Vinyl 2010 Progress Report 2010

Reporting on the activities of the year 2009

VINYL 2010

The European PVC Industry's Sustainable Development Programme

Tough and inexpensive to maintain floors

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...the European PVC industry maintained its determination in pursuing its sustainability targets and objectives...

An ecologically sound membrane with high solar reflection

EXECUTIVE SUMMARY

The Vinyl 2010 Progress Report

The Voluntary Commitment of the European PVC industry was signed in 2000. It is a 10-year plan to ensure and improve product stewardship across the lifecycle of PVC, within a context of sustainable development. Vinyl 2010 is the structure set up to organise and implement this commitment. The commitment includes specific targets and initiatives aimed at minimising the environmental impact of the PVC production, promoting responsible use of additives, supporting collection and recycling schemes, and encouraging social dialogue between all of the industry's stakeholders. This report summarises the Vinyl 2010 progresses and achievements for 2009. All of the information reported is independently audited and verified by external third parties. A full glossary of abbreviations appears at the end of the report to aid the reader.

VINYL 2010 PROGRESS IN 2009

Despite generally difficult market conditions, the European PVC industry maintained its determination in pursuing its sustainability targets and objectives also in 2009.

A final verification of the ECVM Charters by the 2010 Voluntary Commitment deadline will be organised during the second half of 2010.

The European plasticisers producers are continuously striving to increase the sustainability of their products and to comply with the evolving demands of the market and of legislators, including the REACH Regulation requirements.

Lead-based stabilisers substitution is well ahead of schedule, and thanks to the consolidation of Vinyl 2010 collection and recycling schemes across Europe, the recycled volumes of PVC post-consumer waste in 2009 were close to the volumes recycled in 2008, despite the adverse market conditions.

Significant efforts were made by Vinyl 2010 in its dialogue with stakeholders, third parties, institutions and organisations in order to be active in the debate on sustainable development. And in 2009, in line with its commitment to openness and transparency, Vinyl 2010 opened up its General Assembly to all stakeholders for the first time ever, with a public webinar which is still available on the internet.

Vinyl 2010 also continued in its strong cooperation with the PVC industry worldwide, from North to South America, with Asia-Pacific region and South Africa as progress towards sustainability is adopted as a global objective.

Resin Manufacturing

As required by the REACH Regulation, the procedures for the registration of EDC and VCM are ongoing. Registration completion for EDC is expected by June 2010. The REACH dossier compilation for VCM is well underway, and the registration is expected to be completed in June-July 2010.

ECVM members, including those who joined ECVM after the last verifications, agreed to be audited in order to ensure a final EU-wide verification, by the 2010 Voluntary Commitment deadline, of the ECVM Industry Charter for the Production of Vinyl Chloride Monomer (VCM) and Suspension PVC, and of the ECVM Industry Charter for the Production of Emulsion PVC.

Plasticisers

The European plasticiser industry is committed towards the sustainability of its products. This development is focused in particular on non-classified high molecular weight phthalates, both for general uses and for specialty applications, with a natural shift from low to high (C9 and above) molecular weight products. ECPI is also supporting its member companies in the completion of the REACH requirements.

Improving on traditional materials

Stabilisers

In 2009, ESPA members announced a further reduction in lead stabiliser use in the EU-15 by over 68% since 2000 (-86,835 tonnes), well above the 50% 2010 interim target. The lead based stabilisers were mainly substituted by calcium-based stabilisers, which showed a significant growth in the same period (+47,864 tonnes).

Post-consumer PVC recycling reaches 190,324 tonnes...

Waste Management Projects

In 2009, Recovinyl succeeded in involving new recyclers in its schemes and therefore in limiting the loss of recycled volumes (186,238 tonnes of post-consumer waste recycled in 2009 versus 191,393 in 2008), despite difficult market conditions due to the effects of the global financial crisis.

In 2009, Vinyl 2010 also provided support to schemes focusing on single product streams, managed by specific application trade associations:

- EPPA (the European PVC Window and Related Building Products Association) supported the market and communications initiatives of the local recycling systems in Austria, Denmark, France and Germany, all now integrated in the Recovinyl schemes.

  All EPPA member companies continued, and some have already completed, the substitution of lead based stabilisers with the achievement of 55% Pb-free products in 2009.

- All TEPPFA (the European Plastic Pipes and Fittings Association) recycling projects, with the exception of those in Finland and Sweden, are integrated in Recovinyl.

- ESWA (the European Single Ply Waterproofing Association) recycled 1,297 tonnes of end-of-life roofing and waterproofing membranes through the well-established ROOFCOLLECT® scheme in 2009.

- EPFLOOR (the European PVC Floor Manufacturers Association) exceeded its target with 2,732 tonnes of post-consumer flooring waste collected to be recycled in 2009.

Out of those 2,559 tonnes were recycled. Well consolidated recycling schemes are operating in Austria, France, Germany, Scandinavia, Switzerland and in the UK.

- EPCOAT (EuPC's PVC Coated Fabrics) recycled 2,902 tonnes of post-consumer PVC coated fabrics (reported as part of Recovinyl volumes) through its IVK collection and recycling scheme in 2009.

Recycling Technologies and Trial Plants

The Vinyloop® recycling plant in Ferrara recommenced its operations in September 2009 after the installation of the modified decanter. The Texyloop® process showed promising results in the recycling of coated fabrics.

Other Projects

ERPA—CIFRA - In 2009, CIFRA recycled about 2,000 tonnes of PVC post-consumer waste products.This recycled material was used in the production of recycled PVC rigid films for use in ultra lightweight modular structures (GEOlight™) for the retention of storm water.

REACH – VITO (the Flemish Institute for Technological Research – www.vito.be) was selected by Vinyl 2010 to develop an impact assessment of possible policy options for the recycling of PVC waste containing cadmium based legacy additives which are restricted under Annex XVII of REACH. The study concluded that, in general, the current 100-ppm cadmium limit for new PVC pipes jeopardises the recycling of rigid PVC building articles with no additional environmental benefit whilst a 1,000-ppm limit would allow unhindered recycling without additional risk. A socio-economic impact study carried out by RPA for DG Enterprise concluded also that raising the limit for cadmium from recyclate in pipes scores better on most criteria than the current legislation.

WRIC – In relation to the REACH implementation and at the request of the EU Commission, EuPC took the lead to set up 'WRIC' (Waste Recovery Industry Chain), an ad hoc Recovery Industry Stakeholders Group for the development of a guidance document on Safety Data Sheets for Recyclates based on Generic Data.

SDS-R (Safety Data Sheets for Recyclates) project is a project of the Plastics Chain for the development of tailor-made Safety Data Sheets for recycled polymers to be used by reclyclers in order to be REACH compliant.

VINYL FOUNDATION – The Vinyl Foundation is the not-for-profit, independently-managed trust created at the end of 2007 to improve the efficiency of the collection of funding from the European converting industry to support Vinyl 2010's post-consumer waste recycling target.

The list of PVC converters contributing to the Vinyl Foundation, and therefore to the Vinyl 2010 recycling schemes, is published on the website www.vinylfoundation.org and regularly updated.

In 2009 the Vinyl Foundation managed to collect €928,224.

Reasonably priced goods

MONITORING, ACCESS TO INFORMATION AND STAKEHOLDER RELATIONS

Guidance from the Monitoring Committee

The Monitoring Committee is the independent body set up to check the progress of the Vinyl 2010 programme composed by representatives of the European Commission and Parliament, consumer groups and industry. The Chairman is Professor Alfons Buekens of the Free University of Brussels (VUB).

Finance

Expenditure by Vinyl 2010 for 2009, including EuPC and its members amounted to €7.75 million.

Independent Auditors

Vinyl 2010 is committed to transparency.

- The financial accounts of Vinyl 2010 were audited and approved by KPMG.
- KPMG advisory audited the statement of tonnages of products recycled.
- The content of the Progress Report was reviewed and verified by SGS as giving a true and honest representation of Vinyl 2010's performance and achievements.

Making your life easier and safer

Encouraging Dialogue with Stakeholders

Vinyl 2010 works actively on communications and dialogue with stakeholders and, in 2009, continued its participation in relevant conferences and events.

The second edition of the Vinyl 2010 Essay Competition involving the younger generation in the dialogue on sustainable development was extremely successful. The results of the Essay Competition were presented at the UN CSD-17 in New York in May 2009, at Green Week 2009 in Brussels, at the 13th European Roundtable on Sustainable Production and Consumption in Aalborg, Denmark, in June 2009 and at the annual Friends of Europe President's Dinner in Brussels in October 2009.

KEY ACHIEVEMENTS 2000-2009

- Post-consumer recycling reaches 190,324 tonnes (2009)
- Reduction in lead stabiliser use by 50% achieved two years ahead of schedule (2008)
- Publication of Environmental Declarations (EPD) for S-PVC and E-PVC (2007)
- Cadmium stabilisers phase-out completed in the EU-15 (2001), EU-25 (2006) and EU-27 (2007)
- Lead stabiliser phase-out by 2015 extended to the EU-25 (2006) and EU-27 (2007)
- Phthalate risk assessments completed (2005-2006) and published (2006-2008)
- Risk assessment on lead stabilisers published (2005)
- External verification of ECVM S-PVC and E-PVC production charters (2002 and 2005 respectively) and extension to the EU-27 (2008)
- Registration of Vinyl 2010 as a Partnership with the Secretariat of the UN Commission on Sustainable Development (2004)
- Bisphenol A phased out of PVC resin production in all ECVM member companies (2001)

THE EUROPEAN PVC INDUSTRY

Polyvinyl chloride, or 'PVC', is one of the most versatile and widely used polymers in the world. PVC continues to make life safer and more comfortable through its use in construction, automobiles, cabling, smart & credit cards, packaging, fashion & design, agriculture, telecommunications, medical devices and a wide array of other areas and products.

PVC is a sustainable material: produced from salt (57%) and oil (43%), it is less oil-dependent than any other major thermoplastic. PVC is extremely durable and cost-efficient. PVC also helps conserve resources and energy and, at its end-of-life, it can be recycled without losing its essential qualities.

Several PVC applications such as pipes, window profiles, cables, flooring, membranes and films have been analysed in terms of Life Cycle Assessments and eco-efficiency in several European countries. In these analyses, PVC has shown excellent environmental performance.

In 2009, for example, PVC pipes with Ca/Zn stabilisers were classified as 'ecologically interesting' by the Swiss body Eco-devis. This is the same classification assigned to PVC windows profiles by Eco-devis in 2007.

The European PVC industry is also a dynamic sector that is constantly innovating and inventing. It is constantly striving to improve products and production processes, to invest in technology, to minimise emissions and waste, and to boost collection and recycling.

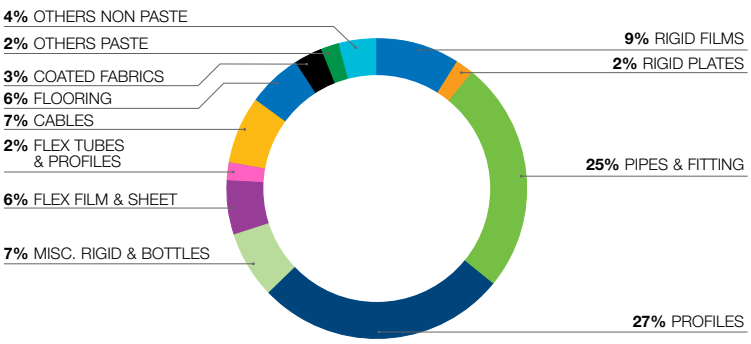
At European level, the PVC industry is represented by four associations:

- **ECVM** (the European Council of Vinyl Manufacturers), representing the 13 European PVC resin producing companies which account around 100% of the current total EU-27 PVC resin production. These businesses operate around 65 different plants spread over 40 sites and employ approximately 10,000 people.
- **ESPA** (the European Stabilisers Producers Association), representing 11 companies which produce more than 98% of the stabilisers sold in Europe. They employ some 5,000 people.
- **ECPI** (the European Council for Plasticisers and Intermediates), representing the seven major European plasticiser and intermediate producers that employ approximately 1,200 people in plasticiser production.
- **EuPC** (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.

Ideal for durability and walking comfort

In 2009, the PVC sector continued to suffer the consequences of the global crisis with a decrease in the demand volumes (even if in line with other raw materials), and European consumption of PVC resin was around 5 million tonnes.

PVC SALES IN WESTERN EUROPE AND THE CZECH REPUBLIC, HUNGARY, POLAND AND SLOVAKIA IN 2009



FOREWORD FROM VINYL 2010 CHAIRMAN

Vinyl 2010 is approaching the symbolic conclusion of its 10-year programme this year. When we started this challenging and fascinating initiative in 2000, the European PVC industry was not the same industry that we see today; and even PVC and its applications were not the same products that we can offer today.

Ashley Reed
Chairman Vinyl 2010 Board

The progress made toward a more sustainable industry and products have been significant and concrete. Our industry is aware of its social responsibility and of the duty that this implies. Important efforts in terms of financial and human resources have been made to achieve Vinyl 2010 targets, even in these difficult economic times.

PVC has also changed over the past 10 years. Innovations, technical development and scientific studies have made PVC formulations more sustainable and effective, and helped to demonstrate the safety and environmental benefits of our products. We are convinced that today PVC offers the potential to help society to develop and achieve a more sustainable future.

