VINYLPLUS PROGRESS REPORT 2012

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 70,000 employees, we operate a network of more than 1,350 offices and laboratories around the world.

SGS was commissioned by VinylPlus to provide an independent verification of the "Progress Report 2012". This report presents the commitments and achievements made by the VinylPlus project in 2011.

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

### Verification Process

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

### The verification process included the following activities:

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

### The verification did not cover the following:

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

### Verification Results

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

It is our opinion that this "Progress Report 2012" represents VinylPlus' performance in 2011 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, March 25, 2012

## Statement from The Natural Step

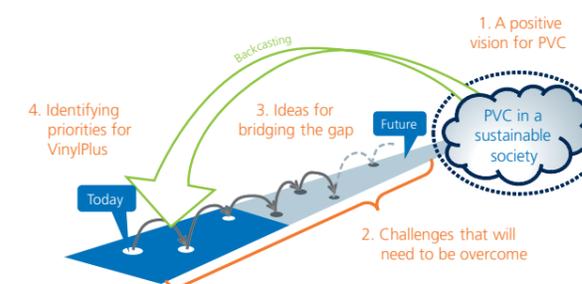
The Natural Step International, a sustainable development NGO, acts as critical friend, sustainability mentor and capacity building expert for VinylPlus. TNSI helped create the Sustainability Challenges for VinylPlus after a comprehensive stakeholder consultation, and continues to advise on all aspects of the programme, including independently monitoring progress.

### VinylPlus and the Bigger Picture: Sustainable Development

All parts of industry must move toward alignment with the 'system conditions' for a sustainable society, and the PVC industry is no exception. VinylPlus is the clearest signal yet of the European PVC industry's ambition and commitment to the journey. It demonstrates:

- **Clear acknowledgement of the challenges that need to be overcome** – The fact that these specific challenges were chosen by VinylPlus is significant. They go much further than previous efforts and build on thorough analysis.
- **Improved stakeholder engagement** – The priorities for VinylPlus also reflect the views from dialogue with external stakeholders in 2010/11.
- **A 'back-casting' perspective** – Finding new solutions will take time and must be guided by long-term goals for a desired state – that is the purpose of a ten-year programme. In the future we should expect to see more measurable targets being developed and monitored.

### VinylPlus and the journey toward sustainability



Our commentary below relates to progress under each of the five challenges addressed by VinylPlus:

**Controlled-loop Management:** The fresh look at this crucial work by the Task Force is encouraging. The problems posed by legacy additives continue to need attention and that requires collaboration with regulators and others. And recycling for PVC needs to be better linked to general recycling developments in society. The Controlled-loop Task Force also needs to make sure, as a priority, that future volume targets

for recycling are truly 'stretch-targets', increasing significantly the overall proportion of PVC that is recycled.

**Organochlorine Emissions:** Stakeholders will welcome the attention to this topic. Whilst practices have improved in Europe to eliminate emissions from PVC processes, it remains a concern elsewhere.

**Sustainable Additives:** This is a challenge that is complex and contentious and it is to the credit of VinylPlus members that it is being tackled in a more open manner. We expect the development of criteria to continue through 2012. It is important that the Task Force continues to listen to external views and seek positive outcomes within a long-term sustainability context. We would hope for a clearer sustainability pathway to emerge within the next 12 months.

**Sustainable Energy Use:** It is good to see that work has begun. The examination of alternative raw materials for PVC means that this should become an exciting and innovative exercise for the industry and its suppliers over the coming ten years.

**Sustainability Awareness:** Interest from around the world in the efforts being pioneered by VinylPlus is encouraging. This programme has the potential to be a role model for other industries, as well as the rest of the global PVC business. During 2012 we hope to see more expansion of the message, within and beyond Europe. Strong sustainability criteria being developed via the Labelling Task Force should be welcomed by all, and we look forward to seeing such a scheme operational during 2012.

### Concluding Comments

In general VinylPlus marks an important new phase for this particular material. People in the industry now have a clear pathway for new ideas, new business opportunities, and a chance to be part of the future. Success in those areas demands that they continue to reach out to society in a more positive and solutions oriented manner. They need to foster cooperative efforts on the hot-topics rather than defending old positions. We regard VinylPlus as a clear beacon for that kind of leadership from business.



