

# Vinyl 2010 Progress Report 2009

Reporting on the activities of the year 2008



The European PVC Industry's Sustainable Development Programme



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# executive summary

## The Vinyl 2010 progress report

Vinyl 2010 is the European PVC industry's 10-year Voluntary Commitment for sustainable development and product stewardship across the life cycle of PVC. The Voluntary Commitment was set up in 2000 to minimise the environmental impact of the PVC production, promote responsible use of additives, support collection and recycling schemes, and encourage social dialogue between all of the industry's stakeholders. This report is an annual summary of the achievements for the previous year. The information contained has been confirmed to be true by an independent verifier, working in conjunction with a recognised external auditor. A full glossary of abbreviations appears at the end this year's report to aid the reader.

## VINYL 2010 PROGRESS IN 2008

2008 was a year of significant achievement for Vinyl 2010 in that the industry achieved its interim 2010 lead stabiliser reduction target a full two years ahead of schedule and again made strong progress against its post consumer recycling targets.

Significant work during the year was also given to the launch of a new funding mechanism called the Vinyl Foundation to be able to more efficiently collect contributions from the European converting industry to support Vinyl 2010's ever-increasing post-consumer recycling.

Efforts continued to ensure the safe use of additives and prepare the industry for compliance with the REACH Regulation.

And, as part of its drive to improve the dialogue with its stakeholders, in addition to its continued participation in relevant conferences and events, Vinyl 2010 has been developing innovative new channels for communication, such as its young persons Essay Competition and innovative new educational tools like the 'Vinylgame'.

### Resin Manufacturing

During 2008, PVC resin producers from Central/Eastern Europe, who joined ECVM with the expansion of the EU, agreed to independent verification of their compliance with the ECVM Production Charters.

### Plasticisers

In 2008, publication of the EU risk assessments for all of the major phthalates was finally completed: Di-isononyl phthalate (DINP), Diisodecyl phthalate (DIDP), Di-n-butyl phthalate (DBP), Butyl Benzyl phthalate (BBP) and di(2-ethylhexyl) phthalate (DEHP). The plasticiser industry is also working hard to ensure that its member companies can fulfil the requirements of REACH.

The study on human volunteers to define the levels of safe exposure for DEHP and DINP was completed in 2008 and the results are currently undergoing mathematical and statistical analysis.



Above: Unlimited creative potential  
Left: High performance, whatever the conditions

...the industry achieved its interim  
2010 lead stabiliser reduction target  
a full two years ahead of schedule...

...in its first year,  
the new funding  
mechanism  
managed to collect  
€1,018,792...



Making life easier

### Stabilisers

In 2008, ESPA members were able to report that lead stabiliser use in the EU-15 had reduced by over 50% since 2000 (-66,552 tonnes), some two years ahead of the 2010 interim target. This reduction has been achieved through a switch to calcium-based stabilisers, which have shown a corresponding growth over the same time period (+50,879 tonnes).

### Waste Management Projects

Over the last four years Recovinyl – the organisation set up by Vinyl 2010 to provide financial incentives to support the recycling of post-consumer PVC waste from non-regulated waste streams – has demonstrated its effectiveness in stimulating the recycling of PVC. The steady growth in volumes being registered through the Recovinyl system continued during 2008, reaching a total for the year of 191,393 tonnes.

Today, the Recovinyl system is operational in Austria, Belgium, the Czech Republic, Denmark, France, Germany, Hungary, Ireland, Italy, the Netherlands, Poland, Portugal, Spain, and the UK with 107 active recyclers.

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

- EPPA (the European PVC Window and Related Building Products Association) has integrated most of its recycling activities into the Recovinyl system. The independent systems in Germany and Austria are now also reporting within the Recovinyl system.

All EPPA member companies have also started, and some have already completed, the substitution of lead based stabilisers in their products.

- TEPPFA (the European Plastic Pipes and Fittings Association) activities, with the exception of Finland and Sweden, are now also consolidated under the Recovinyl umbrella. TEPPFA is supporting its members in finding solutions for remaining technical issues related to the lead-based stabiliser substitution.

- ESWA (the European Single Ply Waterproofing Association) recycled 3,635 tonnes of coated fabrics reported as part of Recovinyl volumes and 954 tonnes of end-of-life roofing and waterproofing membranes via the well-established ROOFCOLLECT® scheme during 2008. From August 2008 ESWA's recycling of coated fabrics was fully integrated into the Recovinyl system.

- EPFLOOR (the European PVC Floor Manufacturers Association) achieved collection of 2,665 tonnes, with 2,524 tonnes being recycled, surpassing its target for 2008.

- EPCOAT (EuPC's PVC Coated Fabrics Sector Group) recycled 4,555 tonnes of post-consumer PVC coated fabrics (reported as part of Recovinyl volumes) through its IVK collection and recycling scheme during 2008.

### Recycling Technologies and Trial Plants

The Vinyloop® recycling plant in Ferrara continued to improve its performance during 2008. Trials are ongoing to exploit the potential of a unique new decanter technology, which will allow a significant improvement of the plant's performance and recycle quality.

During 2008 the Halosep® process was sold to the Finnish company Stena, which is looking for partners to build a commercial-sized demonstration plant. This process would provide an outlet for neutralisation residues from energy recovery plants.

Vinyl 2010 completed its exploration of potential European locations for a feedstock recycling plant, based on the Sumitomo Metal gasification technology developed in Japan, with the conclusion that at the current time this is not a commercially attractive proposition for investors.

### Other Projects

ERPA-CIFRA – In 2008 CIFRA recycled 1,465 tonnes of PVC post-consumer waste products within the framework of Vinyl 2010's activities. CIFRA also produced 2,100 tonnes of recycled PVC rigid films for use in modular structures (GEOlight™) for underground water storage. In total 4,352 tonnes of PVC rigid films were recycled in 2008 within the framework of Recovinyl activities.

REACH – VITO (the Flemish Institute for Technological Research – [www.vito.be](http://www.vito.be)) was selected by Vinyl 2010 to develop an impact assessment of possible policy options for the recycling of PVC waste containing problematic legacy additives like cadmium, which is restricted under Annex XVII of REACH.



Re-usable and recyclable

Vinyl Foundation – during 2008 the Vinyl Foundation, a 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 recycling, came into operation. The Vinyl Foundation is an ambitious initiative by the converting sector to engage the many thousands of companies across Europe into the industry's stewardship programme for PVC. In its first year, the new funding mechanism managed to collect €1,018,792.

## 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. It contains representatives of the European Commission and Parliament, consumer groups and industry. It meets twice a year under the chairmanship of Professor Alfons Buekens of the Free University of Brussels (VUB).

### Finance

Expenditure for waste management projects by Vinyl 2010 for 2008, including EuPC and its members amounted to €8.16 million, up from €7.68 million in 2007.

### Independent Auditors

Vinyl 2010 is committed to transparency.

- The financial accounts of Vinyl 2010 were audited and approved by KPMG.
- KPMG also 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.

### Encouraging Dialogue with Stakeholders

Part of Vinyl 2010's role is to encourage a frank and open dialogue with stakeholders and contributions to the sustainable development debate. 2008 saw efforts to create new communications channels, focused on young people, coming to fruition.

During the year prizes were awarded in the first Essay Competition, addressed to European 18-30 year olds. This succeeded in attracting strong interest on Sustainable Development themes. Building on this success, a second Essay Competition was launched in October 2008, this time open to young people worldwide, on the theme 'Faced with a food and energy crisis, how can society improve its well-being?'

About 1,000 people from 89 countries pre-registered to take part, and an independent Judging Panel of sustainable development experts has been engaged to evaluate the entries.

In another innovative 2008 initiative, Vinyl 2010 launched the 'Vinylgame', an internet based interactive computer simulation which challenges players to develop a virtual PVC industry in a sustainable way. The Vinylgame was awarded the Italian prize 'Premio Aretè 2008' for responsible communication.

## KEY ACHIEVEMENTS 2000-2008

- Post-consumer recycling reaches 191,393 tonnes through Recovinyl and 3,557 tonnes from other sources, hence 194,950 tonnes in total (2008)
- 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

PVC is one of the most extensively used plastics in the world with a wide range of applications. Construction, automotive, flooring, cabling, luxury goods and medical devices are just a few of the diverse range of applications made from this extremely versatile polymer.



Innovative new applications

Most PVC uses are long lasting – at times over 50 years – thus making good use of raw materials and preventing unnecessary resource depletion. The PVC industry is also a dynamic sector that is constantly innovating and inventing. PVC products make life safer, more comfortable, more enjoyable and more affordable.

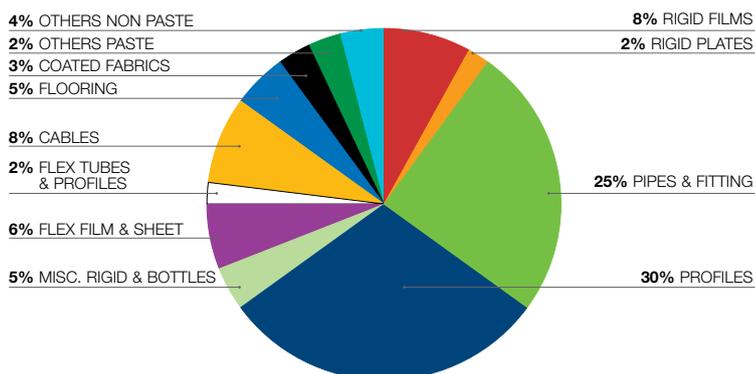
At the end of 2008, as a result of global recession, the steady growth in demand for PVC was interrupted. Global consumption was around 36 million tonnes and European consumption fell back to around 6 million tonnes after having peaked at 6.5 million tonnes in 2007.

It is estimated that the European PVC chain, from resin and additive manufacture to the conversion into the final product, probably involves more than half a million employees working within over 21,000 companies – of which a majority are Small and Medium-Sized Enterprises (SMEs).

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

- **ECVM** (the European Council of Vinyl Manufacturers), representing the 14 European PVC resin producing companies which account for 100% of the total EU-27 PVC resin production. These businesses operate around 70 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) represents close to 50,000 companies in Europe, producing 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.

**PVC SALES IN WESTERN EUROPE AND THE CZECH REPUBLIC, HUNGARY AND POLAND IN 2008**



# Vinyl 2010 and its voluntary commitment

Vinyl 2010 is the legal entity set up to provide the organisational and financial infrastructure to manage and monitor the implementation of the Voluntary Commitment of the European PVC industry. It brings together the four associations representing the entire PVC value chain.

The Voluntary Commitment aims at making each step of the PVC life cycle more sustainable. It is based on a 10-year plan, with verifiable objectives and measurable targets and deadlines, promising to improve production processes and products, to invest in technology, to minimise emissions and waste, and to boost product end-of-life collection and recycling.

The Voluntary Commitment was developed to ensure that the industry would provide a clear response in all areas of relevant interest for the EU Commission and its stakeholders. Originally signed in March 2000 and covering the EU-15, it has since been expanded as the EU has enlarged and now covers all EU-27 countries.