We are very pleased that participants and speakers at the Vinyl 2010 conference in Berlin, including representatives from the European Commission's DG Enterprise and Industry, sustainable development agencies and Industry bodies, agreed that Vinyl 2010's sustainability targets are not only a great example of self-regulation, but are in line with European Union policy on reducing emissions and lowering energy consumption in the production process.

External recognition of Vinyl 2010's value from stakeholders and third parties is fundamental to continuing forward and to encouraging our companies in their efforts toward sustainability within the framework of the Vinyl 2010 programme.

This makes it all the more dispiriting that – even in 2010 – past issues that have already been resolved and old clichés are the basis for proposals for PVC deselection.

Vinyl 2010 is on track to meeting its targets. Even in a demanding year such as 2009, the recycled volumes of PVC post-consumer waste were close to the volumes recycled in 2008 thanks to the consolidation of Vinyl 2010 collection and recycling schemes across Europe. Our commitment to replacing the use of lead-based additives is well ahead of schedule, and further improvements were made in our environmental performance across the entire life-cycle of PVC.

These achievements form an impressive foundation on which to build the sustainable future of our industry beyond 2010. And the European PVC industry has already started to think in a Vinyl '2020' optic.

Today, more than ever, we feel that our industry and society can work together, with common objectives and shared views, for a more sustainable future.

Ashley Reed
Chairman Vinyl 2010

VINYL 2010 AND ITS VOLUNTARY COMMITMENT

Vinyl 2010 is the legal entity that provides the organisational structure and financial resources to implement the European PVC industry's Voluntary Commitment. Set up in 2000 by the four associations representing the entire PVC value chain in Europe, it is a 10-year sustainable development initiative involving the whole life-cycle of PVC, from production to post-consumer waste management.

Sustainable technology for energy saving

The Voluntary Commitment defines measurable targets and deadlines and operates through projects covering technology, research, collection and recycling of post-consumer PVC waste. The Voluntary Commitment also encourages dialogue between all of the industry's stakeholders and includes the implementation of a social charter signed with the European Mine, Chemical and Energy Worker's Federation (EMCEF) to develop a social dialogue as well as training, health, safety and environmental standards.

After its first publication in 2000, the Commitment was reviewed in 2001 and in 2006 to take into account public and political comments (including from the European Commission's DG Environment and DG Enterprise) as well as practical experience, technical progress, and the enlargement of the European Union which had extended over time from the EU-15 to the EU-27.

As the 2010 Voluntary Commitment deadline quickly approaches, under discussion for beyond 2010 are a new programme and new objectives, to take into account the new challenges of sustainable development.

As part of its commitment to transparency and accountability, Vinyl 2010's activities and achievements are reviewed and approved by an independently chaired Monitoring Committee composed of representatives from the European Commission, the European Parliament, university, trade unions, and consumer organisations as well as industry representatives. Furthermore, an independently audited Progress Report is published every year reviewing progress made towards the targets set out in the Voluntary Commitment.

Vinyl 2010 is managed by a comprehensive board representing all of the European PVC industry sectors.

VINYL 2010 BOARD

Mr. David Clark
EuPC (Flexible PVC sector)

Mr. Alexandre Dangis
EuPC

Mr. Jean-Pierre De Grève
General Manager (ECVM 2010)

Dr. Brigitte Dero
ESPA

Mr. Joachim Eckstein
Vice Chairman (EuPC)

Dr. Josef Ertl
ECVM 2010

Mr. Andreas Hartleif
EuPC (Rigid PVC sector)

Dr. Arno Knebelkamp
ECVM 2010

Mr. Michael Kundel
EuPC (Flexible PVC sector)

Mr. Ashley Reed
Chairman (ECVM 2010)

Dr. Michael Rosenthal
Treasurer (ESPA)

Mr. Henk ten Hove
EuPC (Rigid PVC sector)

STATEMENT FROM THE CHAIRMAN OF THE MONITORING COMMITTEE

In 2009, Vinyl 2010 showed strong determination in pursuing its ambitious targets and objectives, despite the difficult global economic situation. The European PVC industry suffered. PVC demand decreased and this also affected the contributions to the Vinyl Foundation. But, considering that this new contribution is voluntary, it showed, in any case, commitment and responsibility at the side of PVC converters.

We also appreciated the considerable efforts of Recovinyl, which succeeded extremely well both in involving new recyclers in its schemes and in limiting the loss of recycled volumes (186,238 tonnes of post-consumer waste recycled in 2009 versus 191,393 in 2008), despite difficult market conditions.

This, together with progress made in other areas of the Voluntary Commitment such as clean resin production, responsible use of additives, and products stewardship in the entire PVC life-cycle that allows us to look at 2010 with a cautious optimism.

2010 is a special year for us all. It represents the close of the Vinyl 2010 commitments. Or better yet, as the Monitoring Committee hopes, it means the conclusion of the first phase down the road toward sustainability that the European PVC industry has taken.

We are confident that Vinyl 2010 will achieve its target. Meeting this objective is essential if the European PVC industry wants to demonstrate the credibility of the voluntary agreement approach and to gain official and well-deserved external recognition for the industry's efforts and achievements.

But this is just a first step. In recent years, many things have changed: new markets and economies have emerged; growing awareness in society has demanded more responsible behaviour from the industry; and new EU Regulations and policies such as REACH and RoHS, and Sustainable Public Procurement are now either under evaluation or implementation. Naturally, these changes have also had an impact on the PVC industry and its Voluntary Commitment.

Vinyl 2010 has been growing, evolving and making efforts to embrace these changes towards sustainable development. Beyond Vinyl 2010's targets, we, the Monitoring Committee, would like to see a permanent commitment of the PVC industry towards sustainability. And, hopefully, that commitment will be more global in breadth.

Prof. Alfons Buekens
Chairman Vinyl 2010 Monitoring Committee

Alfons Buekens
Chairman of the Monitoring Committee

...to provide Vinyl 2010 with suggestions and advice, and to stimulate the European PVC industry in its concrete commitment to sustainability...

Cobalt blue frames with integrated vents – looking good, enhancing life and saving energy

WORKING TOGETHER

The Vinyl 2010 Monitoring Committee

Since 2003, Professor Alfons Buekens, of the Free University of Brussels, has chaired the Vinyl 2010 Monitoring Committee. This is the independent organisation set up with the aim of monitoring the implementation of the European PVC Industry Voluntary Commitment. The Monitoring Committee also guarantees openness, transparency and accountability in Vinyl 2010's initiatives.

The Monitoring Committee's role is also to provide Vinyl 2010 with suggestions and advice, and to stimulate the European PVC industry in its concrete commitment to sustainability.

The Committee is currently composed of senior representatives from the European Commission, the European Parliament, trade unions and consumer associations, as well as representatives from the European PVC industry. Additionally, the Committee is open to the participation of other third parties, such as environmental NGOs.

The Monitoring Committee meets formally twice a year and the minutes of the meetings are public and published on the Vinyl 2010 website (www.vinyl2010.org).

Lifetime reliability, no maintenance required

MEMBERS

Professor Alfons Buekens
VUB[1], Chairman of the Monitoring Committee

Dr. Jorgo Chatzimarkakis
Member of the European Parliament (Industry, Research and Energy Committee)*

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

Mr. Alexandre Dangis
Managing Director of EuPC

Mr. Jean-Pierre De Grève
General Manager of Vinyl 2010

Dr. Brigitte Dero
Director of ESPA

Mr. Joachim Eckstein
Vice Chairman of Vinyl 2010

Mr. Timo Mäkelä
European Commission, Directorate General Environment

Mr. John Purvis
Member of the European Parliament (Industry Research and Energy Committee)***

Mr. Reinhard Reibsch
General Secretary EMCEF[2]

Mr. Ashley Reed
Chairman of Vinyl 2010

Mr. Karim Sajjad
Member of the European Parliament for the North West of England European Parliament****

Mr. Carlos Sánchez-Reyes de Palacio
President of OCU[3]

* until November 2009
** from January 2009
*** until May 2009
**** from November 2009

[1] VUB: Free University of Brussels (www.vub.ac.be)
[2] EMCEF: European Mine Chemical and Energy Workers Federation (www.emcef.org)
[3] OCU: Organizaciòn de Consumidores y Usuarios (Spanish Consumers and Users Organisation – www.ocu.org)

EUROPEAN UNION ENLARGEMENT

Set up during the time of the EU-15, the Voluntary Commitment of the European PVC industry has progressively been expanded to cover the new EU Member States. The Commitment has now been rolled out in the EU-27, covering all companies represented by the four associations ECVM, ECPI, ESPA and EuPC.

STAKEHOLDER DIALOGUE

An open and ongoing dialogue with stakeholders, third parties, institutions and organisations is at the core of Vinyl 2010's policy and activities. A good corporate governance policy increasingly recognises the need for openness and transparency and for frank interactions with the technical, political and social communities. Transparency promotes accountability and builds trust.

Over the years, Vinyl 2010 has built and consolidated strong and transparent relationships with a range of stakeholders at industrial, political, scientific and social levels. And in 2009, in line with its commitment to openness and transparency, Vinyl 2010 opened up one of its most important internal events to all stakeholders for the first time ever. The association's General Assembly was held in Berlin and made public through a live online webinar internet webcast. Those interested can view this event at www.vinyl2010berlin2009.org.

Vinyl 2010 also continued its valuable cooperation and exchange of experiences and best practice with the other PVC regional associations, from North to South America, from the Asia-Pacific region to South Africa.

Exciting new opportunities in design

Vinyl 2010 Sustainable Development Essay Competitions

With its first Sustainable Development Essay Competition launched in November 2007, Vinyl 2010 started a fascinating and important dialogue on sustainable development with the next generation. In the words of Nadine Gouzée, chair of the judging panel:

> 'The Vinyl 2010 Essay Competition is a great forum for a vital and creative debate on how society needs to address these crucial issues. It is inspiring to see how engaged and enthusiastic the young people can be when discussing our future and the different kind of futures we need to consider. They offer the inspirational energy which we all need to see if we are to create the political will to truly develop a sustainable future.'

Encouraged by the excellent response to the first competition, a second Sustainable Development Essay Competition was launched in October 2008 which asked 'Faced with a food and energy crisis, how can society improve its well-being?'.

This second edition, in particular, made innovative use of internet social media techniques and focused on a dedicated website/blog that was created to maximise the reach of the competition and to generate a dynamic exchange of ideas. Many of the authors and registered visitors to the website commented on the submissions and started a fresh, thought-provoking debate.

By the 1 December 2008 pre-registration deadline, 927 people representing 89 different nationalities had signed up to take part in the Essay Competition. Registrations were received not only from young people across the 27 states in the European Economic Area (EEA), but also from 62 other countries worldwide. Out of those, a total of 208 thought-provoking essays were finally received. This was a significant increase in the number of entries in the first year's competition and surpassed the expectations of the organisers.

Winners of the European Prize Category of the 2008/9 competition were Jon Elms, Fiona Wright, and Robert McSweeney, all from the United Kingdom. Christian Williams from New Zealand won in the Global Prize Category. The Special Industry Prize winner was Wei Chao Zhou from Singapore. All of the essays were of very high quality, presenting well-informed, strongly argued ideas. In the end the final winners were the ones that were successful in presenting constructive, well thought-out and realistic ideas that could make an actual impact on the debate on the food and energy crises.

The best works were collected and published in a book widely distributed to Vinyl 2010 stakeholders. The results of the Essay Competition were also presented at the UN CSD-17 in New York in May 2009, at last year's Green Week in Brussels and at the 13th European Roundtable on Sustainable Production and Consumption in Aalborg, Denmark, in June 2009.

A special USB stick with the winning essays 2008/2009 read by MEPs and sustainable development experts was given by Vinyl 2010 to guests at the annual Friends of Europe President's Dinner in Brussels in October 2009.

United Nations Partnership

The United Nations Commission on Sustainable Development (CSD) was established by the UN General Assembly in December 1992 to ensure effective follow-up on the United Nations Conference on Environment and Development (UNCED), also known as the Earth Summit. The Commission is responsible for reviewing progress in the implementation of Agenda 21 and the Rio Declaration on Environment and Development. The Commission is also responsible for providing policy guidance to follow up the Johannesburg Plan of Implementation (JPOI) at the local, national, regional and international levels.

Since 2004, Vinyl 2010 has been a Partnership registered with the Secretariat of the UN Commission on Sustainable Development. The aim of this is to contribute to the development of effective industrial partnerships and to the exchange of experiences at global level.

In 2009, Vinyl 2010 was invited to the working session on the future of Partnerships for Sustainable Development within the framework of CSD-17 organised by the UN in New York in May. For the fourth year, Vinyl 2010 also participated in the UN CSD-17 Partnerships Fair with an information desk, presenting its achievements and results for 2008 and its Essay Competition 2008/09.

Engaging more stakeholders via the internet

Conferences and Exhibitions

In 2009, Vinyl 2010 continued in its open and constructive dialogue on sustainable development with its stakeholders through active participation in primary high level conferences, events and exhibitions:

- **SETAC[4] Europe 15th LCA Case Studies Symposium in Paris, France, 22-23 January.**
  Vinyl 2010 participated in the SETAC Europe 15th LCA Case Studies Symposium with a presentation on 'The "2 litre house" approach: an effective example of the application of LCA in eco-design', concerning the example of 'Passive house' developed by the Centro di Informazione sul PVC (the Italian association of the PVC industry) and AIPE (the Italian association of Expanded Polystyrene producers), designed and built at Ozzano Emilia, Italy.