David Cook,  
Executive Ambassador The Natural Step

# Appendix 1 – Glossary

<b>Ba/Zn</b>	Barium-zinc	<b>ESWA</b>	European Single Ply Waterproofing Association, an EuPC sectoral association ( <a href="http://www.eswa.be">www.eswa.be</a> )
<b>BBP</b>	Butyl Benzyl phthalate	<b>EU</b>	European Union
<b>Ca/Zn</b>	Calcium-zinc	<b>EuPR</b>	European Plastics Recyclers ( <a href="http://www.plasticsrecyclers.eu">www.plasticsrecyclers.eu</a> )
<b>CES</b>	Consejo Económico y Social de España (Spanish Economic and Social Council – <a href="http://www.ces.es">www.ces.es</a> )	<b>EuPC</b>	The European Plastics Converters ( <a href="http://www.plasticsconverters.eu">www.plasticsconverters.eu</a> )
<b>CIFRA</b>	Calandrage Industriel Français (a French calendering company – <a href="http://www.cifra.fr">www.cifra.fr</a> )	<b>HMW plasticisers</b>	High Molecular Weight plasticisers
<b>CSD</b>	Commission on Sustainable Development	<b>IVK</b>	Industrieverband Kunststoffbahnen (Association of Coated Fabrics and Films – <a href="http://www.ivk-frankfurt.de">www.ivk-frankfurt.de</a> )
<b>DBP</b>	Di-n-butyl phthalate	<b>KPMG</b>	KPMG is a global network of professional firms providing Audit, Tax and Advisory services ( <a href="http://www.kpmg.com">www.kpmg.com</a> )
<b>DEHP</b>	Di(2-ethylhexyl) phthalate	<b>LCA</b>	Life cycle assessments
<b>DENKSTATT</b>	Austrian sustainability consultancy ( <a href="http://www.denkstatt.at">www.denkstatt.at</a> )	<b>LMW phthalates</b>	Low Molecular Weight phthalates
<b>DIDP</b>	Di-isodecyl phthalate	<b>OCU</b>	Organización de Consumidores y Usuarios (Spanish Consumers and Users Organisation – <a href="http://www.ocu.org">www.ocu.org</a> )
<b>DINP</b>	Di-isononyl phthalate	<b>PE</b>	Polyethylene
<b>DNV</b>	Det Norske Veritas, a Norwegian testing and verification organisation ( <a href="http://www.dnv.com">www.dnv.com</a> )	<b>ppm</b>	Part per million (also equivalent to 1 mg per kg)
<b>DNOP</b>	Di-n-octyl phthalate	<b>PVC</b>	Polyvinyl chloride
<b>DPHP</b>	Di(2-Propyl Heptyl) phthalate	<b>REACH</b>	Registration, Evaluation, Authorisation and restriction of Chemicals
<b>EC</b>	European Community	<b>Rewindo</b>	Fenster-Recycling-Service ( <a href="http://www.rewindo.de">www.rewindo.de</a> )
<b>ECPI</b>	The European Council for Plasticisers and Intermediates ( <a href="http://www.plasticisers.org">www.plasticisers.org</a> )	<b>R-PVC</b>	Recycled PVC
<b>ECVM</b>	The European Council of Vinyl Manufacturers ( <a href="http://www.pvc.org">www.pvc.org</a> )	<b>SDS</b>	Safety Data Sheet
<b>ECVM Charters</b>	ECVM Industry Charters for the Production of VCM and S-PVC (1995) and for the Production of E-PVC (1998) ( <a href="http://www.pvc.org">www.pvc.org</a> )	<b>SDS-R</b>	Safety Data Sheet for Recyclate
<b>ECVM 2010</b>	The ECVM's formal legal entity registered in Belgium	<b>SGS</b>	Société Générale de Surveillance, the world leading testing and verification organisation ( <a href="http://www.sgs.com">www.sgs.com</a> )
<b>EDC</b>	Ethylene dichloride or 1,2-dichloroethane	<b>SME</b>	Small and Medium-Sized Enterprise
<b>EEC</b>	European Economic Community	<b>S-PVC</b>	Suspension Polyvinyl chloride
<b>EMCEF</b>	European Mine Chemical and Energy Workers Federation ( <a href="http://www.emcef.org">www.emcef.org</a> )	<b>SVHC</b>	Substances of Very High Concern
<b>EPCoat</b>	EuPC PVC Coated Fabrics Sector Group ( <a href="http://www.eupc.org/epcoat">www.eupc.org/epcoat</a> )	<b>TEPPFA</b>	The European Plastic Pipes and Fittings Association, an EuPC sectoral association ( <a href="http://www.teppfa.org">www.teppfa.org</a> )
<b>EPD</b>	Environmental Product Declaration	<b>TNS</b>	The Natural Step ( <a href="http://www.naturalstep.org">www.naturalstep.org</a> )
<b>EPFLOOR</b>	European PVC Floor Manufacturers, an EuPC sector group ( <a href="http://www.epfloor.eu">www.epfloor.eu</a> )	<b>UN</b>	United Nations
<b>EPPA</b>	European PVC Window Profile and Related Building Products Association, an EuPC sector group ( <a href="http://www.eppa-profiles.org">www.eppa-profiles.org</a> )	<b>VCM</b>	Vinyl chloride monomer
<b>E-PVC</b>	Emulsion Polyvinyl chloride	<b>VINYL 2010</b>	The first 10-year Voluntary Commitment of the European PVC industry signed in 2000 ( <a href="http://www.vinyl2010.org">www.vinyl2010.org</a> )
<b>ERPA</b>	European Rigid PVC Film Association ( <a href="http://www.pvc-films.org">www.pvc-films.org</a> )	<b>VITO</b>	Vlaamse Instelling voor Technologisch Onderzoek (the Flemish Institute for Technological Research – <a href="http://www.vito.be">www.vito.be</a> )
<b>ESPA</b>	The European Stabiliser Producers Association ( <a href="http://www.stabilisers.eu">www.stabilisers.eu</a> )	<b>VUB</b>	Free University of Brussels ( <a href="http://www.vub.ac.be">www.vub.ac.be</a> )

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

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

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

# The European PVC Industry



The European Council of Vinyl Manufacturers, representing the 11 European PVC resin producing companies which account for almost 100% of the current total EU-27 PVC resin production. These businesses operate around 57 different plants spread over 34 sites and employ approximately 10,000 people. [www.pvc.org](http://www.pvc.org)



The European Stabiliser Producers Association, representing 11 companies which produce more than 98% of the stabilisers sold in Europe. They employ approximately 5,000 people. [www.stabilisers.eu](http://www.stabilisers.eu)



The European Plastics Converters, representing close to 50,000 companies in Europe that produce over 45 million tonnes of plastics products of various types every year. EuPC estimates that around 21,000 of these businesses (many of which are SMEs), employing over half a million people, are involved in the conversion of PVC into final home and industrial products. [www.plasticsconverters.eu](http://www.plasticsconverters.eu)



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

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