In order to guarantee transparency and accountability, Vinyl 2010 is subject to external audits and to verifications by independent third parties. Ongoing review and approval of Vinyl 2010's activities is made by an independently chaired Monitoring Committee which currently includes representatives from

the European Commission, the European Parliament, trade unions and consumer organisations, in addition to industry representatives. An independently audited Progress Report, reviewing progress made towards the targets set out in the Voluntary Commitment, is published annually. The auditors are chosen in full consultation with the Monitoring Committee. For 2009 the content of the Progress Report has been independently verified by SGS, while tonnages of PVC post-consumer waste and expenditure have been audited and certified by KPMG.

Over the years, Vinyl 2010 has developed additional specialist complementary organisations to increase its effectiveness in being able to achieve its demanding targets. One such organisation is Recovinyl, which was set up in 2003 to facilitate the development of PVC waste collection and recycling schemes. Recovinyl employs financial incentives to motivate existing players in the waste management industry to develop their PVC recycling activities. Another example is the Vinyl Foundation,

a not-for-profit independently managed trust, set up by EuPC in 2007 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.

Since 2003, the Vinyl 2010 Board has grown progressively to ensure better representation of every European PVC industry sector.



Inexpensive solutions

## 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**  
Chairman (ECVM 2010)\*

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

**Dr. Arno Knebelkamp**  
(ECVM 2010)

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

**Mr. Ashley Reed**  
(ECVM 2010)\*\*

**Dr. Michael Rosenthal**  
Treasurer (ESPA)

**Mr. Henk ten Hove**  
(EuPC – Rigid PVC sector)

\* until December 2008

\*\* Chairman from January 2009

## foreword from Vinyl 2010 chairman



Ashley Reed  
Chairman Vinyl 2010 Board

In my first year as chairman of Vinyl 2010 I am proud to present a particularly strong set of results from the European PVC industry towards the targets set out in its Voluntary Commitment.

With 194,950 tonnes of post consumer PVC waste being recycled in 2008, we are very close to reaching one of the most demanding targets: the recycling of 200,000 tonnes of post-consumer PVC waste by 2010. This statistic clearly demonstrates the effectiveness of our commitment, but perhaps more importantly, beyond the symbolic goal of 200,000 tonnes, it is the set-up of collection and recycling schemes for PVC waste, and the consolidation of a network of PVC recyclers across Europe that is of more importance to the long term sustainability of the industry.

Nevertheless, we still face the challenge of ensuring the ongoing commercial viability of collection and recycling schemes. The road would be long and demanding in terms of financial and human resources, even in healthy market conditions. The current global economic crisis has inevitably made the situation much more difficult to manage.

The European PVC industry's commitment to sustainable development and the contribution being made by our companies in supporting and financing the Vinyl 2010 programme has been widely recognised. However, even after the establishment of a new more equitable funding mechanism, there are still businesses that are not contributing and that knowingly 'free ride' on the efforts of the rest of the industry. This is clearly unacceptable and we urge everyone to participate in the industry's shared responsibilities.

As we approach the symbolic date of 2010 and the conclusion of our 10-year programme, we are already considering what form ongoing

sustainable development should take for our industry. It is clear that many of the challenges that we face are now shared with the whole plastics and chemical sector. The REACH Regulation is one of these challenges. We are making efforts to find effective solutions to continuously improve our environmental performance during the entire life cycle of PVC, from resin production to safe use of additives, from PVC applications in manufacturing, to waste management. It is our vision to continue our cooperation with all industrial sectors, academia, NGOs and regulators to provide consumers with ever safer and more sustainable products.

We have moved a long way since 2000 and learned a great deal. We must now build on this experience to create a new relationship between our industry and society that recognises each other's needs for a more sustainable future.

Finally I would like to take this opportunity to thank our Monitoring Committee for its continuing support, stimulation and encouragement and, on behalf of the European PVC industry, to thank the outgoing chairman of Vinyl 2010, Dr. Josef Ertl, for the steady stewardship of Vinyl 2010 over the past years that has ensured its ongoing success.

Ashley Reed  
Chairman Vinyl 2010

## statement from the chairman of the monitoring committee

2008 was my fifth year as chairman of the Vinyl 2010 Monitoring Committee. At the start of this assignment, the future of the Voluntary Commitment still seemed quite challenging. Over these five years, many things have altered within European PVC industry. Sustainable development is now an objective generally recognised. The commitment of Vinyl 2010 within the PVC industry is getting stronger and stronger.

PVC-based formulations are more sustainable now; and strongly supported by results from both technical development and sound scientific and toxicological scrutiny. Life cycle assessments (LCAs) and Environmental Product Declarations (EPDs) have helped in re-assessing and repositioning PVC's environmental performance: at present, figures for raw materials and energy consumption, as well as emissions, have been reduced, lightening PVC's footprint.

Enormous efforts have been made to stimulate PVC collection and recycling schemes. The creation of Recovinyl aimed to facilitate the collection, dispatching and recycling of PVC post-consumer waste; it has paved the way to strong growth in the volumes recycled. Yet, the option of finding a commercially viable, large-scale feedstock recycling technology for difficult PVC waste still remains an unresolved issue.

At the Monitoring Committee, we are pleased to see Vinyl 2010 contribute actively to the debate on sustainable development. As a professor I am particularly happy with initiatives such as the Essay Competition, directly involving the next generation in an open and fresh dialogue, and the Vinylgame, which helps Vinyl 2010 stakeholders better understand the complexity of the PVC industry. It explains how a Voluntary Commitment approach like Vinyl 2010 can strategically address the challenge of sustainable development for a whole product value chain.

We all share the concern that the difficult economic times we are facing may affect efforts in terms of the resources and funding still needed to reach Vinyl 2010 targets. For this reason I would repeat the message that the contribution of the entire PVC industry to the Vinyl 2010 Voluntary Commitment is essential to the future success of the initiative. Any section of the industry not yet contributing needs to understand that the future of PVC depends on the sharing of responsibility for its stewardship throughout its lifecycle.



Prof. Alfons Buekens  
Chairman Vinyl 2010 Monitoring Committee

A handwritten signature in black ink, appearing to read 'Alfons Buekens'. The signature is stylized and written in a cursive-like font.

Alfons Buekens  
Chairman of the Monitoring Committee

# working together

## The Vinyl 2010 monitoring committee

Established in 2003, the Monitoring Committee is the independent body which guarantees the openness and transparency of Vinyl 2010's initiatives. The Committee is chaired by Professor Alfons Buekens, of the Free University of Brussels, and includes senior representatives from the European Commission, the European Parliament, trade unions and consumer associations, as well as representatives from the European PVC industry.



Above: Protection when it counts  
Right: Creating new possibilities

The Monitoring Committee is of great value to Vinyl 2010, not only for its institutional role in monitoring the implementation of the European PVC Industry Voluntary Commitment and in selecting third party auditors and verifiers. It also provides advice and helps the industry in its dialogue with stakeholders (providing information to satisfy their needs and meet expectations) and plays a valuable role in stimulating the industry to rise to new challenges in sustainable development.

As a symbol of Vinyl 2010's openness and dialogue with third parties, the Committee always welcomes the potential contribution of other stakeholders and third parties, such as environmental and consumer NGOs.

The minutes of the Monitoring Committee, which meets formally twice a year to monitor, check and review the progress of the Vinyl 2010 programme, are public and published on the Vinyl 2010 website ([www.vinyl2010.org](http://www.vinyl2010.org)).

...plays a valuable role in stimulating the industry to rise to new challenges in sustainable development...

## MEMBERS

### Professor Alfons Buekens

VUB<sup>1</sup>, Chairman of the Monitoring Committee

### Dr. Jorgo Chatzimarkakis

Member of the European Parliament (Industry, Research and Energy Committee)

### Mr. Alexandre Dangis

Managing Director of EuPC

### Mr. Jean-Pierre De Grève

General Manager of Vinyl 2010

### Dr. Brigitte Dero

Secretary General of ESPA

### Mr. Joachim Eckstein

Vice Chairman of Vinyl 2010

### Dr. Josef Ertl

Chairman of Vinyl 2010\*

### Mr. Patrick Hennessy

European Commission, Directorate General Enterprise

### 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<sup>2</sup>

### Mr. Ashley Reed

Chairman of Vinyl 2010\*\*

### Mr. Carlos Sanchez-Reyes de Palacio

President of OCU<sup>3</sup>

\* until December 2008

\*\* from January 2009

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

<sup>2</sup> EMCEF: European Mine Chemical and Energy Workers Federation ([www.emcef.org](http://www.emcef.org))

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





The 2008 Essay Competition judging panel

## EUROPEAN UNION ENLARGEMENT

The integration of the PVC industry within the new EU Member States into Vinyl 2010 is well consolidated. Representatives from Central/Eastern European companies are regularly and actively involved in events. All European producers of PVC resin – 14 companies – are members of ECVM<sup>4</sup>, which now represents 100% of PVC resin production in the EU-27. All PVC resin producers of new EU Member States are committed to achieving the challenging ECVM targets in terms of health, safety and environmental requirements and to complying with the ECVM Industry Charters<sup>5</sup> by 2010. (Also see p. 20 & 21 Projects Reports/ PVC Resin Manufacturing).

## STAKEHOLDER DIALOGUE

A frank and open dialogue with stakeholders, third parties, institutions and organisations within technical, political and social communities is a core part of Vinyl 2010's policy and activities. Last year, Vinyl 2010 continued its exchange of views on studies, experiences and good practices at relevant industry conferences, such as the February 2008 North American Plastics Recycling Conference held in Jacksonville, Florida, where Vinyl 2010 was invited to present the achievements of the European PVC Industry's Voluntary Commitment and participated with a paper entitled 'New Opportunities in PVC – the Experience of the Recovinyll system within the Vinyl 2010 programme'. Vinyl 2010 also took part in the Asia Pacific Product Stewardship Conference held in Shanghai in October 2008, where sustainable development for the global and Asia-Pacific chlor-alkali and vinyl industries was discussed.

Vinyl 2010 also continued its valuable cooperation with the other PVC regional associations, from North to South America, from Australia to the Asia-Pacific region, to South Africa. Facing the challenges of an ever more globalised world, the exchange of experiences and best practices is of paramount importance. The Vinyl 2010 Voluntary Commitment is also taken into consideration and used as a benchmark by other trade associations around the world. In South Africa, a commitment was made on the phasing-out of heavy metal stabilisers in PVC pipes. In Canada, a full Environmental Management Programme has been initiated, while in Japan a significant PVC recycling initiative was established. In Brazil, there is a strong commitment on lead substitution, while in Australia, a Product Stewardship Programme regarding the use of additives and PVC recycling is being implemented.

And Vinyl 2010's influence as a role model for industry voluntary commitments is not just limited to the PVC sector. During 2008 Vinyl 2010 was used as a model by PV Cycle ([www.pvcycle.org](http://www.pvcycle.org)) – the voluntary commitment for end-of-life waste management established by the manufacturers of photovoltaic solar panels in Europe.