- **Plast'09 in Milan, Italy, 24-28 March.**
  Vinyl 2010 participated at Plast'09, one of the most important exhibitions on plastic materials in Europe, which take place every three years in Milan. Vinyl 2010 displayed an info corner hosted in the common space of the Italian plastic associations, where visitors could learn more about Vinyl 2010 and its results and play the Vinylgame. A special Vinylgame contest was organised for journalists and visitors.

- **Identiplast in Brussels, Belgium, 20-21 April.**
  On the occasion of the Identiplast event – which gathered over 190 international delegates to discuss and share know-how on the most efficient and innovative end-of-life plastics waste management schemes – Vinyl 2010 announced its results for the previous year and presented its Progress Report 2009. Vinyl 2010 was present with an info corner and a touch-screen display to encourage delegates to play the Vinylgame.

Above: The Ozzano Emilia '2 litre house' — leading the way in energy efficiency
Below right: Sharing concepts

- **Vinyl 2010 General Assembly and 'Talking sustainability' Conference in Berlin, Germany, 12-13 May.**
  The Vinyl 2010 General Assembly addressed sustainable development and Vinyl 2010 initiatives. In order to enlarge participation and to create a wider audience, a specific webinar was organised to allow all interested parties to follow the conference online. 52 people registered to participate, increasing the number of stakeholders immediately engaged with the 13 May 2009 event by some 30%. The webinar was subsequently watched a total of 1,402 times with 305 documents being downloaded. Effectively this meant that the 2009 General Assembly had increased its stakeholder reach by over 1,000% compared to previous similar events. View the conference on-demand at www.vinyl2010berlin2009.org.

- **Green Week 2009 in Brussels, Belgium, 3-6 June.**
  Green Week 2009 gave Vinyl 2010 the opportunity to contribute to the climate change debate by focusing on PVC's benefits in the Ozzano 'Passive House' project. A 3D model of the houses was displayed together with an informative flyer on how PVC can contribute to sustainable building.

[4] SETAC: Society of Environmental Toxicology and Chemistry (www.setac.org)

- **13th European Roundtable on Sustainable Production and Consumption in Aalborg, Denmark, 10 June.**

The European Roundtable on Sustainable Consumption and Production (ERSCP) is a non-profit forum that provides a platform to stimulate, develop and disseminate new initiatives to foster the implementation of sustainable consumption and production concepts and approaches within local and regional sustainable development initiatives. Its conclusions are presented at the EU Commission.

In June 2009, the European Roundtable, which took place in Aalborg, Denmark, was part of Joint Actions on Climate Change, a joint endeavour bringing together five conferences in the field: European Roundtable for Sustainable Consumption and Production, The Greening of Industry Network, SCORE!, Nordic Life Cycle Association, and Euro Sustainability.

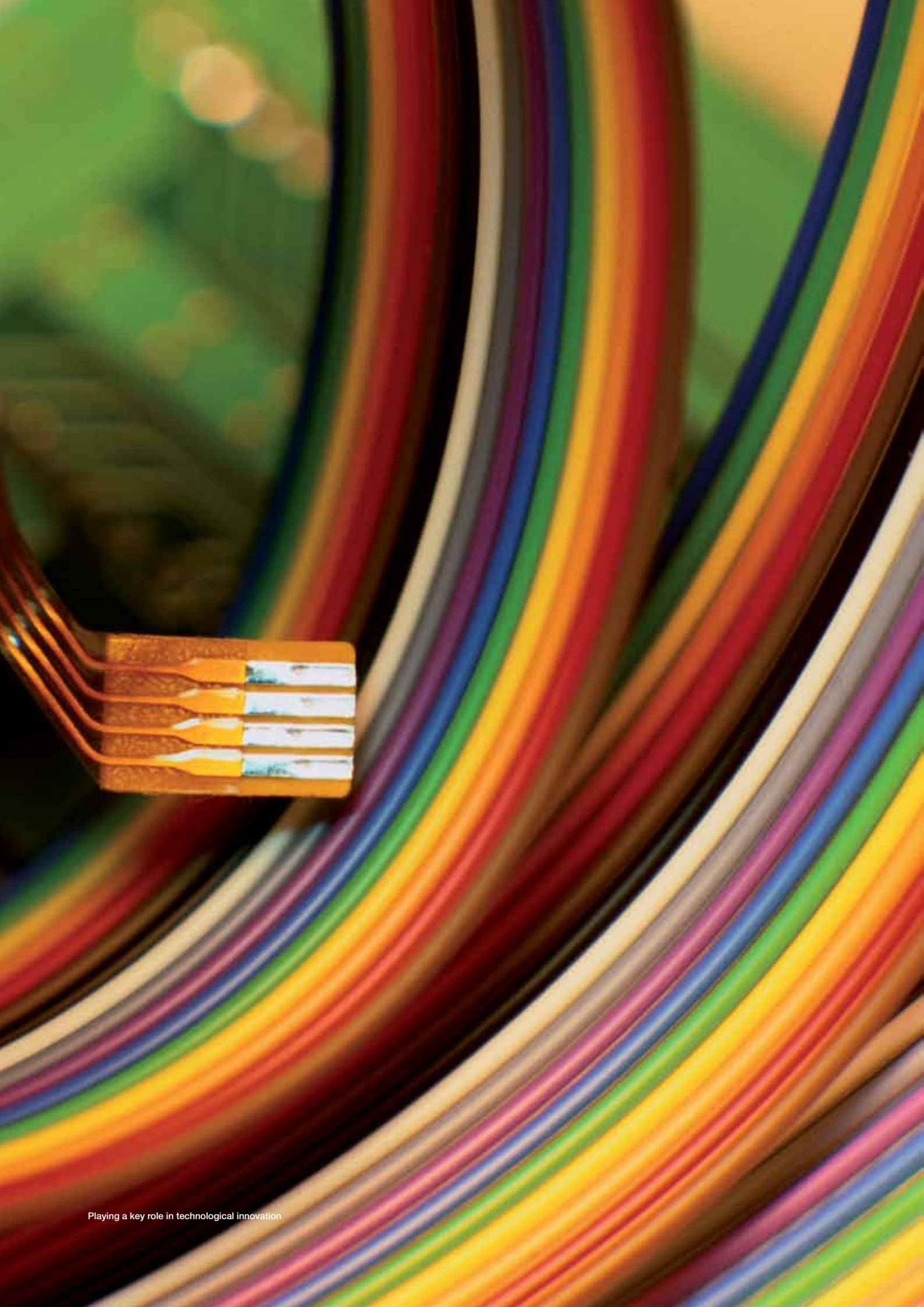
Vinyl 2010 has participated in the ERSCP conferences since 2004 as part of its commitment to contribute to the sustainable development debate. This year Vinyl 2010 focused its contribution on its Sustainable Development Essay Competitions. Ole Grøndahl Hansen Director of the PVC Information Council Denmark (and head of the judging panel for the Industry Prize in the 2008/09 competition) was joined by Robert McSweeney, one of the competition winners, to explain to the conference the value of this type of initiative in engaging young people in the sustainable development issues.

The remark of chairman of the climate learning session 'Who would have thought that the plastic industry could come up with such a great idea', gives an indication of the warm reception of the audience to the project.

- **Friends of Europe President's Dinner in Brussels, Belgium, 9 October.**

On the occasion of the Friends of Europe's President's Dinner event held in Brussels, a special present was given by Vinyl 2010 to all guests: an USB stick containing the winning Essays 2008/2009 read by MEPs and sustainable development experts.

The FoE event, organised in partnership with Microsoft, GDF Suez, Vinyl 2010 and Weber Shandwick, was co-hosted by the Swedish Presidency and Friends of Europe's President Viscount Etienne Davignon. The dinner is a yearly Brussels' landmark event, and in 2009 it brought together some 200 high-level guests, including Friends of Europe Trustees, EU Commissioners, Members of the European Parliament, Directors General of the European Commission and other top officials from the EU Institutions and European governments, European ministers, representatives from business, NGOs and civil society, and international press.



Playing a key role in technological innovation

MILESTONES AND TARGETS

ACHIEVEMENTS AND RESULTS FOR 2009

Quarter 1

✓ **ESPA:** publish 2008 statistics on PVC stabiliser tonnages ➜ **Achieved**

Quarter 2

✗ **Cadmium study (recycling):** completion ➜ **Postponed to Q4**

✗ **Vinyloop®:** start-up of modified decanter centrifuge ➜ **Postponed to Q3**

Quarter 3

✓ **ECPI:** Submission for publication of the study on DEHP and DINP conversion factors ➜ **Study completed – publication Q2 2010**

Quarter 4

✗ **Recovinyl:** ensure recycling of 200,000 tonnes of PVC waste throughout the year ➜ **Not achieved**

✗ **Roofcollect®:** recycle 1,300 tonnes end-of-life roofing and waterproofing membranes ➜ **Achieved**

✓ **EPFLOOR:** collect to be recycled 2,400 tonnes post-consumer flooring waste ➜ **Achieved**

✗ **Vinyloop®:** treat 9,100 tonnes of waste to produce 6,500 tonnes of R-PVC ➜ **Not achieved**

TARGETS FOR 2010

Quarter 1

ESPA: publish 2009 statistics on PVC stabiliser tonnages

Quarter 2

Quarter 3

Quarter 4

ECVM: compliance with the Industry Charters for VCM/S-PVC and E-PVC

Recovinyl: ensure recycling of 240,000 tonnes of PVC waste throughout the year

Rewindo: collect 26,000 tonnes of waste to produce 19,000 tonnes of R-PVC

Roofcollect®: recycle 1,500 tonnes end-of-life roofing and waterproofing membranes

EPFLOOR: collect to be recycled 2,400 tonnes post-consumer flooring waste

Vinyloop®: treat 7,700 tonnes of waste to produce 5,000 tonnes of R-PVC

...REACH is the European chemicals regulation that will require chemicals producers to provide data to the European Chemicals Agency on their substances to demonstrate that they are being safely produced and used...

An integral part of modern communications

PROJECT REPORTS

PVC RESIN MANUFACTURING

REACH Preparation

REACH is the European chemicals regulation that will require chemicals producers to provide data to the European Chemicals Agency on their substances to demonstrate that they are being safely produced and used.

As with all other polymers, PVC in itself is not subject to REACH registration obligations. But the monomer VCM and the intermediate EDC (ethylene dichloride or 1,2-dichloroethane) must comply with REACH registration requirements. The registration procedures are already ongoing both for EDC and VCM.

The consortium for the registration of EDC was set up in 2008, led by the ECVM member company Arkema and supported by the European Association EuroChlor. The final consortium and service agreement were defined in early January 2009, and modified in June 2009 to include extended scope (a non-intermediate dossier).
A draft IUCLID[5] dossier was completed in 2009. Registration completion is expected by June 2010.

A VCM monomer registration consortium made of ECVM members and partners, led by Ineos Vinyls UK and supported by ECVM, was set up in 2008. The REACH dossier compilation for VCM is well underway, and the registration is expected to be completed in June-July 2010.

ECVM Charters

Following EU enlargement, the new ECVM members from new EU Member States agreed in September 2008 to be verified. In October 2008, the principle of verification for all ECVM members, including those who had been already verified, was also agreed upon. This was in order to ensure final verification by the 2010 Voluntary Commitment deadline.

Pre-audits were carried out by DNV[6] in the plants of new members (Q4 2008) with the aim of checking and confirming methodology and preparing for verification.

The verification was originally planned to consider 2009 as the reference period, whilst verification visits and reports were scheduled for Q1/Q2 2010. However, it was decided during the annual HSE conference held in June 2009 to postpone the reference period by six months. The reasoning behind this was that the first half of 2009 had been very atypical and characterised by low production, with more interruptions than usual. Thus, the emission results expressed in g/t produced could have been distorted.

It was therefore agreed to consider the January-June 2010 semester as the new reference period, as it was not possible to take into account the complete calendar year 2010. Otherwise, the verification could not be delivered in time for the 2011 Vinyl 2010 Progress Report. In any event, six months represent an adequate time period, as two previous verifications also were performed using a six-month reference period.

The DNV verifications (plant visits) will take place during the second half of 2010.

[5] IUCLID: International Uniform ChemicaL Information Database, a software application to capture, store, maintain and exchange data on intrinsic and hazard properties of chemical substances. The IUCLID 5 web site is maintained by the European Chemicals Agency (ECHA) located in Helsinki, Finland. The operations are run by the IUCLID 5 Support Team at ECHA with the collaboration of several staff members from the European Chemicals Bureau (ECB), a research unit of the Institute for Health and Consumer Protection (IHCP) within the Joint Research Centre (JRC) of the European Commission. (http://iuclid.echa.europa.eu)

[6] DNV: Det Norske Veritas, a Norwegian testing and verification organisation (www.dnv.com)

Eco-profiles and Environmental Product Declaration (EPD)

The study on 'Energy consumption and emissions of conversion processes' – initiated in March 2007 by TNO, also based on the new PVC resin Eco-Profiles and on information from converters – was further delayed due to difficulties in data collection. Completion is now expected by Q1 2010.

PLASTICISERS

Plasticisers are substances added to PVC resin to make it flexible, resilient and easier to handle.

ECPI (European Council for Plasticisers and Intermediates) is the Pan-European trade association representing seven chemical companies which produce an overwhelming share of the European plasticisers' offer: Arkema, BASF, Evonik Oxeno, ExxonMobil Chemical, Oxea, Oxochimie and Perstorp. The mission of ECPI is to support the safe and environmentally responsible use of plasticisers. ECPI also aims to provide information to users, legislators and other interested parties on safety, health and environmental issues related to plasticisers; to carry out research relevant to safety and sustainability; and to work with industry partners, associations and other stakeholders to support the safety and sustainability of plasticisers and flexible PVC.

European phthalates producers are continuously striving to increase the sustainability of their products and to comply with the evolving demands of the market and of legislators. Development is focused in particular on non-classified High Molecular Weight phthalates, both for general uses and for specialty applications, with a natural shift from low to high (C9 and above) molecular weight products. There is also a focus on the development of 'alternative' plasticisers for specialty and higher-end markets.

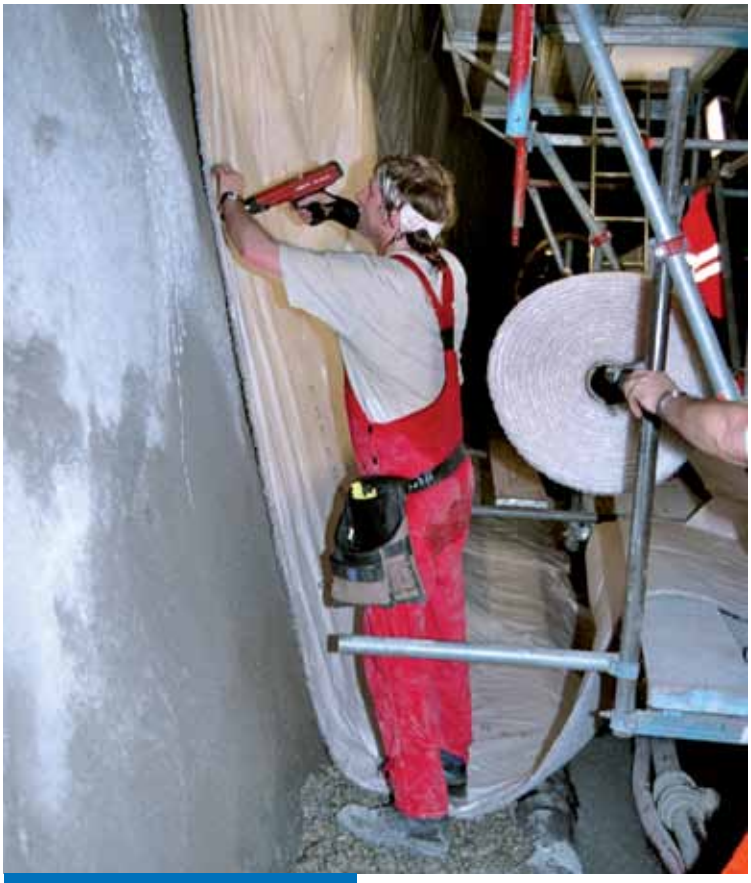
Phthalates and REACH

The acronym REACH stands for **R**egistration, **E**valuation, **A**uthorisation and Restriction of **CH**emicals, a four-pronged piece of legislation addressing European chemicals regulation.

Registration is the process by which chemicals producers provide a technical dossier of data to European authorities for approval to continue placing their substances on the European market. Authorisation[7] is a longer-term process involving those substances classified as being of 'Very High Concern'. The manufacturers and/or users of such substances have to apply to European authorities for authorisation in order to continue marketing and using them.

The major phthalates have all been subject to EU risk assessments (which were completed and published between 2005 and 2008).

For the High Molecular Weight phthalates, the registration of DIDP was completed in December 2009. The registration of DINP was completed in March 2010 and the registration dossier for DPHP has been submitted in April 2010. The REACH registration of these High Molecular Weight phthalates, well ahead of the 1 December 2010 deadline, highlights the extensive existing body of knowledge about the health and environmental safety of High Molecular Weight plasticisers.



Making the project secure

[7] Annex XIV: the list of substances subject to authorisation requirements of the REACH Regulation (http://echa.europa.eu/doc/authorisation/annex_xiv_rec/annex_xiv_subst_inclusion.pdf)

Above left: Making healthcare affordable
Above right: Enabling more sustainable solutions

Plasticisers Research

ECPI has been conducting a major study on human volunteers to generate metabolic conversion factors for DEHP and DINP in order to calculate the original DEHP-intake from data regarding the urinary concentrations of DEHP-metabolites. The study was completed in 2008 and the results were subject to mathematical and statistical analysis in 2009 in order to extract corresponding conversion factors.

A further study was carried out in 2009 on 20 human volunteers exposed to known amounts of DINP. The metabolites were measured in blood and urine for 48 hours post-dose.

This research established the conversion factors that will enable back calculation from urinary metabolites to exposure and will actively contribute to further understanding on the safety-in-use of plasticisers. Full results will be available at the beginning of Q2 2010.

Funded with €1 million over five years, the study, reviewed by ethics committees, is part of an international, multi-centre research programme conducted in independent laboratories in Belgium and the UK.

Availability of Information

ECPI provides high quality and extensive information about the safe use of phthalates in several European languages via its websites and outreach activities, such as the Inform newsletter. Its main websites are the Plasticisers Information Centre (www.plasticisers.org) and the Phthalates Information Centre (www.phthalates.com).

These two websites provide links to other information portals more specific to individual products such as www.dehp-facts.com, www.dinp-facts.com, and many others.

Since April 2008, several workshops have been organised to open dialogue with local and European authorities like ECHA[8], DG Enterprise and DG Health and Consumers,as well as the EU Member States, including Denmark, France, Germany, Sweden, the Netherlands and the UK. Retailer workshops were also organised in France and the UK and others are expected to follow.

[8] ECHA: European Chemicals Agency (http://echa.europa.eu)

STABILISERS

Stabilisers are added to PVC to allow its processing and to improve its resistance to external factors such as heat and sunlight (ultraviolet rays).

Lead Replacement

In the Voluntary Commitment, ESPA and EuPC committed to replacing lead stabilisers completely by 2015 in the EU-15, with interim targets of a 15% reduction by 2005 and a 50% reduction by 2010. The commitment of 100% phase-out by 2015 was extended to the EU-27 in 2007.

The progressive substitution of lead-based stabilisers is ongoing and is confirmed by the corresponding growth in calcium organic stabilisers, which are used as an alternative to lead-based stabilisers.

In the period 2000-2009, lead stabilisers (in the EU-15) decreased by 86,835 tonnes (-68.3%), and calcium organic stabilisers (in the EU-15 plus Norway, Switzerland and Turkey) increased by 47,864 tonnes. ESPA successfully reached the 50% lead stabilisers reduction 2 years ahead of the 2010 interim target.

However it has to be mentioned that the impact of the economic crisis affected the PVC consumption and consequently, the stabilisers figures as well. This has also contributed to the year 2009 lead decrease.

Making life more enjoyable

Tonnes of Stabiliser Systems	2000	2009	Reduction (%)
Formulated* lead stabilisers	127,156	40,321	68.3

* Formulated means that these systems are complete stabiliser/lubricant packages and many also include pigments or fillers as a service to the customer. Their major use is in pipes and profiles for construction and electrical cables.

European Production Data

The following table shows sales of other stabilisers in the EU-15 plus Norway, Switzerland and Turkey:

Tonnes of Stabiliser Systems	2000	2009
Formulated* calcium organic stabilisers e.g. Ca/Zn systems(1)	17,579	65,443
Tin stabilisers(2)	14,666	11,622
Liquid stabilisers – Ba/Zn or Ca/Zn(3)	16,709	13,229

* Formulated means that these systems are complete stabiliser + lubricant packages and many of these also include pigments or fillers, as a service to the customer.
(1) Includes food contact and medical applications, plus all lead replacement systems.
(2) Used primarily in rigid applications including food contact use.
(3) Used in a wide range of flexible applications, calendared sheets, flooring, etc.

EU-27 Production Data

The stabiliser figures for the EU-27 are reported in the following table:

Tonnes of Stabiliser Systems	2007	2009
Formulated lead stabilisers	99,991	48,921
Formulated calcium organic stabilisers e.g. Ca/Zn systems(1)	62,082(*)	75,140(*)
Tin stabilisers(2)	16,628(*)	12,162(*)
Liquid stabilisers – Ba/Zn or Ca/Zn(3)	19,000(*)(**)	14,000(*)(**)

(*) EU-27 plus Norway, Switzerland and Turkey
(**) EU-27 figure for liquid stabilisers is approximated in 2007 and in 2009. The reason is that under the rules of Cefic – the European Chemical Industry Council – statistics cannot be published if fewer than three companies are reporting. This is to avoid disclosure of individual information.
(1) Includes food contact and medical applications, plus all lead replacement systems.
(2) Used primarily in rigid applications including food contact use.
(3) Used in a wide range of flexible applications, calendered sheets, flooring, etc.

Cadmium Phase-Out

The phase-out of cadmium stabilisers was completed in the EU-15 by 2001 and in the EU-27 by the end of 2007.

PVC WASTE MANAGEMENT AND SECTORAL PROJECT PROGRESS

Recovinyl

Recovinyl is the organisation set up in 2003 within the framework of Vinyl 2010 to facilitate the development of PVC waste collection and recycling schemes from non-regulated post-consumer PVC waste streams – mainly from the building and construction sectors. Recovinyl does not collect or recycle itself; rather, it utilises and motivates existing waste management organisations in the market.

Over the years, Recovinyl has progressively integrated various collection and recycling initiatives that were previously directly managed by the EuPC sectoral projects. It has made an impressive contribution to the exponential growth of the registered volumes of post-consumer PVC being recycled in Europe.

Recovinyl is active in 15 European countries: Austria, Belgium, the Czech Republic, Denmark, France, Germany, Hungary, Ireland, Italy, Poland, Portugal, Slovakia, Spain, the Netherlands and the UK.

In 2009, the activities of Recovinyl were affected by several factors that impacted the market.

The converters' demand was concentrated on high-quality recycled material (A level), whilst it was very difficult to sell low-end-quality material (coloured fraction – C level). Demand for C level material was not only affected by the global economic crisis, but also by the impact of the REACH regulation on recycled plastics.

Overall, there was a slight improvement of activities in October and November, but levels remained very low for recycled coloured fractions.

In addition, the availability of free incineration capacity at lower gate fee (down to €50/t) in the Northern countries pushed waste collecting companies to sort less, and a considerable fraction of mixed rigid plastics was sent to the Far East.

Recruiting new recyclers is becoming more difficult, especially because several recyclers are still resistant to Recovinyl audits and the related additional administrative burdens. Nevertheless, 34 new recyclers were registered in 2009, with an equivalent of almost 22,400 tonnes of recycled volumes.

In the Benelux, one Belgian recycler announced that it would stop PVC recycling activity because of the economic situation. Overall, even though collection of PVC waste was more difficult than in the previous year due to export to China, cable recycling registered a slight increase. Lowest quality materials (C level) were mainly exported to the Far East.

In France, new legislation on construction waste (separation at source) increased the supply of mixed rigid post-consumer PVC. However, it is very difficult to find recyclers who accept this contaminated supply. Consequently, Recovinyl noticed an increase in mixed rigid plastics export to the Far East.

In 2009, the activities of the existing recyclers network decreased by 30%: two recyclers went bankrupt and other two ceased PVC recycling activity, with one moving its activities to China. The activities of five new recyclers registered in France did not compensate for the quantities lost from the other four recyclers.

In Germany, low incineration cost decreased the sorting of contaminated fractions. More and more, only pre-sorted material is processed. C-level material was exported to the Far East.

In 2009, two major flexible cable recyclers increased their activities, starting up an additional line for the production of traffic cones; large window recyclers kept their market position in Germany.

The network of recyclers was strengthened by new entries who brought with them an additional capacity of 14,500 tonnes.

Recovinyl Registered Recycled Volumes per Country

	Year 2005*	Year 2006*	Year 2007*	Year 2008*	Year 2009*
Austria	-	-	-	4,398	3,815
Belgium	1,500	2,739	1,954	3,462**	5,493**
Czech Republic	-	-	-	5,858	13,685
Denmark	-	-	2,896	2,586	2,445
France	2,000***	7,446	13,276	16,943	10,890
Germany	-	5,522	35,927	77,313	71,081
Hungary	-	-	-	804	538
Italy	-	828	4,252	16,115	15,681
Netherlands	4,500	10,972	8,959	10,731	10,009
Poland	-	-	-	3,518	7,648
Portugal	-	-	-	477	903
Slovakia	-	-	-	-	994
Spain	-	2	-	6,293	9,093
Sweden	-	94	-	-	-
UK	8,000	16,836	42,162	42,895****	33,963
TOTAL	**16,000**	**44,690**	**111,322**	**191,393**	**186,238**

* Actual figures in tonnes
** Belgium figures include the ones from Luxemburg in 2008 and 2009
*** This volume was recycled by PVC Recyclage, now included in Recovinyl
**** UK figures include the ones from Ireland in 2008

New Recovinyl reporting rules resulted in the reallocation from Germany of 11,000 tonnes in 2009, of which the Czech Republic accounted for 7,400.

In Italy, the economic crisis put high pressure on the quality level of recycled material. The registration of four new recyclers (for 4,800 tonnes) partially offset the decrease of the registered volume against 2008.