## Vinyl 2010 Sustainable Development Essay Competitions

Sustainable development concerns us all, especially younger generations who will have to live tomorrow with the consequences of decisions taken today. To encourage deeper reflections, Vinyl 2010, in partnership with a number of European universities, NGOs, student associations and media, launched its first Sustainable Development Essay Competition in November 2007. Open to 18-30 year old citizens of the European Economic Area, the first competition asked entrants to respond to the question 'Are sustainable development and economic growth mutually exclusive?' in a 1,000-word journalistic essay in English.

<sup>4</sup> ECVM: European Council of Vinyl Manufacturers ([www.pvc.org](http://www.pvc.org))

<sup>5</sup> ECVM Industry Charters for the Production of VCM and PVC (1995) and for the Production of E-PVC (1998) ([www.pvc.org](http://www.pvc.org))

In early 2008, entries were judged by a panel of leading European sustainable development experts from academia, NGOs and the media under the chairmanship of Mrs. Nadine Gouzée, Head of the Sustainable Development Task Force for the Federal Planning Bureau of Belgium. The prize-winners of this competition were: Maja Dercar (Slovenia); Daniela Jungova (the Czech Republic) and Francesco Falcone (Italy). The winners were presented with their awards at the Vinyl 2010 General Assembly in Barcelona in May 2008. They also joined a panel of experts in sustainable development from the worlds of academia, media and politics in a 'Café Crossfire' debate in front of an industry audience organised in conjunction with the Brussels' based think-tank Friends of Europe.

Collected together in a book published by Vinyl 2010, the full set of essays from the 2007/8 competition provides a fascinating insight into the views of a new generation on sustainable development issues. The essay book has been widely distributed to stakeholders and was presented at Green Week 2008 and at the UN CSD-16 in New York providing a unique platform for young people to express their opinions. The booklet is available in e-format at [www.vinyl2010.org/essaycompetition/](http://www.vinyl2010.org/essaycompetition/).

Building on the success of its first Sustainable Development Essay Competition, which attracted entries from 14 European Member States, a second Essay Competition was launched in October 2008. This time open to young people worldwide with Ms. Selene Biffi, coordinator of the UN Major Group Children and Youth and founder of the Youth Action for Change (YAC) organisation, joining other leading European sustainable development experts on the panel of judges.

The 2008/9 competition poses the question 'Faced with a food and energy crisis, how can society improve its well-being?'

And young people from around the globe have once again demonstrated their enthusiasm for expressing their views on sustainable development issues. By 01 December 2008 pre-registration deadline, 927 people representing 89 different nationalities from across Europe and around the world had signed up to take part in the Essay Competition. Registrations were received not only from young people across 27 states in the European Economic Area (EEA), but also from 62 other countries worldwide.

### Vinylgame

The Vinylgame is a new computer game from Vinyl 2010, which challenges players to manage a virtual PVC industry in a sustainable way. It had its official launch at the PVC2008 Conference in Brighton, UK in April 2008. Players of the Vinylgame are challenged by the daily socio-economic and environmental decisions involved in running their own PVC business. Whilst fun to play, the choices made in how the company is run illustrate the challenges of balancing economic growth with sustainable development. Within the game, the consequences of playing purely for economic growth without regarding production safety, environmental consequences or issues such as post-use recycling quickly become

apparent as the virtual society may opt to respond and take actions and trade unions may vote to go on strike. Available in five languages, the Vinylgame was presented at the CSD-16 (the UN Commission on Sustainable Development) in New York in May 2008 and at Green Week organised by the European Commission in Brussels in June 2008.

In the words of one 26 year old assistant working in the European Parliament who played the game:

'I am really interested in sustainable business practices and this affects my consumer choices. Yet during the game, when faced with investment decisions, against a ticking clock, I managed to score a sustainability rating of only 14%. Obviously, I have some learning to do about what makes good business sense and how to create a sustainable industry.'

In October 2008, the Vinylgame was awarded the Italian prize 'Premio Aretè 2008' for responsible communication in the videogames category by a panel of judges chaired by the Italian Minister of Environment Stefania Prestigiacomo.



Green Week 2008

### 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, as well as 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.



...the aim of this is to contribute to the development of effective industrial partnerships and to the exchange of experiences at global level...

In May 2008, Vinyl 2010 attended the annual session of the United Nations Commission on Sustainable Development (CSD-16) for the third consecutive year. Water protection being one of the main issues of the CSD-16, Vinyl 2010 made a presentation at the Partnership Fair entitled 'A Working Example of a Voluntary Commitment Partnership for the Sustainable Development of an Industry'. This presentation was focused on both the PVC industry chain's commitment and used PVC pipes as an example of a very relevant sustainable application in the context of the USD-16 key topic.

During the session, the new Vinyl 2010 initiatives, the Vinylgame and the Essay Competition were also successfully presented.

### Conferences and Exhibitions

During 2008, Vinyl 2010 took part in a series of major conferences and scientific events to present its approach, projects and achievements and to exchange ideas with experts at global level:

- **PVC2008 – the 10th International PVC Conference in Brighton, UK, 22-24 April.**

Focusing on innovation, technology, sustainability and networking, the Conference is the main triennial event for the entire PVC sector in Europe. In addition to presentations from both Vinyl 2010's General Manager and Technical Manager, Vinyl 2010 was well represented, with an exhibition stand and with several member companies of Vinyl 2010 also contributing to the scientific and technical sessions.



Comfortable, hygienic, long lasting and low maintenance

- **Vinyl 2010 General Assembly and Café Crossfire in Barcelona, Spain, 6-7 May.**

Vinyl 2010's major annual internal stakeholder event, its General Assembly, took place in Barcelona and saw the staging of a special platform debate in front of an industry audience, in conjunction with the Brussels based think-tank Friends of Europe. During the onstage discussion, politicians and representatives from industry and NGOs were joined by the first and second place winners of Vinyl 2010's first Essay Competition to talk on the subject 'Are economic development and sustainable development mutually exclusive?'

- **Green Week 2008 in Brussels, Belgium, 3-6 June.**

Vinyl 2010 participated in Green Week 2008 with an information stand where the Vinylgame was used to better explain Vinyl 2010 and its challenges for sustainability to EU opinion formers. During the course of the annual four-day environmentally-

focused event, the game proved popular with participants from across Europe. Players, including members of the media and EU policy-makers – both young and old – were eager to compete to see who could run the most profitable and sustainable industry with daily high scores being shown on a scoreboard on the stand.

- **World Sustainable Building Conference in Melbourne, Australia, 21-25 September.**

This major event in the sector involved more than 2,000 delegates from over 60 countries. It was organised by the Commonwealth Scientific and Industrial Research Organisation (CSIRO), Sustainability Victoria, the United Nations Environment Program (UNEP), the International Initiative for a Sustainable Built Environment (iisbe) and the International Council for Research and Innovation in Building and Construction (cib). Vinyl 2010 participated with both a poster presentation and the presentation of a paper entitled 'European Life Cycle studies: updated information about PVC and PVC products'.

- **12th European Roundtable on Sustainable Production and Consumption in Berlin, Germany, 23-25 September.**

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. The 12th ERSCP was organised by FONA – the framework programme 'Research for Sustainability' of Germany's Federal Ministry of Education and Research (BMBF) – and was part of the 5th BMBF-Forum for Sustainability. Vinyl 2010 participated with a presentation on 'The experience of Vinyl 2010' as an example of effective Supply Chain Management best practice. The Essay Competition booklet and Vinyl 2010 Progress Report 2008 were also made available to participants at the conference's information and brochures display. The event video, programme and results, as well as presentation abstracts, are available at [www.fona.de/en/forum/2008/](http://www.fona.de/en/forum/2008/).

- **Workshop 'Rebuilding Europe's Housing' in Brussels, Belgium, 17 December.**

The workshop was part of the 'Four Levers' initiative of the EPE's Resource Efficiency Alliance to address the building sector's bottom-up approach to climate change and sustainable resource management. EPE (European Partners for Environment – [www.epe.be](http://www.epe.be)) is a multi-stakeholder forum bringing together public authorities, companies large and small, trade unions, research institutes, environmental organisations, consumer and ethical NGOs and civil society groups. Vinyl 2010 was present as a sponsor of the event and gave logistical support.



# milestones and targets

## ACHIEVEMENTS AND RESULTS FOR 2008

### Quarter 1

✓ **ESPA**: publish 2007 statistics on PVC stabiliser tonnages → **Achieved**

### Quarter 2

✓ **Vinyloop®**: start-up of new decanter centrifuge → **Achieved in Q3**

### Quarter 3

✓ **Texyloop®**: start-up of pilot plant → **Achieved in Q4**

### Quarter 4

✓ **Recovinyl**: ensure recycling of 130,000 tonnes of PVC waste throughout the year  
→ **Achieved**

✓ **EPFLOOR**: recycle 2,300 tonnes post-consumer flooring waste → **Achieved**

✗ **Vinyloop®**: treat 9,500 tonnes of waste to produce 6,800 tonnes of R-PVC  
→ **Not achieved due to the delayed start-up of the new decanter centrifuge**

## TARGETS FOR 2009

### Quarter 1

**ESPA**: publish 2008 statistics on PVC stabiliser tonnages

### Quarter 2

**Cadmium study (recycling)**: completion

**Vinyloop®**: start-up of modified decanter centrifuge

### Quarter 3

**ECPI**: Submission for publication of the study on DEHP and DINP conversion factors

### Quarter 4

**Recovinyl**: ensure recycling of 200,000 tonnes of PVC waste throughout the year

**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 9,100 tonnes of waste to produce 6,500 tonnes of R-PVC

## project reports



Practical, efficient solutions

### PVC RESIN MANUFACTURING

The Voluntary Commitment assigns great importance to the achievement of health, safety and environmental standards targets in terms of improvement of production processes and responsible manufacturing.

The Voluntary Commitment states that 'the industry acknowledges concerns that have been raised over the environmental impact of PVC production in recent years and has been working voluntarily to address them'. Concerning PVC resin manufacturing, health and environmental standard requirements are now very relevant to the new REACH Regulation on chemical substances.

REACH is a new European chemicals regulation, which entered into force on 1 June 2007. REACH will require all chemicals producers to provide data to the European Chemicals Agency on their substances to demonstrate that they are being safely produced and used.

Whilst PVC as a polymer is not subject to 'registration' obligations by REACH, its 'intermediate' EDC (ethylene dichloride or 1,2-dichloroethane) and its monomer VCM, like all other synthetic chemicals, must follow the REACH registration requirements.

#### ECVM Charters

The Voluntary Commitment's targets for the manufacture of PVC resins foresee compliance with the 'ECVM Industry Charter for Production of Vinyl Chloride Monomer (VCM) and Suspension PVC', as well as with the 'ECVM Industry Charter for the manufacture of Emulsion PVC'. The Commitment's targets also strive to improve the eco-efficiency of PVC resin, plasticisers and stabilisers manufacturing.

Concerning the ECVM Charters, all ECVM members from the 12 new EU Member States agreed in September 2008 to be verified. Pre-audits were carried out by DNV in November to prepare verification. In October 2008, the principle of verification for all ECVM members was also agreed upon. The verification will use 2009 as the reference period, whilst verification visits and reports are expected in Q1/Q2 2010.