Cable waste collection was stable compared to 2008; however, stock levels increased significantly. Vinyloop®'s delayed restart after the decanter installation had an influence on the overall activity. Export of mixed rigid plastics material to the Far East is increasing.

In Spain and Portugal, two new recyclers were registered with around 2,000 tonnes of recycled volumes. Lower activity in the existing network (-20%) was due to the crisis in the construction sector, although cable recycling increased in October and November. Due to very low landfill costs, there was almost no separation of rigid PVC.

In the UK, the network of PVC recyclers consists mainly of window recyclers, which means the network is highly dependent on the construction industry. Only large renovation projects are currently providing old windows and, in 2009, window recyclers registered some increase in rigid PVC products.

Cable recycling decreased from the second quarter on, but regained activity in the last quarter of 2009. 2009 also showed an increase in the sorting of general waste stream volumes with Recovinyl facing a greater supply of mixed rigid PVC.

In the Czech Republic, PVC recycling activity is growing significantly. Some of the recyclers are looking for material abroad and, in 2009, significant amounts of material were collected in Germany. Four new recyclers joined the network, representing more than 9,000 tonnes (mainly flexible applications).

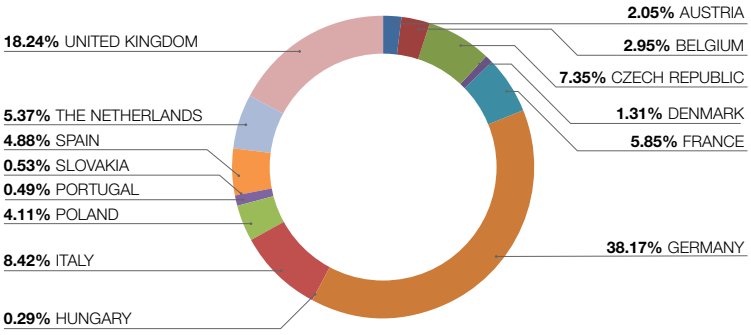
Three new recyclers joined Recovinyl in Slovakia.

In Poland, PVC waste comes mainly from abroad (Germany), due to the lack of construction waste separation. Recycling activities are mainly concentrated on rigid material. In 2009, five new recyclers entered the system, representing around 2,000 tonnes.

In 2010, Recovinyl will step up efforts in France, Germany and the UK, where it is expected to recycle the majority of the additional quantities required to achieve the final Vinyl 2010 target by partially increasing activities (in the UK) and adding new recyclers into the Recovinyl system (in France and Germany).

The major market elements that could impact Recovinyl activities include: trends in the construction sector, which should stabilise in 2010, with (some) increase in activity hoped for in the last quarter of the year; REACH regulation and the related recycling issues (e.g. cadmium – also see Chapter REACH and Recycling – p. 33); and, hopefully, an increased difference in price between virgin PVC and recycled material.

RECOVINYL REGISTERED RECYCLED VOLUMES PER COUNTRY



RECOVINYL REGISTERED RECYCLED VOLUMES PER APPLICATION

	Year 2008	Year 2009
RIGID PVC APPLICATIONS		
PIPES	22,495	16,928
PROFILES	79,600	82,887
RIGID FILMS	4,352	5,890
TOTAL RIGID PVC APPLICATIONS	**106,447**	**105,705**
FLEXIBLE PVC APPLICATIONS		
CABLES	54,987	54,285
MIXED	29,959	26,248
TOTAL FLEXIBLE PVC APPLICATIONS	**84,946**	**80,533**

Ensuring our homes are energy efficient

Window Profiles

EPPA[9] window collection and recycling schemes are well consolidated in Austria (ÖAKF[10]) and Germany (Rewindo[11]). Systems, stimulated by Recovinyl, are in place in Belgium, Denmark, France, Ireland, Italy, the Netherlands, Spain and the UK.

In Germany, Rewindo consolidated its results with a further increase of volumes in input from 22,650 tonnes in 2008 to 24,000 tonnes in 2009, and output of about 17,000 tonnes in 2009 versus 16,292 tonnes in 2008. In 2010, Rewindo expects to collect 26,000 tonnes of PVC post-consumer windows to produce 19,000 tonnes of recyclate.

In addition to its collection and recycling activities, Rewindo focused in 2009 on communicating with its stakeholders, organising press conferences coinciding with major achievements such as the recycling of 850 windows from tower-block in Marl, the recycling of 100 windows from houses in Dortmund and the recycling of 300 windows from a block of houses in Aachen. Rewindo also participated in the WOWEX Trade Fair and Congress for the Housing Industry and in the ENTSORGA Fair, an international trade fair for waste management and environmental technology; both fairs took place in Cologne. Rewindo also organised the Prowindo conference in Bonn/Königswinter.

In Austria, ÖAKF further increased its recycled volumes, reaching 1,200 tonnes in 2009. Its target for 2010 is to reach 1,250-1,500 tonnes. In 2009, major renovation activity was initiated in a big Viennese housing estate where the replacement of 500 PVC windows was planned. ÖAKF will monitor the renovation work, even though the majority of the windows are expected to be exported to other EU countries for re-use as they are still in working order.

In Denmark, 1230 tonnes of profiles, 787 tonnes of pipes and 202 tonnes of flexible material were recycled through the WUPPI[12] scheme in 2009. In September, WUPPI was asked by the Danish EPA (Environmental Protection Agency) to provide them with a comprehensive report on the WUPPI recycling scheme. The report will be used as the basis for a report on PVC recycling that the EPA was asked to provide to the Danish Parliament.

In France, the SNEP (le Syndicat National de l'Extrusion Plastique) recycling scheme PVC Recyclage (www.pvcrecyclage.fr) recycled 10,830 tonnes of material in 2009, of which 80% was comprised of windows and profiles. The recycled volumes were lower than those of 2008 (18,000 tonnes) due to the crisis in the construction sector; in addition, a major recycler ceased activity due to financial difficulties and the data from one recycler was registered in the results of another country, in accordance with Recovinyl new registration rules.

In 2009, EPPA member companies continued in their phase-out of lead stabilisers, manufacturing 55% Pb-free products. A 95% Pb-free production is expected by the end of 2010, whereas the 100% should be achieved in 2012 at the latest.
An EPPA inquiry showed that the PVC window profile industry still incurs in 4% extra annual cost (compared to the cost level of the previous years) associated with lead stabiliser replacement, mainly caused by remaining technical problems which decrease output and increase scrap.

In 2009, EPPA activities also included:

- data collection for the RPA[13] and VITO[14] Reports on Cadmium (see Chapter REACH and Recycling – p. 33);
- work on Environmental Product Declarations for PVC window profiles and PVC windows, with contributions by EPPA member companies' experts;
- support for the work on the standard EN 12608:2003 'Unplasticised polyvinylchloride (PVC-U) profiles for the fabrication of windows and doors – Classification, requirements and test methods' on the re-use of recyclate in profile applications.

[9] EPPA: European PVC Window Profile and Related Building Products Association, an EuPC sector group (www.eppa-profiles.org)
[10] ÖAKF (Österreichischer Arbeitskreis Kunststoff-Fenster): Austrian Organisation for Plastic Windows Recycling (www.fenster.at)
[11] Rewindo: Fenster-Recycling-Service (www.rewindo.de)
[12] WUPPI: Danish company set up to collect and recycle rigid PVC (www.wuppi.dk)
[13] RPA: Risk & Policy Analysts Limited (www.rpaltd.co.uk)
[14] VITO: Vlaamse Instelling voor Technologisch Onderzoek (the Flemish Institute for Technological Research – www.vito.be)

The unseen arteries of life beneath our streets

Pipes and fittings

With the exception of those in Finland and Sweden, all TEPPFA[15] national recycling projects now report through Recovinyl. Austria and Sweden have changed their collection system to reduce cost.

In Denmark, substantial effort was put into convincing Danish WUPPI shareholders to change their system. This resulted, following a tender, in a contract with German recycler Tönsmeier (www.toensmeier.de). WUPPI remains responsible for collection, sorting and transport of crushed material to Germany, but Tönsmeier is responsible for the quality and sale of the recyclate.

In the Netherlands, the Ministry of Environment declared its wish 'to reduce the environmental PVC burden' by 20% by 2015 at the latest. An action programme is being developed together with waste sorters/recyclers and BureauLeiding (www.bureauleiding.nl). In essence, the Ministry wants to reduce the amount of PVC waste sent to incinerators.

The demand for recyclate amongst TEPPFA members decreased in 2009, due not only to fears linked to the possible presence of cadmium in recyclate, but also due to the global recession triggering lower sales of gravity sewer pipes. All project managers were kept informed about REACH and Safety Data Sheets (SDS) developments regarding recycling. In close cooperation with Vinyl 2010 and EPPA, much effort was put into data collection and support to the RPA and VITO Reports on Cadmium (see Chapter REACH and Recycling – p. 33).

In 2009, TEPPFA continued its support of the Vinyl Foundation payment mechanism. Discussions with several members took place to ensure their contribution to the Vinyl Foundation under threat of exclusion from TEPPFA. TEPPFA activity to support the Vinyl Foundation will continue throughout 2010.

A TEPPFA inquiry showed that the plastic pipes industry still incurs €50 million in extra annual costs associated with the replacement of lead stabilisers, mainly due to lower production output and higher scrap volumes. Drinking water pipes have been lead-free since 2007, while other applications are expected to be lead-free by 2011 at the latest. In 2010, TEPPFA will continue to support its members solving remaining technical problems.

In 2010, TEPPFA will carry out an inquiry into the use (volume per country and products) of recyclates by TEPPFA company members. Environmental Product Declarations for pipes showing the benefits of recycling are being developed.

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

Roofing Membranes

In 2009, Roofcollect® recycled nearly 1,300 tonnes of end-of-life roofing and waterproofing membranes. Germany, still the main market, contributed with a volume of 1,205 tonnes recycled.

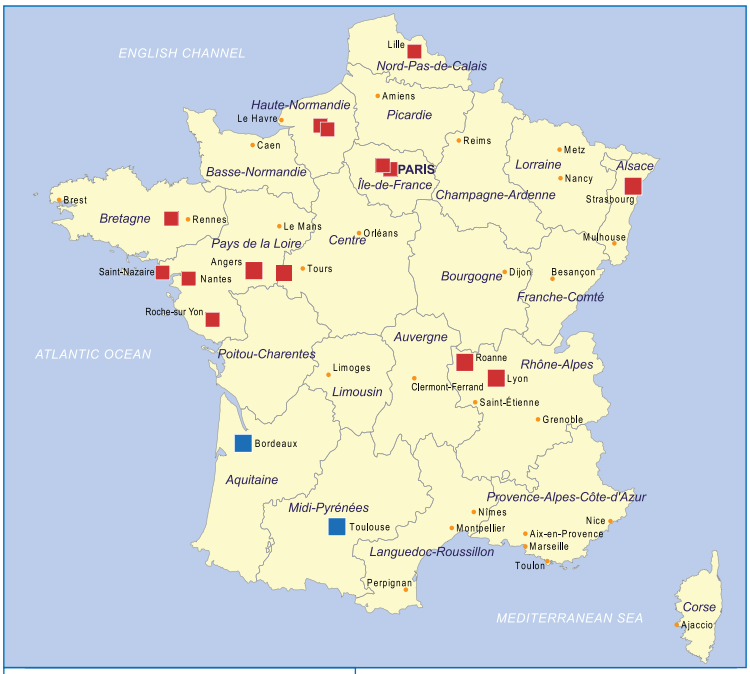
In 2009 Roofcollect® continued activities on the French, Italian and Spanish markets. These activities concerned not only the introduction of additional collecting schemes, but also grinding and recycling tests with compounded and non-compounded materials in Italy, France, Norway and the UK, essential for the roofing markets and customers of ESWA members.

In Italy, a meeting with Vinyloop® was held in May 2009. The discussion concerned the successful test with roofing membranes from France and Vinyloop®'s commitment to accepting roofing and waterproofing material. A meeting with the company Silvyplast (www.silvyplast.com) was held in July 2009: the objective is to organise treatment and grind of material from Northern Italy and to set up its transport to Ferrara.

In Norway, waste treatment started with SWEREC (www.swerec.se) and the first transports were organised to a German recycler.

Recycling of end-of-life roofing and waterproofing membranes in Europe in 2009 (volumes per country in tonnes)	
Austria	19
France	16
Germany	1,205
Norway	10
Switzerland	47
Total	**1,297**

In France, it has been requested to register waste volumes on construction, demolition and renovation sites (in relation to the 'Grenelle de l'Environnement'[16] initiative). An increase in taxes is also expected for landfill and incineration in the building and construction sector. Faced with the upcoming closure of recyclable waste landfills, it is of paramount importance to develop solutions for logistics, treatment and recycling (a situation comparable to Germany in 2003/2004 before the closure of landfills).



For 2010, Roofcollect® aims to continue its activities in existing as well as new recycling markets. It also plans to continue to promote the image of PVC roofing membranes as recyclable and more sustainable than other roofing materials. Communication activities will include press articles, participation in international trade fairs and the continuous updating of the Roofcollect® website (hotline, pricing, forms for logistics and transport in eight countries and five languages).

Le Comité des Membranes d'Etanchéité Synthétique (CMES) represents ESWA converters operating on the French market. Managed by Roofcollect®, CMES coordinates collection and recycling operations of PVC end-of-life roofing and waterproofing membranes for the Roofcollect® system in France. A series of collection points (with several others planned for the future) facilitates the collection and transport of waste to recyclers. This system works in cooperation with EPFLOOR[17]. Those collection points have been set-up based on the existing scheme developed by the Syndicat des Enducteurs Calendreurs Français (SFEC) for PVC flooring collection and are shared between the two systems.

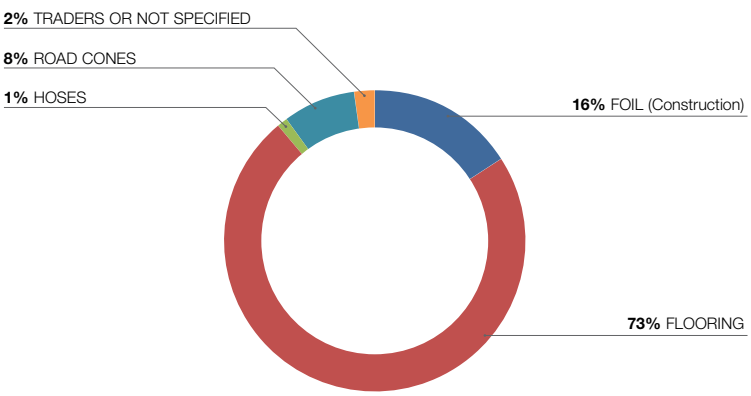
In 2009, Roofcollect® activity in logistics groups involving experts from both collecting and recycling companies also continued. Meetings were organised in Italy and France. These activities are expected to continue in 2010.

[16] An information and consultation initiative launched by the French Ministry of Ecology, Energy, Sustainable Development and Territory Management in 2008

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

Creating new opportunities

SALES RECYCLATE FROM POST CONSUMER PVC FLOORING RECYCLING IN 2009: 2,436T (PER APPLICATION)



Flooring

In 2009, EPFLOOR exceeded its target and collected 2,732 tonnes of post-consumer flooring waste. Out of those, 2,559 tonnes were recycled. Increased communication efforts led to an increase in collections in Germany (+10%), while the collection scheme has been extended to the Land of Steiermark in Austria (AgPR[18] network).

Collection remained stable in Scandinavia (mainly GBR[19] scheme in Sweden and manufacturers schemes in other countries).
In the UK, EPFLOOR experienced a steady increase in recycling. UK vinyl producers set up a new collection system called Recofloor in order to take over the WRAP (the Waste & Recovery Action Programme) pilot project. Recofloor is mainly targeted at small contractors and has set up 176 collection sites (a combination of community collection centres as well as collection sites at member plants and within the distribution network). This scheme is in addition to the already existing manufacturers' dedicated schemes.

In France, SFEC (the French Association of Calenderers) increased its number of collection points and began to collect waste at flooring manufacturer training centres. The objective was to reach 600 tonnes in collection, up from 477 tonnes in 2008. This figure includes both SFEC collection points and French manufacturers' direct shipping to AgPR.

Collection points now cover nearly the whole French territory: 15 collection points are under contract. The network was set-up with the involvement of flooring manufacturers and installers, utilising waste companies collection points but also training centres. Investigations are ongoing in order to organise take-back schemes at distributors-retailers. However, with the implementation of new conditions, necessary to organise collection to be on a larger scale, some collection points withdrew from the system. They were replaced by new collection points, but a learning curve of four to six months is normally necessary for flooring installers before quantities collected increase. In addition, volumes collected decreased slightly at some older collection points.

Therefore, volumes collected in 2009 were at the same level of those collected in 2008, whilst an increase is expected in 2010.

For 2010, EPFLOOR plans to further increase collection schemes in the UK and France.

Coated Fabrics

EPCoat[20] recycled 2,902 tonnes of post-consumer PVC coated fabrics (reported as part of Recovinyl volumes) through its IVK[21] collection and recycling scheme during 2009.

[18] AgPR: Association for PVC Floor-covering Recycling (www.agpr.de)
[19] GBR: Golvbranschen, the Swedish flooring trade association (www.golvbranschen.se)
[20] EPCoat: EuPC PVC Coated Fabrics Sector Group (www.eupc.org/epcoat)
[21] IVK: Industrieverband Kunststoffbahnen – Association of Coated Fabrics and Films (www.ivk-frankfurt.de)

The new Vinyloop decanter

PVC WASTE MANAGEMENT: RECYCLING TECHNOLOGIES, PLANTS AND PROJECTS

Vinyloop®

Vinyloop® is a mechanical, solvent-based, recycling technology that produces high quality R-PVC (recycled PVC) compounds.

The purpose of Vinyloop® is to recycle PVC composite waste which cannot be satisfactorily recycled by a grinding process, to demonstrate a low environmental impact compared to 'virgin' productions, and to preserve the maximum value of the components (high quality R-PVC; valorisation of the support products – copper, fibres, etc.).

After the installation of the modified decanter, Vinyloop® recommenced operations in September 2009, slightly later than expected due to case seals unavailability (run with former spare parts). An additional modification concerned the protection of the screws with tungsten carbide tiles to avoid erosion.

Following the modifications the plant has been working without interruption with a production of 25 t/day. The modifications resulted in vibrations below specifications, no more screw erosion (verified with an endoscopic check) and a speed at 900 rpm. Consequently, there has been an increase in the quality of recycled PVC.

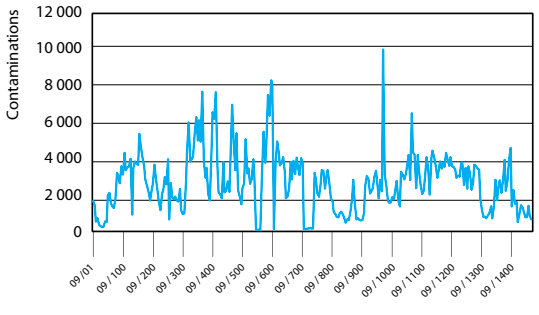
Technical achievements: product contents (cable)

	Filtration	Decanter
Raw material (waste) kg	1,333	1,538
R-PVC of which (%)	1,000	1,000
• PVC resin	46 - 52	55 - 60
• fillers	25 - 30	15
• plasticisers	24 - 27	28 - 30
• contaminations	1.5 - 3	0.15 - 0.3
Residue of filtration (kg)	333	384
Residue of decantation	-	154

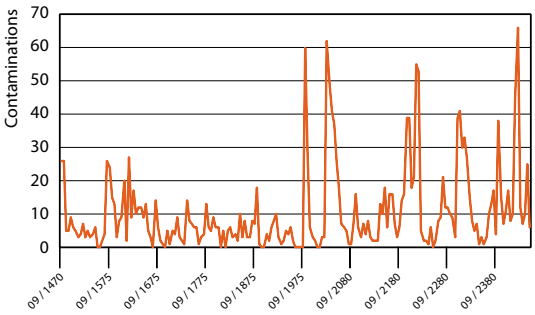
Technical achievements: R-PVC technical data

	Filtration	Decanter
Quantity of filler (%)	25% - 30%	15%
Density	1.47	1.39
Enforced break (MPa)	13 MPa	17 MPa
Elongation at break (%)	200%	260%
Contaminations		
• copper	5	<1
• others	3,500	10
Shore A	84	82

FILTRATION



DECANTER (*)



Technical achievements: R-PVC contaminations

(*) Because the reduction in contamination achieved has been so large, completely different contamination scales must be used to compare the new decanter technology with the old filtration system.

Tarpaulins recycling through the Texyloop® process also restarted in October 2009, with a limited capacity of 2,000 t/y until stiffening of the agitator. The current process allows recycling 1,000 kg of tarpaulins with a yield of 580kg of R-PVC, plus 410 kg fibres and 10 kg of decanted residue.

A careful sorting of tarpaulins is essential to avoid fibre contamination and a final 'cleaning' of fibres is necessary to maximise their value. It is important to emphasise that the quality of the fibres obtained through the Texyloop® process is very high and has been verified to be compliant with the Öko Tex standard 100 (the German ecological standard for textile).

In terms of business, the crisis of 2009 affected the demand of R-PVC: sales collapsed more than those of 'virgin' (around a -50% versus 2008) as the drop of 'virgin' prices made recyclates no longer attractive. In addition, many customers suffered financial difficulties. All of this resulted in a short number of hours of operation since March 2009, with a slow recovery from October onward.

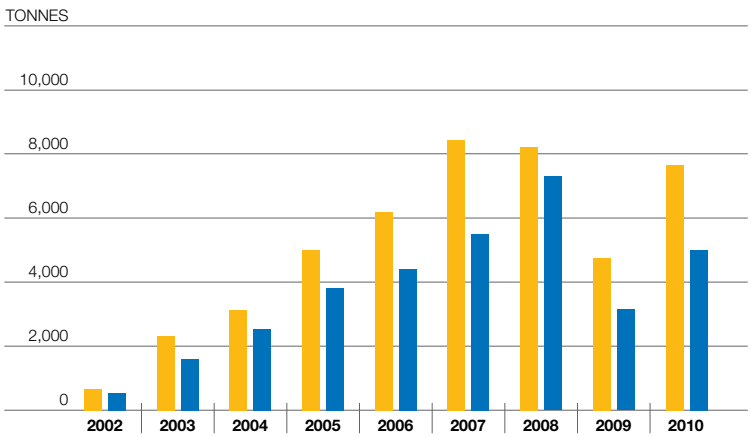
The outlook for 2010 is more optimistic: the quality of decanted R-PVC was approved by one big hose extrusion customer and is currently at the end of the homologation process by a big calendered films customer.

PVC WASTE MANAGEMENT: OTHER PROJECTS

ERPA[22] – CIFRA[23]

In 2009, CIFRA recycled about 2,000 tonnes of PVC post-consumer waste products. This recycled material was used in the production of recycled PVC rigid films for use in ultra lightweight modular structures (GEOlight™) for the retention of storm water.

VINYLOOP® FERRARA PLANT: ACHIEVEMENTS 2002-2009 AND PERSPECTIVES FOR 2010



	2002	2003	2004	2005	2006	2007	2008	2009	2010
WASTE	760	224	3,360	5,000	6,100	8,191	8,021	4,806	7,700
R-PVC	650	1,750	2,645	3,920	4,400	5,563	5,213	3,123	5,000

[22] ERPA: European Rigid PVC Film Association (www.pvc-films.org)
[23] CIFRA: Calandrage Industriel Français – a French calendering company (www.cifra.fr)

VITO Report – Pipes case			
Cumulated impact over period 2010 - 2050, compared to 'business as usual'	Business as usual (100-ppm limit maintained)		Cd limit increased to 1,000 ppm for non-pressure pipes
	No change in business	Spreading recyclate over all conversion plants	
Delta global warming potential and benefit (Mt CO_2/ M€)	0/ 0	-0.1/ 3	-6.0/ 180
Delta financial benefits for the PVC business in the EU (M€)	0	44 - 53	2,303 - 2,720
Delta employment (person/year)	0	135	7,095

VITO Report – Profiles case			
Cumulated impact over period 2010 - 2050, compared to 'business as usual'	Cd exemption maintained, or Cd limit at 1,000 ppm	Introducing 100 ppm Cd limit without exception for Cd from recycling	
		No change in business	Spreading recyclate over all conversion plants
Delta global warming potential and cost (Mt CO_2/ M€)	0	25.1/ 754	7.2/ 217
Delta financial benefits for the PVC business in the EU (M€)	0	-7,285 to -8,440	-1,197 to -1,227
Delta employment (person/year)	0	-21,450	-9,200

REACH and Recycling

In July 2008, VITO (the Flemish Institute for Technological Research – www.vito.be) was selected as the consultant to develop an impact assessment of various possible options to reconcile the recycling of PVC waste still containing legacy cadmium with the restrictions of Annex XVII of REACH.

A report was completed in June 2009, but the impact assessment was slightly disappointing as it lacked sufficient quantification. Furthermore, in July, Vinyl 2010 agreed to develop an impact assessment for profile policy options including a potential 100-ppm limitation, and to quantify some of the economic impact. It was therefore necessary to consider the impact of potential additional restrictions on profiles recycling as well. As a result, the contract with VITO was extended.

Conducted from September 2009 to November 2009, the additional study made a quantified impact assessment for the pipes and profiles case. The final report was issued by VITO on 8 December 2009.
The study considered three possible options for both non-pressure pipes (as a typical example) and profiles:

- business as usual;
- spreading recyclates over all EU conversion plants;
- Cd limit deleted, or increased to 1,000 ppm, for cadmium from recyclates.

The study concludes that, in general, the 100-ppm cadmium limit for new PVC pipes jeopardises the recycling of rigid PVC building articles with no additional environmental benefit. The study can be consulted at www.vinyl2010.org/library/vito-study.html.

Removing the 100-ppm cadmium limit (or setting it at 1,000 ppm) for cadmium resulting from the controlled-loop recycling of rigid PVC building articles offers a chance to fully exploit the available recycling capacity, therefore contributing to sustainable and efficient resource management without introducing risks of increased exposure to cadmium.

Likewise, introducing a 100-ppm limit for cadmium in new profiles would severely jeopardise recycling efforts with no increased benefit to the environment, unless an exemption or a limit of at least 1,000 ppm is granted for cadmium coming from recyclates.