#### Eco-profiles and Environmental Product Declaration (EPD)

As reported in last year's Progress Report, the EPDs for Suspension-PVC (S-PVC) and Emulsion-PVC (E-PVC) were the first to be published (late 2007) as part of the PlasticsEurope<sup>6</sup> EPD programme. An updated version was published in 2008 and the results of the PVC eco-profiles and EPD were communicated at the PVC 2008 Conference in Brighton, UK (April 2008), and at the World Sustainable Building Conference (SB08) in Melbourne, Australia (September 2008).

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 – has not yet been completed. Completion is now expected in Q2 2009.

<sup>6</sup> PlasticsEurope: Association of Plastics Manufacturers ([www.plasticseurope.org](http://www.plasticseurope.org))

## PLASTICISERS

Plasticisers are substances added to PVC resin to make it flexible, resilient and easier to handle. There are more than 300 different types of plasticisers of which between 50 and 100 are in commercial use.

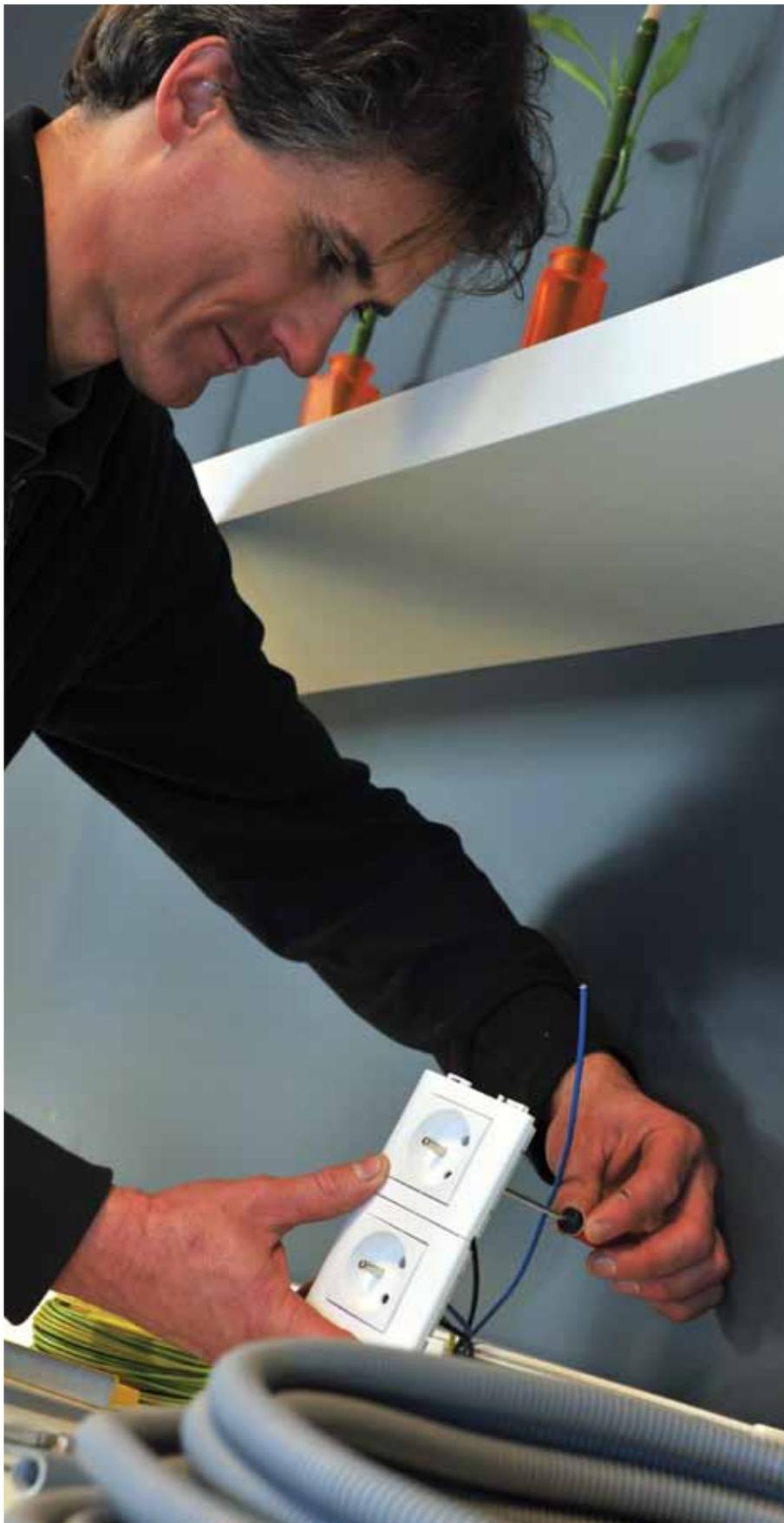
### Risk assessments

In 2008, all of the EU risk assessments for the major phthalates were finally published, i.e. Di-isononyl phthalate (DINP), Diisodecyl phthalate (DIDP), Di-n-butyl phthalate (DBP), Butyl Benzyl phthalate (BBP) and di(2-ethylhexyl) phthalate (DEHP).

The last two assessments to be finalised, those on (DEHP) and (BBP) were published in the EU Official Journal (February and July 2008 respectively).

As detailed in last year's report, the risk assessments concerning DEHP confirmed that adequate risk prevention is already in place for adult consumers. However, there were two concerns identified which required attention: possible risks to patients from the use of DEHP in medical equipment; and possible risks from emissions from converting plants to children living near such sites and from consuming food grown locally, and to aquatic and terrestrial ecosystems.

Regarding the use of DEHP in medical devices, the EU Scientific Committee for Emerging and Newly Identified Health Risks (SCENIHR) was asked for an Opinion, which it delivered in March 2008. In line with the US National Toxicology Program (NTP) Expert Panel, SCENIHR found all the human epidemiology studies examined to be either negative or flawed due to inadequate design or incorrect data treatment. They said that so far, there is no conclusive scientific evidence that DEHP exposure via medical treatments has harmful effects in humans, although further studies should be undertaken.



Practical efficient solutions

The few studies that have been conducted on people highly exposed as neonates some years earlier, or in occupational settings, have not indicated an effect of DEHP on fertility and/or the human male reproductive system.

Despite the hypothetical nature of concerns about DEHP emissions from converting plants, ECPI<sup>7</sup> and EuPC<sup>8</sup> have worked together with

...meeting emission levels will also be part of any authorisation requirement...

DG Enterprise to identify safe emission levels. It was hoped these could have been enforced ahead of REACH, but the Commission prefers instead that safe emission levels should be imposed as part of the authorisation procedure.

BBP risk assessments showed similar concerns about BBP emissions from converting plants: meeting emission levels will also be part of any authorisation requirement.

#### Phthalates and REACH

Three plasticisers, DEHP, DBP and BBP are identified in the REACH Regulation as Substances of Very High Concern (SVHC); the final list will be confirmed in June 2009. Producers and users would then have until around mid-2012 to apply for authorisation, and those who have not applied at that date would be allowed to continue to use them only until around the end of 2013.

DEHP manufacturers have committed to manage compliance within the regulatory process to ensure continued availability beyond 2013.



As regards to substances included in the EU Candidate List, suppliers of articles containing these substances will have to provide their recipients with information. Consumers can also make a request to retailers. ECPI has been making information sheets and booklets available to downstream users and retailers for this purpose.

Concerning the REACH registration, consortia have been formed for both DINP and DEHP. These are the most widely used plasticisers in Europe, DINP and DIDP, are not subject to classification: they simply have to undergo registration, which will be completed well before the December 2010 deadline.

#### Plasticisers Research

As already announced in last year's progress report, 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. A full set of bio-monitoring data has been generated by collecting urine and blood samples from volunteers after their exposure to DEHP and DINP (and to their respective metabolites). The study was completed in 2008 and the results are currently undergoing mathematical and statistical analysis in order to extract the corresponding conversion factors. Final results and published reports are expected, by the end of 2009.

#### Availability of Information

Via its websites and outreach activities such as the Inform newsletter, ECPI provides high quality and extensive information about the safe use of phthalates in several European languages. The main websites are the Plasticisers Information Centre ([www.plasticisers.org](http://www.plasticisers.org)) and the Phthalates Information Centre ([www.phthalates.com](http://www.phthalates.com)). Also information on individual products is available online at [www.dehp-facts.com](http://www.dehp-facts.com) and [www.dinp-facts.com](http://www.dinp-facts.com).

<sup>7</sup> ECPI: European Council for Plasticisers and Intermediates ([www.ecpi.org](http://www.ecpi.org))

<sup>8</sup> EuPC: European Plastics Converters ([www.plasticsconverters.eu](http://www.plasticsconverters.eu))



Creating new opportunities

## STABILISERS

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

### Lead Replacement

In the Voluntary Commitment, ESPA<sup>9</sup> 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 2000-2008, lead stabilisers (in EU-15) decreased by 66,552 tonnes (-52.3%), and calcium organic stabilisers (in EU-15 plus Norway, Switzerland and Turkey) increased by 50,879 tonnes. ESPA successfully reached the 50% lead stabilisers reduction 2 years ahead the 2010 interim target.

TONNES OF STABILISER SYSTEMS	2000	2008	Reduction (%)
FORMULATED* LEAD STABILISERS	127,156	60,604	52.3

\* 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.

<sup>9</sup> ESPA: European Stabiliser Producers Association ([www.stabilisers.org](http://www.stabilisers.org))

## 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	2008
FORMULATED* CALCIUM ORGANIC STABILISERS E.G. CA/Zn SYSTEMS <sup>(1)</sup>	17,579	68,458
TIN STABILISERS <sup>(2)</sup>	14,666	13,280
LIQUID STABILISERS - Ba/Zn OR Ca/Zn <sup>(3)</sup>	16,709	16,523

\* Formulated means that these systems are complete stabiliser/lubricant packages and many also include pigments or fillers as a service to the customer.

<sup>(1)</sup> Includes food contact and medical applications, plus all lead replacement systems.

<sup>(2)</sup> Used primarily in rigid applications including food contact use.

<sup>(3)</sup> Used in a wide range of flexible applications, calendered sheets, flooring, etc.

## EU-27 Production Data

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

TONNES OF STABILISER SYSTEMS	2007	2008
FORMULATED* LEAD STABILISERS	99,991	72,991
FORMULATED* CALCIUM ORGANIC STABILISERS E.G. CA/Zn SYSTEMS <sup>(1)</sup>	62,082 <sup>(1)</sup>	78,706 <sup>(1)</sup>
TIN STABILISERS <sup>(2)</sup>	16,628 <sup>(1)</sup>	13,891 <sup>(1)</sup>
LIQUID STABILISERS - Ba/Zn OR Ca/Zn <sup>(3)</sup>	19,000 <sup>(1) (3)</sup>	17,280 <sup>(1)</sup>

<sup>(1)</sup> EU-27 plus Norway, Switzerland and Turkey

<sup>(2)</sup> EU-27 figure for liquid stabilisers is approximated in 2007. 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.