DG Enterprise commissioned another study for an impact assessment of policy options regarding cadmium restrictions. Conducted by the consultancy RPA, this study had a broader scope than the study carried out by VITO: RPA investigated cadmium in silver jewellery and brazing alloys, as well.

Vinyl 2010 assisted RPA in its mission by organising conference calls with VITO, providing reports and furnishing information. RPA also contacted additional industry sources (UK recyclers, BPF, Rewindo, and Recovinyl). A final RPA report was sent to the Commission in early December 2009 and can be downloaded at: http://ec.europa.eu/enterprise/sectors/chemicals/files/markrestr/study_cadmium_jan10_en.pdf.

The key conclusions for PVC state:
'In summary, on the basis of the analysis of possible costs to stakeholders and particularly the monetisation of the externalities arising under the different policy options, our proposed option for profiles/square cable ducts is to maintain "business as usual", for pipes/round cable ducts, to raise the existing limit to 1,000 ppm for non-pressure pipes and round cable ducts for an initial period of 10 years (at the end of this period, a detailed evaluation of the presence of cadmium in waste and new articles should be conducted before further action on the cadmium limit is taken), and for flexible roofing to introduce an EU-wide cadmium concentration limit of 100 ppm.'

Discussions with DG Enterprise and DG Environment are ongoing following the presentation of the conclusions of the VITO report. Concerns were expressed by the Commission mainly regarding the potential risks of Cd recycling to human health and environment in terms of worker safety at recycling plants, and the potential leaching of cadmium from pipes. Information was provided by the PVC industry mid-December 2009 and more was supplied in January-March 2010.

SDS-R (Safety Data Sheets for Recyclates) project

In relation to the REACH implementation and at the request of the EU Commission, EuPC set up WRIC, the 'Waste Recovery Industry Chain', an ad hoc Industry Stakeholders Group. The Group is composed of associations dealing with the major materials such as metals (ferrous and non ferrous), paper, plastics, rubber, cement, oil, recycling, etc.

A guidance document for the development of Safety Data Sheets for recyclates was drafted by WRIC. On 26 March 2009, the Commission organised a workshop to present and discuss the guidelines with ECHA in attendance.

ECHA developed a paper for guidance that was approved by PEG[24]. Whilst it clarifies the political and legal issues related to the subject, it doesn't go into detail on how to develop risk assessments and safety data sheets for recyclates.

The ECHA Guidance on Waste and Recovered substances draft (v 2.0) states that most recyclers (except those manufacturing directly an article from waste) are considered manufacturers according to REACH. They benefit from an exemption from Registration (art. 2.7.d), but are subject to requirements of:

- pre-registration;
- providing Safety Data Sheets to their customers (art. 31) when required.

The final objective of the EuPC and EuPR[25] project is to develop a software database of polymers and applications where recyclers will be able to enter basic information (statistical or analytical) and obtain the specific required SDS-R at the push of a button. The project also aims to provide short-term, mid-term and long-term solutions for plastics recyclers.

In the short term, EuPR will continue to make recyclers aware of new quality standards. In the midterm, a generalised improved quality management system would be available, supported by a website producing custom-made Extended Safety Data Sheets for recycling companies (aimed at covering 95% of the products portfolio). Guidance for quality management (e.g. test frequency, input selection, etc.) would also be provided, with a certification system (EuCertPlast[26]). In the longer term, product stewardship solutions for 'specific cases' (5% of the products portfolio) are expected.

This process will bring benefits to the entire system in terms of the increased safety of products on the market and the secure supply of quality recyclates for plastics converters.

The project will ensure the assessment and control of risk by:

- estimation of recyclate standard formulation hazards;
- estimation of exposure to hazardous substance formulations:
  - development an 'additives statistical occurrence database' (safety net);
  - monitoring through standard protocols of recyclate safety according to boundary conditions;
  - focusing on Substances of Very High Concern and on 'legacy additives' such as heavy metals, flame retardants, etc.

Based on the above, custom-made Safety Data Sheets will be developed and appropriate risk management measures recommended.

The project will rely on PEST (Plastics Exposure Scenario Team), a joint industry project for the risk assessment of virgin plastics. This will allow the project to focus on specific aspects related to recycling, such as dust, 'legacy substances' if not adequately covered by PEST. For PVC pipes, a test case has already been developed by PEST.

The project is more advanced for PVC than for other polymers: historical formulation data have been gathered; links with substance manufacturers are already active; a toxicologist has been contracted; and a survey of dust content of recyclates and of the micronisation process has been initiated with EuPR's PVC working group members.

[24] PEG: Partner Expert Group, first step of the ECHA consultation procedure (http://guidance.echa.europa.eu/guidance4_en.htm)
[25] EuPR: European Plastics Recyclers (www.plasticsrecyclers.eu)
[26] The EuCertPlast project is developing a European wide certification scheme for post-consumer plastics recycling. This scheme will assess the good practice, the output quality and the gain in terms greenhouse gases done by the audited recycler. EuCertPlast is co-funded by the Eco-Innovation, an European Commission's programme (www.eucertplast.eu)

Recapturing the value of PVC at the end of its first life

Vinyl Foundation

The Vinyl Foundation is a not-for-profit, independently-managed trust set up by EuPC in 2007 in collaboration with Vinyl 2010. The Vinyl Foundation's purpose is to operate a mechanism for the more efficient collection of funding contributions from the PVC converting sector, including companies who are not members of trade associations.

The Vinyl Foundation provides a mechanism to collect contributions requested from converters based on the actual volume of PVC resin consumed. Thus, the contributions paid are equitably allocated across the market. The accountancy firm KPMG Fiduciaire has been appointed to operate a confidential 'black box' system, fully in line with EU competition law, and charged with overseeing the collection of funds independently on behalf of the Vinyl Foundation.

In 2009, the Vinyl Foundation collected €928,224.

The list of PVC converters contributing to the Vinyl Foundation, and therefore to the Vinyl 2010 recycling schemes, is published on the website www.vinylfoundation.org and regularly updated.

VINYL FOUNDATION BOARD

Mr. Joachim Eckstein
Chairman* (ERPA)

Mr. Alexandre Dangis
EuPC

Mr. David Clark
Tarkett

Andreas Hartleif
VEKA AG

Mr. Henk ten Hove
Wavin

Michael Kundel**
Renolit AG

* Chairman until 15 December 2009
** Chairman since 15 December 2009

In 2009 contributors were:

Austria
Pipelife Austria
Poloplast GmbH & Co.KG
Rehau GmbH

Belgium
Aliaxis Services
Deceuninck NV
Dyka Plastics NV
Floridienne Chemie SA
Pipelife Belgium NV
Renolit Belgium NV
Tessenderlo Chemie NV
Wavin Belgium BV
Wymar International NV

Czech republic
Pipelife Czech S.R.O.

Denmark
Nordisk Wavin A/S

Estonia
Pipelife Eesti AS

Finland
KWH Pipe Oy AB
Pipelife Finland Oy
Upofloor
Uponor Suomi Oy

France
Alphacan France
Andre Bouvet SA
Bonar Floors
CIFRA
CTS-Cousin-Tessier SAS
CTS-Saplast SAS
Drostub Industrie
EVC Compounds France SA
Forbo Reims
Gerfloor SAS
Gerfloor Tarare
Girpi
Inovac SAS
Nicoll
Ouest Drain SAS
Pipelife France
Planet Wattohm SNC
Plastival SAS
Profine France
Rehau SA
Renolit Ondex SAS
Solvay Benvic France SAS
Sotra-Seperef SAS
Tarkett SAS
VEKA SAS
Wavin France SAS
WR Grace

Germany
Ac-Foliën
Alkor Kunststoffe GmbH
Alphacan Omniplast GmbH
Aluplast GmbH
Alwitra GmbH & Co.
AMS Kunststofftechnik GmbH
Armstrong DLW AG
CTW Chemotechnisches Werk
Debolon Dessauer Boden
Dietzel GmbH
Flachdachtechnologie GmbH Co.KG
Gealan Fenster-Systeme GmbH
Georg Fischer Deka GmbH
Gerflor Mipolam GmbH
Henkel AG & Co. KGaA
Heubach GmbH
Heytex Bramsche GmbH
Heytex Neugersdorf GmbH
IKA Innovativ Kunststoffaufbe GmbH & Co.KG
Inoutic Deceuninck GmbH
Karl Schoengen KG
Klöckner Pentaplast GmbH Co.KG
Koemmerling Chemische Fabrik GmbH
Konrad Hornschuch AG
Marley Deutschland
Mehler Technologies GmbH
Meister Plast GmbH
MKF Folien
MWK Kunststoffverarbeitungs GmbH
Profine GmbH
Rehau AG & Co.
Renolit AG
Rowa Rohstoff Wasch und aufbereitungswerk Gessellschaft
Salamander Industrie Produkte
Sattler AG
Schueco PWS GmbH & Co.KG
Sika-Trocal GmbH
Stoeckel GmbH
Tarkett GmbH & Co.KG
VEKA
Verseidag-Indutex GmbH
VPW Nink GmbH
Wavin GmbH

Greece
Pipelife Hellas SA

Hungary
BTH Fitting KFT
Marley Hungaria
Pannunion
Pipelife Hungaria
Profilplast Muanyagtermek Guarto KFT
Wavin Hungary

Italy
Alphacan SpA
Coem SpA
Dalpex SpA
Eurplast
F.P.F. Srl
Finstral AG
FIP
First Plast Srl
Flag SpA
Galazzi
Profine Italia
Redi
Solvay Benvic Italia

Ireland
Gemord Ltd
Wavin Ireland Ltd

Luxembourg
Tarkett GDL SA

Latvia

Lithuania
Wavin Baltic

Netherlands
Alphacan BV
BN International BV
Bonar Floors NV
Draka Holding NV
Dyka BV
Forbo-Novilon BV
Klöckner Pentaplast
Nitta Corp. Of Holland BV
Renolit Nederland BV
VOF Bergsma Drain
Wavin BV
Wavin Nederland BV

Norway
Norsk Wavin A/S

Poland
CTS-TCT Polska SP
Dyla Polska Sp. Zoo
Ergis-Eurofilms
Orianex Sp. Zoo
Pipelife Polska SA
Polyplast
VEKA Polska
Wavin Metalplast

Portugal
Previnil Empresa Prep Comp Vinilico

Romania
Valplast Industrie Srl

Slovenia
Juteks D.D.

Spain
Akrocard 2000 SLU
Alphacan Espana Transformados
Alphacan Perfiles SLU
BM SLU
Compuestos y Granzas SA
Industrias Rehau SA
Pipelife Hispania SA
Profine Ibéria
Renolit Hispania SA
Renolit Ibérica SA
Riuvert
Rochling Automotive Araia SL
Solvay Benvic Iberica
VEKA Iberica

Sweden
Forbo Project Vinyl AB
Pipelife Sverige AB
Tarkett AB

Switzerland
Forbo-Giubasco SA
Rehau GmbH
Sika Sarnafil Manufacturing AG

UK
Altro Limited
Amtico
Bonar Floors
Eurocell Profiles Ltd
Hepworth Build. Prod. Ltd
Hunter
John GmbH
Klöckner Pentaplast Ltd
Marley P&D
Polyfloor
Polypipe Group
Rehau Ltd
Renolit UK Ltd
Tarkett Ltd
VEKA plc
Wavin Plastics Ltd

PVC producers supporting the Voluntary Commitment

Anwil (Poland)
Arkema (France and Spain)
Borsodchem (Hungary)
Ercros (Spain)
Ineos Vinyls (Germany, UK, Norway, Sweden)
Oltchim (Romania)
LVM N.V. (Belgium, France, Netherlands)
Novacke Chemicke 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)

Stabilisers producers supporting the Voluntary Commitment

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

Plasticisers producers supporting the Voluntary Commitment

Arkema (France)
BASF SE
Evonik Oxeno GmbH (Germany)
ExxonMobil Chemical BV (Holland)
OXEA GmbH (Germany)
Oxochimie (France)
Perstorp Oxo AB (Sweden)

FINANCIAL REPORT

Expenditure by Vinyl 2010 including EuPC and its members amounted to € 7.75 million in 2009, down from € 8.10 in the previous year.

The decrease in the expenditure can be explained on the one hand by a greater efficiency of several projects such as Recovinyl or Roofcollect® as well as a slight decrease of the volumes recycled due to the economic crisis. On the other hand there was an increase in the cost of the National schemes supported by EPPA (windows and related profiles) and TEPPFA (pipes and fittings) due to an increase of the chain deficit compensated by those schemes following the sharp decrease in the sales price of recyclate caused by the recession.

Vinyl 2010 — Waste Management Projects	Total expenditure including EuPC and its members	
Figures in €1,000s	**2009**	**2008**
EPCOAT	37.4	100
EPFLOOR	721	726
EPPA	745	671
ESWA/Roofcollect®	127	209
Recovinyl	4,884	5,359
Studies	121	61
TEPPFA	1,111	974
Other	0	59
Correction after all closures finalised*	na	-52
TOTAL	**7,746**	**8,107**

* Some projects did close their accounts only after this statement was made in last year progress report. We herewith report that after closure of all the legal entities managing the project the expense in 2009 was overestimated by €51,582.01 and have therefore adapted the total reported expense 2008.