<sup>(3)</sup> Includes food contact and medical applications, plus all lead replacement systems.

<sup>(4)</sup> Used primarily in rigid applications including food contact use.

<sup>(5)</sup> 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, the EU-27 by the end of 2007.

## PVC WASTE MANAGEMENT AND SECTORAL PROJECT PROGRESS



Energy saving, low maintenance and secure

### Recovinyl

Recovinyl is the organisation set up in 2003 within the framework of Vinyl 2010 programme, which provides financial incentives to support the collection of PVC waste from non-regulated PVC waste streams. Recovinyl has progressively integrated the various collection and recycling initiatives that were previously directly managed by the EuPC sectoral projects.

Recovinyl facilitates the collection, dispatching and recycling of mixed PVC post-consumer waste, mainly from the building and construction sectors. Recovinyl does not collect or recycle itself, but utilises existing players in the market.

Since its creation in 2003, Recovinyl has made a major contribution, to realising the exponential growth of the registered volumes of post-consumer PVC being recycled in Europe, starting from 14,000 tonnes in 2005 to reaching 191,393 tonnes in 2008.

Today, Recovinyl activity covers Austria, Belgium, the Czech Republic, Denmark, France, Germany, Hungary, Ireland, Italy, the Netherlands, Poland, Portugal, Spain, and the UK with 107 active recyclers listed.

The website ([www.recovinyl.com](http://www.recovinyl.com)) was redesigned and updated in 2008. Its contents – including the Recovinyl contracts and recovery & recycling guidelines – are now available in 11 languages.

The first half of 2008 was characterised by a very high activity (with both high demand and strong prices). A notable decrease in demand was registered in June-July, especially in the pipes sector.

In Germany, DPR<sup>10</sup> was appointed as the local agent and a new network of recyclers was built. Furthermore, the volumes recycled by Rewindo (Germany's largest clearing house for post-consumer PVC windows – [www.rewindo.de](http://www.rewindo.de)) were integrated into the Recovinyl system.

In France, the integration of the PVC recyclers' network was completed, allowing new contracts and a new methodology of collecting data to be established.

In Italy, in general, the market registered less recycling of rigid applications and less collection and sorting of the dry waste fraction. Roller-shutters recycling, especially in SMEs, and cable recycling activities are more developed in this market.

In 2008, PVC collection and recycling decreased in Denmark, due to low construction activity. For the same reason, progress slowed down in the UK.

Until now, 4 recyclers have been registered in Spain and 2 in Portugal. Flexible PVC seems to be being recycled more, with one of recycler specialising in coated fabrics (banners).

In Central Europe, 8 recyclers are currently active: in the Czech Republic and Hungary, they are more focused on flexible PVC recycling; in Poland they are focused more on rigid PVC.

In 2009, Recovinyl activities will concentrate on: the further mapping of recyclers; improving cooperation by organising periodic visits to recyclers and converters; closely monitoring the evolution of incoming waste by keeping track of inventories at recyclers and promoting information exchange of export markets; and analysing export markets (the Far East).

<sup>10</sup> DPR: Deutsche PVC-Recycling GmbH ([www.pvc-recycling.org](http://www.pvc-recycling.org))

**RECOVINYL REGISTERED RECYCLED VOLUMES PER COUNTRY**

	Year 2005*	Year 2006*	Year 2007*	Year 2008*
<b>AUSTRIA</b>	-	-	-	4,398
<b>BELGIUM</b>	1,500	2,739	1,954	3,346
<b>CZECH REPUBLIC</b>	-	-	1,165	5,858
<b>DENMARK</b>	-	-	2,896	2,586
<b>FRANCE</b>	2,000**	7,446	13,276	16,943
<b>GERMANY</b>	-	5,522	35,927	77,313
<b>HUNGARY</b>	-	-	256	804
<b>ITALY</b>	-	828	4,252	16,115
<b>LUXEMBOURG</b>	-	-	-	116
<b>NETHERLANDS</b>	4,500	10,972	8,959	10,731
<b>POLAND</b>	-	-	475	3,518
<b>PORTUGAL</b>	-	-	-	477
<b>SPAIN</b>	-	2	-	6,293
<b>SWEDEN</b>	-	94	-	-
<b>UK***</b>	8,000	17,087	42,162	42,730
<b>TOTAL</b>	<b>16,000</b>	<b>44,690</b>	<b>111,322</b>	<b>191,393</b>

\* Actual figures in tonnes

\*\* This volume was recycled by PVC Recyclage, now included in Recovynyl

\*\*\* UK figures include the ones from Ireland

**RECOVINYL REGISTERED RECYCLED VOLUMES PER APPLICATION**

	Year 2007*	Year 2008*
<b>RIGID PVC APPLICATIONS</b>		
PIPES	18,375	22,495
PROFILES	39,517	79,600
RIGID FILMS	2,134	4,352
<b>TOTAL RIGID PVC APPLICATIONS</b>	<b>60,026</b>	<b>106,447</b>
<b>FLEXIBLE PVC APPLICATIONS</b>		
CABLES	37,469	54,987
MIXED	13,827	29,959
<b>TOTAL FLEXIBLE PVC APPLICATIONS</b>	<b>51,296</b>	<b>84,946</b>

\* Actual figures in tonnes

**Window Profiles**

EPPA<sup>11</sup> window collection and recycling schemes are well consolidated in Austria and Germany, and systems, stimulated by Recovynyl, are now in place in Belgium, Denmark, France, Ireland, Italy, the Netherlands, Spain and the UK.

In Austria, ÖAKF<sup>12</sup> continued its successful work with a focus on public information. The recycled volumes registered a continuous increase, achieving nearly 865 tonnes in 2008.

In Germany, Rewindo continued both its successful waste acquisition concept and its communications' activities, with a resulting increase of volumes in input from 18,900 tonnes in 2007 to 22,650 tonnes in 2008, and output of about 16,292 tonnes in 2008 against 14,324 tonnes in 2007.

The output of PVC window recycling material was absorbed 100% into new applications: at least 50% in window profiles and 10% in other window related applications. The remaining quantities went into other building products.

In 2008, EPPA continued to support 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 recycle in profile applications.

Furthermore, in 2008, EPPA set up a working group 'EPD for PVC window profiles and PVC windows' and supported the TNO study on PVC window profiles conversion process with industry data for life cycle inventories (Eco-profiles).

All EPPA member companies started, and some have already completed, the replacement of lead containing stabilisers. Nearly all small and medium sized companies are working closely with their suppliers to achieve the same ends.

<sup>11</sup> EPPA: European PVC Window Profile and Related Building Products Association, an EuPC sector group ([www.eppa-profiles.org](http://www.eppa-profiles.org))

<sup>12</sup> ÖAKF (Österreichischer Arbeitskreis Kunststoff-Fenster): Austrian Organisation for Plastic Windows Recycling ([www.fenster.at](http://www.fenster.at))

**Pipes and Fittings**

All TEPPFA<sup>13</sup> national recycling projects, except for Austria, Finland and Sweden, are now under the Recovinyl umbrella, with a local cost contribution of €874,487. The objective for 2009 is to bring the Austrian ÖAKR<sup>14</sup> and the Swedish project under the Recovinyl umbrella, too.

In 2009, TEPPFA intends to promote further use of recyclates amongst all members as well as to clarify the REACH and Safety Data Sheets (SDS) implications for recyclers.

TEPPFA actively supports the activities of the Vinyl Foundation. Frequent letters and visits to members have resulted in TEPPFA members pre-paying their contributions to the Vinyl Foundation. TEPPFA members are in favour of putting more pressure on free-riders.

Technical problems, like discoloration and 'plate-out', have not yet been completely solved; nevertheless, drinking water pipes have been lead-free throughout most of Europe since 2007 and other applications are generally expected to be lead-free by 2010.

In 2009, TEPPFA will continue supporting its members in finding solutions for their remaining technical issues and contributing to the cadmium and lead studies. (See REACH and Recycling chapter, p.31).

**Roofing Membranes**

In 2008, Roofcollect® recycled 3,635 tonnes of coated fabrics and 954 tonnes of end-of-life roofing and waterproofing membranes. In August 2008, the recycling scheme of coated fabrics was fully integrated into Recovinyl and audited by KPMG.

In 2008, the first trials took place with a recycling company in France to treat and grind the material. In the UK talks are ongoing with a recycler in Derbyshire to take roofing material, and negotiations are underway with a UK national NGO organisation for transport and logistics from construction sites; the first trials for the project are planned in Derbyshire. Talks with Texyloop®/ Vinyloop® are also ongoing for the recycling of material from France and Italy.

Overall, customers of ESWA<sup>16</sup> members expect the industry to collect used materials from their construction sites in order to cope with the landfill restrictions.

In terms of communications the maximum effort was made in communicating and promoting Roofcollect®'s activities, with the support of a website ([www.roofcollect.com](http://www.roofcollect.com))

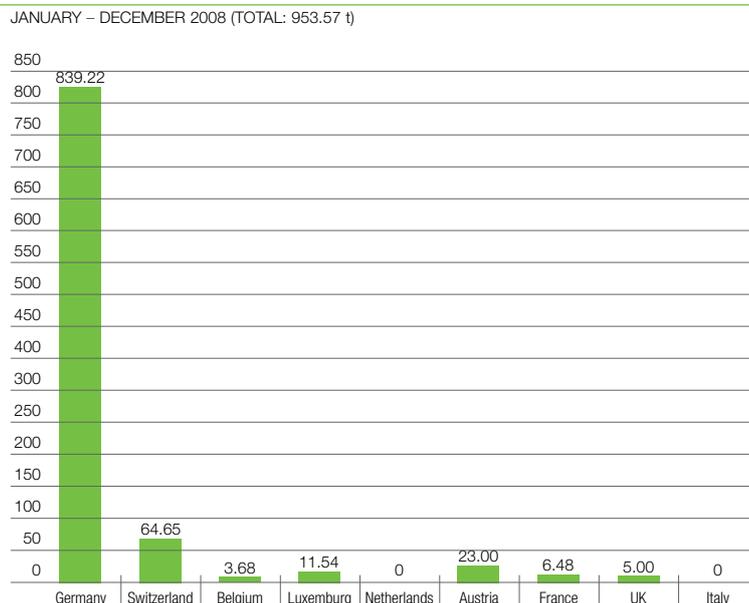
in 5 languages, media relation activities and participation with partners in international trade fairs.

In 2008, Roofcollect® activity on logistics groups involving experts from both collecting and recycling companies also continued. Meetings were organised in Austria, France, Germany, Italy and the UK. These activities are expected to continue in 2009.

For 2009, Roofcollect® aims to continue its activities in existing as well as new recycling markets. These activities mainly concern the introduction of collecting schemes, where they don't already exist, as well as grinding and recycling tests with compounded and non-compounded materials in France, Italy, Spain and the UK. Roofcollect® is also committed to promote the image of PVC roofing membranes as recyclable and more sustainable versus other roofing materials.

Roofcollect® target for 2009 is to recycle 1,500 tonnes of end-of-life roofing and waterproofing membranes, of which 60% (900 tonnes) in Germany and 40% in other EU Countries. An increase in volumes is expected, especially in Austria, Benelux, France, Italy and the UK.

**EUROPE RECYCLING END-OF-LIFE ROOFING AND WATERPROOFING MEMBRANES IN TONNES**



<sup>13</sup> TEPPFA: European Plastic Pipes and Fittings Association, an EuPC sectoral association ([www.teppfa.org](http://www.teppfa.org))  
<sup>14</sup> ÖAKR (Österreichischer Arbeitskreis Kunststoffrohr Recycling): Austrian Organisation for Plastic Pipes Recycling ([www.oakr.at](http://www.oakr.at))  
<sup>15</sup> Roofcollect®: Recycling System for Thermoplastic Membranes ([www.roofcollect.com](http://www.roofcollect.com))  
<sup>16</sup> ESWA: European Single Ply Waterproofing Association, an EuPC sectoral association ([www.eswa.be](http://www.eswa.be))

**Flooring**

EPFLOOR<sup>17</sup> targets for 2008 were the recycling of 2,300 tonnes of post-consumer flooring waste, with the extension of collection schemes in Austria, France, Germany, Switzerland and the UK, and the progressive extension of geographical coverage. The volumes collected for recycling in 2008 were 2,665 tonnes with 2,524 tonnes recycled, above the target.

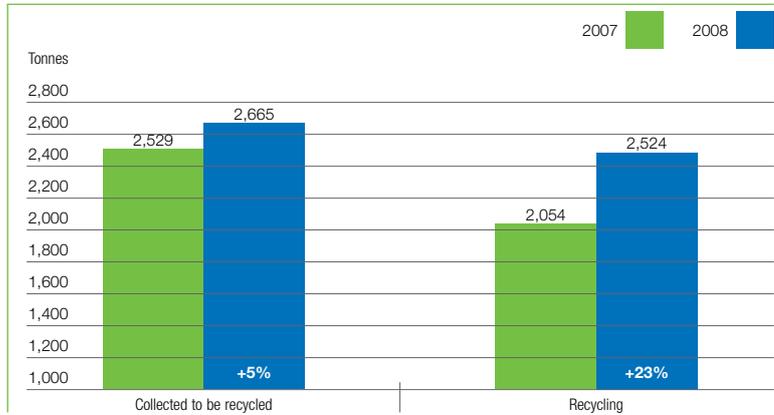
A decrease in the collection volume was again seen in Germany, despite more favourable gate-fee conditions.

Nevertheless, Germany remains the largest source of waste collected (35%). This decrease can be partly explained by the depressed economic situation of the construction sector in 2008, but also with relatively easy access to alternative disposal routes (e.g. landfill) in some EU countries. Collection was stable in Austria and Switzerland.

In the UK, there was a steady increase in recycling, both for post-consumer and of other post-consumer flooring waste. The outlets have been flooring manufacturers for post-consumer waste and road cones manufacturers for other post-consumer waste. This collection and recycling initiative, set up by EPFLOOR's members Tarkett, Polyflor, Altro Floors and Gerflor in cooperation with installers of flooring, is supported by WRAP (the Waste & Recovery Action Programme). The WRAP grant will cease by end of March 2009, but flooring manufacturers will continue the collection and recycling scheme.

A breakthrough was achieved for the recycling of safety floors: several UK flooring manufacturer managed to recycle post-industrial safety floors as part of the WRAP programme. Tests are now planned and will continue in 2009 for post-consumer flooring waste. Pre-sorting and treatment must ensure that suitable quality is obtained.

**EPFLOOR COLLECTION AND RECYCLING IN 2007 AND 2008 IN THE EU-27, SWITZERLAND AND NORWAY**

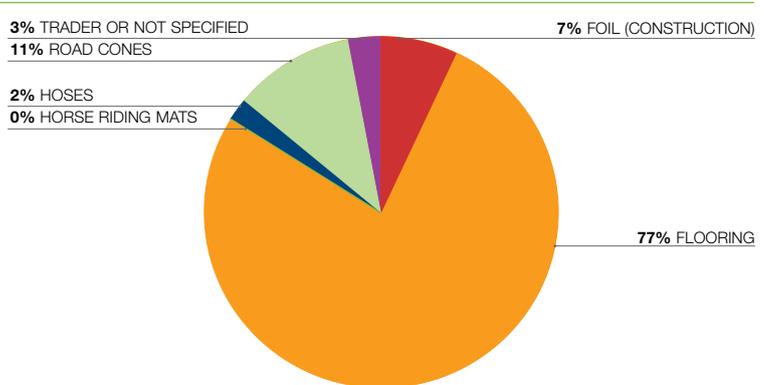


In France, collection increased to 477 tonnes a dramatic improvement over 2007 (282 tonnes). The main sources were large flooring installation companies, waste collectors (Paris, Brittany, Burgundy) and social housing refurbishment (e.g. Limoges, Lille...). Since refurbishment was not available to a large extent in 2008, the surge in collection is related to targeted actions and communications to installers: SFEC (the French Association of Calenderers) contacted 1,300 installers directly through one of its surveys. Furthermore, local flooring manufacturers have started their own post-consumer waste take-back schemes and this initiative is expected to contribute to a further increase in volumes in 2009.

SFEC is a very active partner and has participated in the 'Grenelle de l'Environnement'<sup>18</sup> initiative; SFEC has also organised environmental training for flooring installers and has been very active in increasing awareness on the need for recycling through its presence in the press.

The GBR<sup>19</sup> scheme, for the recycling of post-consumer waste, already exists in Sweden, Denmark and Norway and Denmark. A further pilot project for mechanical recycling in Sweden initiated in 2007 was discontinued in 2008 because Recovynil has decided against entering the Swedish market.

**SALES RECYCLATE FROM POST-CONSUMER PVC FLOORING RECYCLING IN 2008: PER APPLICATION**



<sup>17</sup> EPFLOOR: European PVC Floor Manufacturers, an EuPC sectoral group ([www.epffloor.eu](http://www.epffloor.eu))  
<sup>18</sup> An information and consultation initiative launched by the French Ministry of Ecology, Energy, Sustainable Development and Territory Management  
<sup>19</sup> GBR: Golvbranschen – Sweden ([www.golvbranschen.se](http://www.golvbranschen.se))



Energy saving, low maintenance and secure

...remains open  
to offering recycling  
solutions to any  
flooring installer,  
waste collector or  
municipality  
anywhere in Europe...

For 2009, the EPFLOOR collection forecast depends on the availability of waste, greatly linked to economic factors. The current economic downturn is most likely to have a negative impact on collection and recycling activities. But it is difficult to assess to what extent yet.

EPFLOOR plans to increase the collection schemes further in Nordic countries, France and the UK. But no new actions are planned in other countries for 2009. Nevertheless, EPFLOOR remains open to offering recycling solutions to any flooring installer, waste collector or municipality anywhere in Europe.

In terms of technological developments, EPFLOOR's objective is to develop safety flooring recycling further. It is planning to cooperate with the new generation Vinyloop® plant in Ferrara to test the recycling of post-consumer waste flooring. Furthermore EPFLOOR will continue to be actively involved in Vinyl 2010 initiatives to explore new recovery options.

#### Coated Fabrics

In 2008, IKV<sup>20</sup>/EPCOAT<sup>21</sup> collection and recycling system collected and duly recycled 4,555 tonnes of post-consumer PVC waste from coated fabrics in 2008. The IKV/EPCOAT project has thus already in 2008 fulfilled its promise, made in 2003, to recycle 4,000 tonnes post-consumer waste of PVC-coated fabrics by 2010.

Twelve companies participated in the system in 2008.

Besides campaigning for new participants in the system, the main task of the IKV<sup>20</sup> is to find new recovery processes for the waste from PVC-coated fabrics together with its partners. First results have already been achieved. Besides the production of riding mats, individual recyclers can produce shoe soles, wheels for trash cans and new building tarpaulins with quality seal. The last mentioned option will be continued in 2009 in order to increase the total recovery volume.

<sup>20</sup> IKV: Industrieverband Kunststoffbahnen – Association of Coated Fabrics and Films ([www.ikv-frankfurt.de](http://www.ikv-frankfurt.de))

<sup>21</sup> EPCOAT: EuPC PVC Coated Fabrics Sector Group ([www.eupc.org/epcoat](http://www.eupc.org/epcoat))

**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.

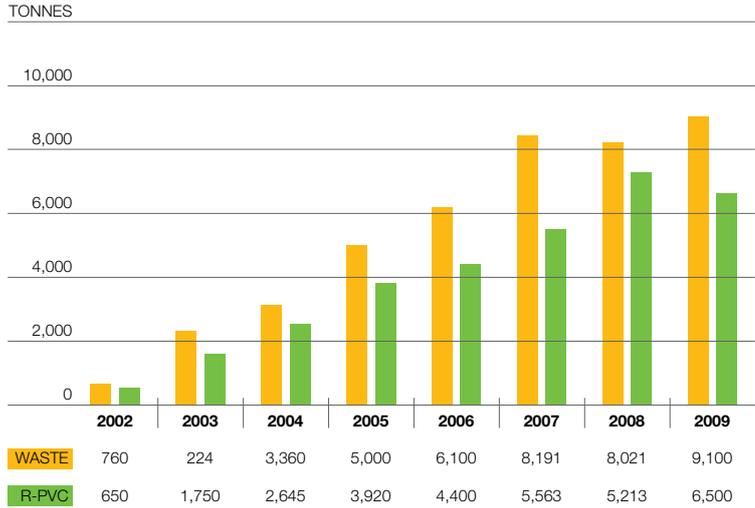
A technical breakthrough in Vinyloop® technology was made with the installation of the new decanter centrifuge, which is unique in the world. It was delivered in late 2007 and allows a significant reduction in the contamination and filler contents of recyclate from cable waste and the production of a better quality R-PVC with superior mechanical properties. The first trial started at the end of July 2008, with the decanter becoming operational in September. The reasons for the delay included issues concerning the modification of the operating permits.



New Vinyloop decanter

Since the decanter start-up, Vinyloop® has produced 450 tonnes of material, about 15 tonnes/day during November. But a 24-hour test run showed a potential of 30 tonnes/day. During the necessary trial period for such an innovative and unique technology, some additional modifications required were defined. Hence, as planned, at the end of 2008 the decanter was returned to the supplier for modifications. The modified decanter should be ready in Q2 2009.

**VINYLOOP® FERRARA PLANT PERSPECTIVES**



Product Quality	Filtration	Decanter
RAW MATERIAL (waste in kg)	1,250	1,425
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)	250	285
RESIDUE OF DECONTAMINATION	-	140
QUANTITY OF FILLER (%)	25%-30%	15%
ASPECT OF THE SURFACE OF EXTRUDED SAMPLES	Surface not really 'regular'	Surface quite good, near to virgin
FEEDBACK FROM CLIENTS	-	Positive: surface and density appreciated



Complex, but affordable, systems

The Taxyloop® pilot plant, based on similar technology and essentially dedicated to the treatment of tarpaulins and other fibres containing PVC waste, was started up in Q4 2008. The slight delay on target was due to the delayed start-up of the decanter centrifuge. The treatment of the first batches of 650 kg showed a good separation of fibres (which will be confirmed further), and there appears to be no problem at all for Taxyloop® pre-treatment or with the dissolution-filtration unit. The results of the first batches also confirmed that a well managed tarpaulins collection phase is important to avoid contaminations and to obtain better quality fibres.