VERIFICATION STATEMENTS

KPMG CERTIFICATION OF EXPENDITURE

Independent Accountants' Report on Applying Agreed-Upon Procedures

To the Management of Vinyl 2010

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 Vinyl 2010, as included in the Vinyl 2010 Progress Report for the period from January 1, 2009 to December 31, 2009 prepared by the management of Vinyl 2010.

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.

Vinyl 2010's management is responsible for the overview, analytical accounting and supporting documents.

The scope of these agreed upon procedures has been determined by solely the management of Vinyl 2010. 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 Vinyl 2010 in response to specific questions or as obtained and extracted from Vinyl 2010 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 Vinyl 2010, as included in the Vinyl 2010 Progress Report related to the activities of the year 2009 and verify of the mathematical accuracy of this.

The total expenses amount to KEUR 7.746.

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

b • Verify that these costs are recorded in the financial statements 2009 of Vinyl 2010 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, 2009 and December 31, 2009.

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, 2009.

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 Vinyl 2010 with the income recognized in financial statements of Recovinyl AISBL.

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

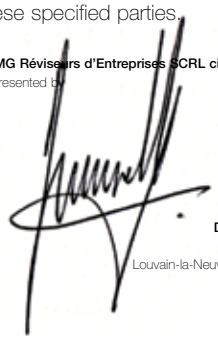
f • For project not covered by the above procedures, obtain confirmation of costs from legal entity managing or contributing to the project.

We found no exceptions as a result of applying this procedure, which represents 19,43% of total expenses.

Note that financial statements of Vinyl 2010 AISBL, TEPPFA AISBL, Recovinyl AISBL are certified by KPMG.

This report is intended solely for the information and use of the management of Vinyl 2010 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
Partner
Louvain-la-Neuve, March 25, 2010

KPMG CERTIFICATION OF TONNAGES

Cvba Klynveld Peat Marwick Goerdeler Advisory Scrl

Report of the independent expert concerning the audit of the tonnages non regulated 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 Recovinyl Inpa during the period January 1st 2009 to December 31st 2009.

In accordance with the assignment, which was entrusted to us by Vinyl 2010, we give an account of our audit of the following tonnages for the different projects of Vinyl 2010 mentioned in the Vinyl 2010 Progress Report related to the activities of the year 2009.

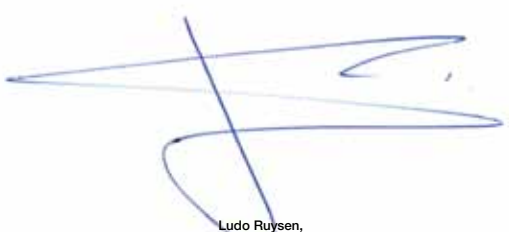
The persons responsible for establishing the table presenting the supported tonnages for the different projects of Vinyl 2010 have provided us with all explanations and information which we required for our audit. Based on our review of the provided information, we believe that all waste that was taken into account was non regulated post-consumer PVC waste, according to the Vinyl 2010 definition of non regulated post-consumer PVC waste and that we have not recognized any elements which are of nature to influence significantly the presented information.

Cvba Klynveld Peat Marwick Goerdeler Advisory Scrl
represented by

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

PROJECT	Type of PVC post-consumer waste	Tonnage recycled in 2008	Tonnage recycled in 2009	% increase
EPCoat (incl. Recovinyl)	Coated fabrics	11,323*	5,880*	-48.07%
EPFLOOR	Flooring	2,524*	2,559*	1.39%
EPPA (incl. Recovinyl)	Window profile waste & profile related waste	79,877	83,288	4.27%
ESWA - ROOFCOLLECT and Recovinyl	Flexible PVC	19,333 tons which consist of:	21,444 tons which consist of:	see detail
ESWA - ROOFCOLLECT	Roofing and water-proofing membranes	954*	1,297*	35.95%
Recovinyl	Flexible PVC applications	18,379	20,147	9.62%
TEPPFA (incl. Recovinyl)	Pipes & fittings	22,555	16,978	-24.73%
ERPA via Recovinyl (incl. CIFRA)	Rigid PVC films	4,352	5,890	35.34%
Recovinyl (incl. Vinyloop Ferrara)	Cables	54,986	54,285	-1.27%
TOTAL		**194,950**	**190,324**	**-2.37%**

* Tonnage including Norway and Switzerland



Ludo Ruysen,
Partner
Brussels, April 1st 2010

SGS VERIFICATION STATEMENT - 2010 PROGRESS REPORT

Established in 1878, SGS has become the world's leading inspection, verification, testing and certification company. Recognised as the global benchmark for quality and integrity, we employ over 50,000 people and operate a network of more than 1,000 offices and laboratories around the world...

SGS was for the second year commissioned by Vinyl 2010 to provide an independent verification of the "Progress Report 2010". This report presents the achievements made by the Vinyl 2010 project in 2009 related to the 10-year programme.

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

Verification Process

The verification consisted of checking whether the statements in the Report give an honest and true representation of Vinyl 2010's 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:

- Desk-top review of project-related material and documentation made available by Vinyl 2010 such as plans, agreements, minutes of meetings, presentations, technical reports and more
- Communication with Vinyl 2010 personnel responsible for collecting data and writing various parts of the report, in order to discuss and substantiate selected statements
- Communication with some members of the Monitoring Committee

The verification did not cover the following:

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

Verification Results

It is our opinion that this "Progress Report 2010" represents Vinyl 2010's performance in 2009 in a reliable way; this report reflects the PVC industry's effort to comply with its revised Voluntary Commitments of May 2006.

For 2009, specific targets were established in the previous "Vinyl 2010 Progress Report 2009". Despite great effort noticed at the Vinyl 2010 partnership organisations, not all 2009 targets could be realised due to the global economic crises affecting also the building-related PVC-sector.

In 2009, various initiatives and policy options have been part of daily attention. E.g.:

- REACH (Registration, Evaluation, Authorisation and Restriction of Chemical substances Regulation 1907/2006/EC) should ensure a higher level of protection of human health and the environment as well as the free movement of substances. A Safety Data Sheet (SDS) (Classification, Labelling and Packaging Regulation 1272/2008/EC) is a main tool for hazard communication in the supply of chemical products, substances and preparations. Both legislations have a high impact on the PVC recycling industry. In this Vinyl 2010 context, the mentioned "SDS-R project" has been initiated as important web tool for PVC recyclers, allowing generating tailor-made Safety Data Sheets for recyclates from various series of polymers and typical formulations.
- The European Commission considers amending the entry on restrictions for cadmium and its compounds under Annex XVII of the REACH Regulation; REACH currently limits the use of cadmium in most PVC articles (profiles excluded) to a level of 100 ppm by mass of the plastic compounded material. The, by Vinyl 2010 commissioned, VITO "Study on the cadmium content of recycled PVC waste" was initiated in order to develop and analyse different scenarios to determine an optimal balance between maximal efficient use of resources (avoiding constraints on recycling) and minimal environmental and health impact of cadmium. Another study "Socio-economic impact of a potential update of the restrictions on the marketing and use of cadmium" by Risk & Policy Analysts Limited (RPA Ltd) was published in December 2009. The European Commission, Directorate General Enterprise and Industry contracted RPA, in order to support developing the above amendment by undertaking this study (which only expresses the position of the RPA authors).
- Continuous strive for comprehensive and accurate outside communication and transparency has been shown during multiple initiatives, events, conferences, meetings and also by up-to-date website information and publications from Vinyl 2010 which states: "A frank exchange of views on studies, experiences and best practices gives added value to improving the effectiveness of the initiatives taken through voluntary commitment and to drive the PVC industry towards sustainability."

As conclusion of this Verification Statement, it is SGS's opinion that the European PVC Industry has shown accurate outside communication and transparency in relation with its obligations, successes and challenges in the Vinyl 2010 programme. Nine years with comprehensive work demonstrates the PVC industry's willingness to meet its voluntary commitments on Sustainable Development.

ir Pieter Weterings,
SGS Belgium NV
Systems & Services Certification
Technical Manager

Brussels, April 1st 2010

APPENDIX 1 – GLOSSARY

Agenda 21 Agenda 21 is a programme run by the United Nations related to sustainable development. The full text of Agenda 21 was revealed at the United Nations Conference on Environment and Development (Earth Summit), held in Rio de Janeiro on 14 June 1992 (www.un.org/esa/dsd/agenda21/)

AgPR Association for PVC Floor-covering Recycling (www.agpr.de)

Ba/Zn Barium-zinc

BBP Butyl Benzyl phthalate

Ca/Zn Calcium-zinc

Cd Cadmium

CEN European Standardisation Committee

CIFRA Calandrage Industriel Français (a French calendering company – www.cifra.fr)

CMES Comité des Membranes d'Etanchéité Synthétique

CMR Carcinogen, Mutagen, Reproductive agent

CSD Commission on Sustainable Development

DBP Di-n-butyl phthalate

DEHP Di(2-ethylhexyl) phthalate

DIDP Di-isodecyl phthalate

DINP Di-isononyl phthalate

DNV Det Norske Veritas, a Norwegian testing and verification organisation (www.dnv.com)

DNOP Di-n-octyl phthalate

DPHP Di(2-Propyl Heptyl) phthalate

DPR Di(2-Propyl Heptyl) phthalate

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

Eco-devis It is a body incorporating private and public organisations, supported by the Federation of Swiss Architects and the Swiss Society of Engineers, whose aim is to promote the construction methods, which respect the environment (www.eco-bau.ch)

ECPI European Council for Plasticisers and Intermediates (www.ecpi.org)

ECVM European Council of Vinyl Manufacturers (www.pvc.org)

ECVM Charters ECVM Industry Charters for the Production of VCM and S-PVC (1995) and for the Production of E-PVC (1998) (www.pvc.org)

ECVM 2010 the ECVM's formal legal entity registered in Belgium

EDC Ethylene dichloride or 1,2-dichlorethane

EEA European Economic Area

EEC European Economic Community

EC European Community

EMCEF European Mine Chemical and Energy Workers Federation (www.emcef.org)

EN European Norm

EPCOAT EuPC PVC Coated Fabrics Sector Group (www.eupc.org/epcoat)

EPD Environmental Product Declaration

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

EPA Environmental Protection Agency

EPPA European PVC Window Profile and Related Building Products Association, an EuPC sector group (www.eppa-profiles.org)

EPS Expanded Polystyrene

E-PVC Emulsion Polyvinyl chloride

ERPA European Rigid PVC Film Association (www.pvc-films.org)

ESPA European Stabiliser Producers Association (www.stabilisers.org)

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

EU European Union

EuPR European Plastics Recyclers (www.plasticsrecyclers.eu)

EuPC European Plastics Converters (www.plasticsconverters.eu)

GBR Golvbranschen, the Swedish flooring trade association (www.golvbranschen.se)

HCl Hydrogen chloride

HMW plasticisers High Molecular Weight plasticisers

IUCLID International Uniform ChemicaL Information Database, a software application to capture, store, maintain and exchange data on intrinsic and hazard properties of chemical substances (http://iuclid.echa.europa.eu)

IVK Industrieverband Kunststoffbahnen (Association of Coated Fabrics and Films www.ivk-frankfurt.de)

JAOCC Joint Actions on Climate Change (www.jaocc.net)

KPMG KPMG is a global network of professional firms providing Audit, Tax and Advisory services (www.kpmg.com)

kt/a Kilo tonne/year

LCA Life Cycle Assessment

LMW phthalates Low Molecular Weight phthalates

NOAEL No Observable Adverse Effect Level

ÖAKF Österreichischer Arbeitskreis Kunststoff-Fenster (Austrian Organisation for Plastic Windows Recycling – www.fenster.at)

OCU Organizaciòn de Consumidores y Usuarios (Spanish Consumers and Users Organisation – www.ocu.org)

PEG Partner Expert Group

PEST Plastics Exposure Scenario Team

PlasticsEurope Association of Plastics Manufacturers (www.plasticseurope.org)

ppm part per million (also equivalent to 1 mg per kg)

PVC Polyvinyl chloride

PVC-U Unplasticised polyvinylchloride

rpm revolutions per minute

REACH Registration, Evaluation, Authorisation and restriction of Chemicals

RPA Risk & Policy Analysts Limited, an independent consultancy providing expert advice to both public and private sector clients around the world (www.rpaltd.co.uk)

Rewindo Fenster-Recycling-Service (www.rewindo.de)

RoHS Restriction of Hazardous Substances

R-PVC Recycled PVC

SDS Safety Data Sheet

SDS-R Safety Data Sheet for Recyclate

SETAC Society of Environmental Toxicology and Chemistry (www.setac.org)

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

SFEC Syndicat Français des Enducteurs, Calandreurs et Fabricants de Revêtements de Sols et Murs, the French Association of Calenderers (www.sfec-services.org)

SIEF Substances Information Exchange Forum

SME Small and Medium-Sized Enterprise

S-PVC Suspension Polyvinyl chloride

SVHC Substances of Very High Concern

t (metric) tonne

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

TNO Dutch research organisation (www.tno.nl)

UN United Nations

UNCED United Nations Conference on Environment and Development

UNEP United Nations Environment Program

VCM Vinyl chloride monomer

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

WRIC Waste Recovery Industry Chain

WRAP Waste & Recovery Action Programme

VUB Free University of Brussels (www.vub.ac.be)

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

VINYL 2010 AND ITS MEMBERS

Vinyl 2010 represents the whole PVC industry chain.
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VINYL 2010

The European PVC Industry's Sustainable Development Programme