### Halosep®

With the assistance of Vinyl 2010, the Halosep® process was designed by Watech to recover flue gas residues generated during the incineration of waste containing chlorine. Watech was later taken over by RGS90 and subsequently sold to the Swedish company Stena ([www.stenametal.com](http://www.stenametal.com)). At present, Stena is looking for partners to build a commercial-sized demonstration plant.

### Sumitomo Metal Feedstock Recycling Process

Vinyl 2010 is exploring the potential for a PVC-rich feedstock recycling technology based on Sumitomo Metal gasification system. Since 2007, the objective has been to identify a suitable location for a plant with on-site consumption of syngas and HCl (hydrogen chloride – generated as by-product by the recycling of waste containing PVC).

Investigations by Fairtec (a subsidiary of the Suez Group) on behalf of Vinyl 2010, covering the Benelux region, France and Germany, commenced in 2007, continued in 2008. Vinyl 2010 carried out investigations in parallel, and found two German sites that meet the technical requirements reasonably well. Nevertheless, important economic and strategic concerns remain in terms of partnership arrangements for ownership, waste acquisition/delivery and selling HCl and syngas.

Fairtec contacted several potential French partners, but concluded that 'It is clear that the number of potential partners is limited and that they will be looking for a significant involvement of Vinyl 2010' and 'An evaluation of the process shows that it does not quite present the characteristics of a proven technology and that it will need to be perfected and developed'.

The study was terminated in 2008.

## PVC WASTE MANAGEMENT: OTHER PROJECTS

### ERPA<sup>22</sup> – CIFRA<sup>23</sup>

During 2008, CIFRA recycled 1,465 tonnes of PVC post-consumer waste within the framework of Vinyl2010's activities.

2,100 tonnes of recycled films, for the GEOlight™ retention of water system, were produced during 2008 by CIFRA.

GEOlight™ is an ultra lightweight honeycombed modular structure made from recycled PVC. The ready to install units are pre-formed to provide an underground storm water storage facility, for the application of storm water attenuation. The high void rate (>95%), high compressive strength (to 1,000KN/m<sup>2</sup>) and low resistance to water flow makes GEOlight™ an ideal material for cost efficient and maintainable underground water storage.

### REACH and Recycling

The EU Directive 91/338, now part of Annex XVII of REACH, forbids the placing on the market of articles (except profiles) whose cadmium (Cd) content exceeds 100 ppm. As part of the European PVC Industry's Voluntary Commitment, cadmium stabilisers were actually phased out in the EU-15 in 2001 by ESPA and EuPC and, following the EU enlargement, the phase-out of cadmium was completed in the EU-27 by the end of 2007. Nevertheless, the EU Directive constitutes an issue for the legacy of cadmium still present in recycled PVC.



Making life more enjoyable

In July 2008, VITO (the Flemish Institute for Technological Research – [www.vito.be](http://www.vito.be)) was selected as consultant to develop an impact assessment of various possible options destined to reconcile recycling of PVC waste still containing legacy cadmium with the restrictions of the Annex XVII. This assessment in some detail considers several PVC applications, such as pipes, profiles, flooring, cables and roofing/waterproofing and different scenarios are being analysed.

EuPC adapted its waste model to calculate the further evolution of Cd-containing PVC waste streams for key applications where cadmium had been used in the past. Thus far, calculations of the average legacy cadmium content in various types of post-consumer waste have shown no relevance of the issue for cables (Cd never exceeded 100 ppm); and no issue for flooring either. Preliminary results have been achieved for profiles in the case of closed-loop recycling, while the recycling of mixed rigid PVC waste is being analysed.

The completion of the study is expected by Q2 2009.

Concerning REACH and recycling, Vinyl 2010 may also benefit from a study assessing the impact of REACH on the recycling of plastics in Germany. The study involves not only PlasticsEurope Germany, but also converters, waste management companies, authorities and some of the application sectors. It was scheduled to start in February 2008, but actually commenced in November 2008 and is still ongoing.

<sup>22</sup> ERPA: European Rigid PVC Film Association ([www.pvc-films.org](http://www.pvc-films.org))

<sup>23</sup> CIFRA: Calandrage Industriel Français – a French calendaring company ([www.cifra.fr](http://www.cifra.fr))

### Vinyl Foundation

The Vinyl Foundation is a not-for-profit, independently managed trust that was set up by EuPC with the assistance of Vinyl 2010. Its aim is to improve the efficiency of the collection of funding contributions from the European PVC converting industry towards the cost of Vinyl 2010's recycling initiatives. The Vinyl Foundation provides a mechanism to collect contributions requested from converters and, is based on the actual volume of PVC resin consumed. Thus the contributions due 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 set up to administrate the collection of funds independently, on behalf of the Vinyl Foundation.

In 2008, significant work was necessary to set up the Vinyl Foundation and pre-market the funding scheme.

It required strong communications activity to first inform converters about the system. Set up activities included a dedicated website ([www.vinylfoundation.org](http://www.vinylfoundation.org)), brochures in several languages, mailings, explanatory presentations and targeted media articles. Converters who contribute to the Vinyl Foundation become accredited partners of Vinyl 2010 and are able to benefit from the direct association with the Vinyl 2010 scheme. They are entitled to use the 'Vinyl 2010 Partner for Sustainability' logo.

The payment levels set for 2008 were based on a contribution of 0.35 euro per tonne for rigid PVC products and 1.25 euro per tonne for flexible PVC products. Based on the supplied data from the PVC producers and the contribution levels set per tonne, KPMG Fiduciaire calculated that the optimum funding potential through the Vinyl Foundation system for 2008 was some €2.9 million. In total 189 converting

companies from 20 countries actually made contributions totalling €1,018,792.

Communications activities are now concentrated on encouraging further contributions and highlighting the opportunities to be gained from being seen as a socially responsible business and the negative consequences of 'free-rider' behaviour.

The list of PVC converters contributing to the Vinyl Foundation is published on the website [www.vinylfoundation.org](http://www.vinylfoundation.org) and is regularly updated.

Based upon 2007 resin consumption volumes, the total potential value of payment requests for 2009 will again be between €2-3 million. In the face of the global financial crisis, Vinyl 2010 recognises the challenge in sustaining and improving on the funding levels achieved during 2008, but communications activities will be ongoing during 2009 to try to meet this objective.



Ensuring hygiene every time

### VINYL FOUNDATION BOARD

**Mr. Joachim Eckstein** – ERPA  
(Chairman)

**Mr. Alexandre Dangis** – EuPC

**Mr. David Clark** – Tarkett

**Andreas Hartleif** – VEKA AG

**Mr. Henk ten Hove** – Wavin

**Michael Kundel** – Renolit AG

  
Vinyl Foundation  
Supporting the future for PVC



## financial report

Expenditure by Vinyl 2010, including EuPC and its members amounted to €8.16 million in 2008, up from €7.68 in the previous year.

Whilst the cost of sectoral projects remained stable or decreased, the cost of the Recovynyl project increased due to the integration of sectoral activities and Recovynyl, its registered recycled volume increasing by 72%. In 2008, the costs from TEPPFA National activities were integrated in the auditing perimeter therefore explaining the increase compared to last year.

Vinyl 2010 – Waste Management Projects	Total expenditure including EuPC and its members	
	2008	2007
<b>Figures in 1,000s Euros</b>		
<b>EPCOAT*</b>	100	292
<b>EPFLOOR</b>	726	747
<b>EPPA</b>	671	605
<b>ESWA/ROOFCOLLECT®**</b>	209	375
<b>Recovynyl and Synergy Project</b>	5,359	4,513
<b>Studies</b>	61	13
<b>TEPPFA***</b>	974	134
<b>Vinyloop® Ferrara</b>	0	1,000
<b>Other</b>	59	0
<b>TOTAL</b>	<b>8,159</b>	<b>7,679</b>

\* The EPCOAT project was integrated into Recovynyl in 2008.

\*\* In 2008, ESWA/ROOFCOLLECT® transferred all its activities related to the collection and recycling to Recovynyl except for the recycling activities related to roofing and waterproofing membranes.

\*\*\* In 2008, national costs that were not reported before have been included.

# verification statements

## KPMG CERTIFICATION OF EXPENDITURE

### Independent Accountants' Report on Applying Agreed-Upon Procedures

To the Management of Vinyl 2010

We have been appointed by Vinyl 2010 in order to perform a verification of 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 2008. We confirm that we belong to an internationally-recognised supervisory body for statutory auditing.

We have performed the procedures enumerated below solely to assist you in certifying 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 2008. Vinyl 2010's management is responsible for the overview, analytical accounting and supporting documents. This agreed-upon procedures engagement was conducted in accordance with attestation standards established by the International Standards on Related Services. The sufficiency of these procedures is solely the responsibility those parties specified in this report. Consequently, we make no representation regarding the sufficiency of the procedures described below either for the purpose for which this report has been requested or for any other purpose.

#### Procedure

Obtain the total amount 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 2008 and ensure, on a sample basis, compliance with the following cumulative conditions:

- a • The costs are determined in accordance with international accounting principles (IAS/IFRS);
- b • The costs were incurred between January 1st, 2008 and December 31st, 2008;
- c • The costs are recorded in the accounts of the contractor no later than December 31st, 2008;

Our procedures did not address completeness of income and expenses.

#### Findings

The total amount of the expenses is KEUR 8.159

- a • The sample size covers all individual costs above EUR 1.500 of the total amount of costs. Based on this sample size, there were no findings.
- b • The sample size covers all individual costs above EUR 1.500 of the total amount of costs. Based on this sample size, there were no findings.
- c • The sample size covers all individual costs above EUR 1.500 of the total amount of costs. Based on this sample size, there were no findings.

We were not engaged to, and did not conduct an examination for which the objective would be the expression of an opinion on overview, analytical accounting and supporting documents. Accordingly, we do not express such an opinion. Had we performed additional procedures, other matters might have come to our attention that would have been reported to you without prejudice to the current organization.

This report is intended solely for the information and use of the management of Vinyl 2010, and is not intended to be and should not be used by anyone other than these specified parties.

KPMG Bedrijfsrevisoren burg. CVBA – Réviseurs  
d'Entreprises SCRL civile



represented by  
**Dominic Rousselle,**  
Partner  
Louvain-la-Neuve, April 1st 2009

## 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 between 1st January 2008 and 31st of December 2008.

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 2008.

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 information provided, 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  
**Ludo Ruysen,**  
Partner  
Brussels, March 31st 2009

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

PROJECT	Type of PVC post consumer waste	Tonnage recycled in 2007	Tonnage recycled in 2008	% Increase
<b>EPCoat</b> (and, only for 2008, Recovinyl)	Coated fabrics	2,609*	11,323*	N/A**
<b>EPFLOOR</b>	Flooring	2,054*	2,524*	22.88
<b>EPPA</b> (incl. Recovinyl)	Window profile waste & profile related waste	56,046	79,877	42.52
<b>ESWA - ROOFCOLLECT and Recovinyl</b>	Flexible PVC	20,454*	19,333* tonnes which consist of:	N/A**
<b>ESWA - ROOFCOLLECT</b>	Roofing and waterproofing membranes		954	
<b>Recovinyl</b>	Flexible PVC applications		18,379	
<b>TEPPFA</b> (incl. Recovinyl)	Pipes & fittings	21,236	22,555	6.21
<b>ERPA</b> via Recovinyl (incl. CIFRA)	Rigid PVC film	2,135	4,352	103.84
<b>Recovinyl</b> (incl. Vinyloop Ferrara)	Cables	44,929	54,986	22.38
<b>TOTAL</b>		<b>149,463</b>	<b>194,950</b>	<b>30.43</b>

\* Tonnage including Norway and Switzerland

\*\* Not applicable, due to transfers between waste categories

## SGS VERIFICATION STATEMENT - 2009 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 55,000 people and operate a network of more than 1,000 offices and laboratories around the world...

SGS was for the first time commissioned by Vinyl 2010 to provide an independent verification of the 2009 Progress Report. The 2009 Progress Report presents the achievements made by the Vinyl 2010 project in 2008 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.

### Verification Results

It is our opinion that the Vinyl 2010 2009 Progress Report represents Vinyl 2010's achievements in 2008 in a fair and honest way. The report reflects in a balanced way the PVC industry's effort to comply with its revised commitments in the Voluntary Commitments of the PVC Industry of May 2006.

There are not defined any key milestones for 2008 in the "Voluntary Commitments of the PVC Industry" of May 2006. However, specific targets for 2008 were established in the "Vinyl 2010 2007 Progress Report". Most of these targets are achieved, and great effort has been done by the industry to meet its commitments by 2010.

Strong performance has been demonstrated also this year with the recycled tonnages of PVC waste, particularly through the Recovinyl project. The recycled volume of wastes has increased almost to the target year level. It will be a continuous effort however to increase the amount of supply lines and to demonstrate REACH compliance of recycled PVC.

The continuous substitution of lead-based stabilisers is still going on, which is confirmed by the corresponding growth in calcium organic stabilisers. However, as already mentioned in previous progress reports, a great effort will be required by the industry to achieve the extended commitment of 100% phase out of lead stabilisers in EU-27 by 2015.

A key milestone for the industry was to complete risk assessments for five commonly used phthalates by 2005. Phthalates are softeners (plasticizers) which are incorporated into PVC and plastic in order to increase its process ability and flexibility. In 2008 the last remaining phthalate risk assessments were finally published by Toxicology and Chemical Substances (TCS) of the

Institute for Health and Consumer Protection (IHCP), which is one of the seven scientific institutes in the European Commission's Joint Research Centre (JRC). The mission of the IHCP is to protect the interests and health of the consumer in the framework of EU legislation on chemicals, food and consumer products. The TCS (currently named Consumer Products Safety & Quality (CPS&Q) Unit), formerly known as the European Chemicals Bureau (ECB), provides scientific and technical support to the conception, development, implementation and monitoring of EU policies on dangerous chemicals and consumer products including the co-ordination of EU Risk Assessments. The aim of the legislative activity of the ECB is to ensure a high level of protection of workers, consumers and the environment against dangerous chemicals and to ensure the efficient functioning of the internal market on chemicals under the current Community legislation. It plays a major role in the implementation of REACH through development of technical guidance for industry and new chemical agency and tools for chemical dossier registration into the International Uniform Chemical Information Database (IUCLID 5).

The full conclusions of the in 2008 published risk assessments of the phthalates DEHP and BBP are available at the ECB website.

It is SGS's opinion that the European PVC industry has established a sound basis for meeting its obligations in the Vinyl 2010 programme. Eight years with comprehensive work demonstrates the industry's willingness to meet its commitments within environmental sustainability. It should also be mentioned that the industry shows an open and proactive attitude to encourage an ongoing dialogue with its stakeholders (represented in its monitoring committee).



Marnix Schittecatte,  
SGS S&SC Business Manager – Belgium

## appendix 1 – glossary

<b>Ba/Zn</b>	Barium-zinc	<b>ECVM</b>	European Council of Vinyl Manufacturers ( <a href="http://www.pvc.org">www.pvc.org</a> )
<b>BBP</b>	Butyl Benzyl phthalate	<b>ECVM Charters</b>	ECVM Industry Charters for the Production of VCM and S-PVC (1995) and for the Production of E-PVC (1998) ( <a href="http://www.pvc.org">www.pvc.org</a> )
<b>BMBF</b>	Bundesministerium für Bildung und Forschung (Germany's Federal Ministry of Education and Research)	<b>ECVM 2010</b>	the ECVM's formal legal entity registered in Belgium
<b>Ca/Zn</b>	Calcium-zinc	<b>EDC</b>	Ethylene dichloride or 1,2-dichlorethane
<b>Cd</b>	Cadmium	<b>EEA</b>	European Economic Area
<b>CEN</b>	European Standardisation Committee	<b>EEC</b>	European Economic Community
<b>CIFRA</b>	Calandrage Industriel Français (a French calendering company – <a href="http://www.cifra.fr">www.cifra.fr</a> )	<b>EMCEF</b>	European Mine Chemical and Energy Workers Federation ( <a href="http://www.emcef.org">www.emcef.org</a> )
<b>CIB</b>	International Council for Research and Innovation in Building and Construction ( <a href="http://www.cibworld.nl">www.cibworld.nl</a> )	<b>EN</b>	European Norm
<b>CSD</b>	Commission on Sustainable Development	<b>EPCOAT</b>	EuPC PVC Coated Fabrics Sector Group ( <a href="http://www.eupc.org/epcoat">www.eupc.org/epcoat</a> )
<b>CSIRO</b>	Commonwealth Scientific and Industrial Research Organisation ( <a href="http://www.csiro.au">www.csiro.au</a> )	<b>EPD</b>	Environmental Product Declaration
<b>DBP</b>	Di-n-butyl phthalate	<b>EPFLOOR</b>	European PVC Floor Manufacturers, an EuPC sectoral group ( <a href="http://www.epfloor.eu">www.epfloor.eu</a> )
<b>DEHP</b>	di(2-ethylhexyl) phthalate	<b>EPPA</b>	European PVC Window Profile and Related Building Products Association, an EuPC sector group ( <a href="http://www.eppa-profiles.org">www.eppa-profiles.org</a> )
<b>DIDP</b>	Di-isodecyl phthalate	<b>E-PVC</b>	Emulsion Polyvinyl chloride
<b>DINP</b>	Di-isononyl phthalate	<b>ERPA</b>	European Rigid PVC Film Association ( <a href="http://www.pvc-films.org">www.pvc-films.org</a> )
<b>DNV</b>	Det Norske Veritas, a Norwegian testing and verification organisation ( <a href="http://www.dnv.com">www.dnv.com</a> )	<b>ESPA</b>	European Stabiliser Producers Association ( <a href="http://www.stabilisers.org">www.stabilisers.org</a> )
<b>DPR</b>	Deutsche PVC-Recycling GmbH ( <a href="http://www.pvc-recycling.org">www.pvc-recycling.org</a> )		
<b>ECPI</b>	European Council for Plasticisers and Intermediates ( <a href="http://www.ecpi.org">www.ecpi.org</a> )		

<b>ESWA</b>	European Single Ply Waterproofing Association, an EuPC sectoral association ( <a href="http://www.eswa.be">www.eswa.be</a> )	<b>PVC-U</b>	Unplasticised polyvinylchloride
<b>EU</b>	European Union	<b>REACH</b>	Registration, Evaluation, Authorisation and restriction of CHemicals
<b>EuPC</b>	European Plastics Converters ( <a href="http://www.plasticsconverters.eu">www.plasticsconverters.eu</a> )	<b>R-PVC</b>	Recycled PVC
<b>FONA</b>	Forschung für Nachhaltigkeit (the framework programme 'Research for Sustainability' of Germany's Federal Ministry of Education and Research)	<b>SCENIHR</b>	Scientific Committee for Emerging and Newly Identified Health Risks
<b>GBR</b>	Golvbranschen - Sweden ( <a href="http://www.golvbranschen.se">www.golvbranschen.se</a> )	<b>SGS</b>	Société Générale de Surveillance – the world's leading testing and verification organisation
<b>HCl</b>	Hydrogen chloride	<b>SME</b>	Small and Medium-Sized Enterprise
<b>iisBE</b>	International Initiative for a Sustainable Built Environment ( <a href="http://www.iisbe.org">www.iisbe.org</a> )	<b>S-PVC</b>	Suspension Polyvinyl chloride
<b>IVK</b>	Industrieverband Kunststoffbahnen – Association of Coated Fabrics and Films ( <a href="http://www.ivk-frankfurt.de">www.ivk-frankfurt.de</a> )	<b>SVHC</b>	Substances of Very High Concern
<b>kt/a</b>	Kilo tonne/year	<b>t</b>	tonne
<b>LCA</b>	Life cycle assessments	<b>TEPPFA</b>	European Plastic Pipes and Fittings Association, an EuPC sectoral association ( <a href="http://www.teppfa.org">www.teppfa.org</a> )
<b>NTP</b>	National Toxicology Program	<b>TNO</b>	Dutch research organisation ( <a href="http://www.tno.nl">www.tno.nl</a> )
<b>ÖAKF</b>	Österreichischer Arbeitskreis Kunststoff-Fenster (Austrian Organisation for Plastic Windows Recycling – <a href="http://www.fenster.at">www.fenster.at</a> )	<b>UN</b>	United Nations
<b>ÖAKR</b>	Österreichischer Arbeitskreis Kunststoffrohr Recycling (Austrian Organisation for Plastic Pipes Recycling – <a href="http://www.oeakr.at">www.oeakr.at</a> )	<b>UNCED</b>	United Nations Conference on Environment and Development
<b>OCU</b>	Organización de Consumidores y Usuarios (Spanish Consumers and Users Organisation – <a href="http://www.ocu.org">www.ocu.org</a> )	<b>UNEP</b>	United Nations Environment Program
<b>PlasticsEurope</b>	Association of Plastics Manufacturers ( <a href="http://www.plasticseurope.org">www.plasticseurope.org</a> )	<b>VCM</b>	Vinyl chloride monomer
<b>ppm</b>	part per million	<b>VITO</b>	Vlaamse Instelling voor Technologisch Onderzoek (the Flemish Institute for Technological Research – <a href="http://www.vito.be">www.vito.be</a> )
<b>PVC</b>	Polyvinyl chloride	<b>VUB</b>	Free University of Brussels ( <a href="http://www.vub.ac.be">www.vub.ac.be</a> )
		<b>WRAP</b>	Waste & Recovery Action Programme
		<b>YAC</b>	Youth Action for Change ( <a href="http://www.youthactionforchange.org">www.youthactionforchange.org</a> )

# Vinyl 2010 and its members

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Vinyl 2010 represents the whole PVC industry chain. Its four founding members are:



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