

2004

COMMITTED TO SUSTAINABLE DEVELOPMENT

Vinyl 2010

Progress report 2004

respect for the environment

social progress

economic development



Executive Summary

THE YEAR ONCE AGAIN SAW SOLID PROGRESS BY THE PVC INDUSTRY WITHIN THE ECONOMIC, ENVIRONMENTAL AND SOCIAL PRINCIPLES OF SUSTAINABLE DEVELOPMENT. THE HIGHLIGHTS OF THIS SUBSTANTIAL AND AMBITIOUS UNDERTAKING ARE PRESENTED IN THIS EXECUTIVE SUMMARY.

VINYL 2010 AND THE VOLUNTARY COMMITMENT

Vinyl 2010 puts the PVC industry's Voluntary Commitment into practice. Signed in 2000, this is a 10-year plan to deliver continuous improvement in product stewardship across the PVC life-cycle. Principal elements of the pledge are to cut raw material and energy consumption in manufacturing; minimise the environmental impact of resin production; develop a comprehensive waste management strategy; ensure that all plasticisers can be safely used; and assess potential risks linked to lead as a stabiliser while working toward replacement by 2015. The industry also committed to cease using cadmium stabilisers, which has been done.

Implementation through Vinyl 2010 emphasises:

- Clear numerical targets on recycling.
- Significant investment on scientific and technical research and on increasing practical knowledge.
- Transparency, achieved through annual reports and by active involvement of external stakeholders.

MONITORING PROGRESS

The Monitoring Committee held its first meeting in 2003 with senior representatives from the European Commission, the European Parliament and Trade Unions. Under the Chairmanship of Professor Alfons Buekens of the Free University of Brussels, the Committee monitors and reviews progress on the Voluntary Commitment.

EU ENLARGEMENT

Enlargement brings new challenges for sustainable development. Vinyl 2010 continued its work with the PVC industry in EU accession countries to raise health, safety and environmental standards within the framework of sustainable development.

FINANCE

Expenditure by Vinyl 2010, including EuPC and its members, amounted to €4.4 million in 2003, down slightly from €4.5 million the year before. Expenditure on waste management and other projects is expected to increase substantially during the current year.

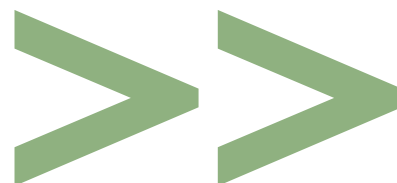
The 2003 accounts were audited and approved by KPMG.

PROGRESS ON PRINCIPAL PROJECTS

"IT IS PARTICULARLY ENCOURAGING TO NOTE VINYL 2010'S ACHIEVEMENT OF THE 2003 TARGET TO RECYCLE 25% OF COLLECTABLE, AVAILABLE PVC WASTE FROM WINDOW PROFILES, ROOFING MEMBRANES, PIPES AND FITTINGS."

This is how DNV Consulting, commissioned by Vinyl 2010 to provide an independent verification of the Progress Report, evaluated some of the year's progress.

The Voluntary Commitment is a major undertaking in terms of financial and human resources and its long-term success depends on steady improvement. This was demonstrated throughout the year as summarised in the following table:



	Resin Production	Stabilisers	Plasticisers
Vinyl 2010 Member	ECVM	ESPA	ECPI
Key Commitments	<p>Reduce environmental impact of emissions during production to a minimum.</p> <p>Improve the eco-efficiency of PVC resin manufacturing.</p>	<p>Assure responsible use of stabilisers used with PVC.</p> <p>Develop and provide stabiliser systems consistent with long term sustainable development.</p>	<p>Assure responsible use of plasticisers used with PVC.</p> <p>Boost research, studies and expertise on plasticisers.</p>
Targets	Comply with the ECVM Industry Charters for producing PVC by the suspension (S-PVC) and emulsion (E-PVC) processes.	<p>Discontinue sales of cadmium stabilisers (done in 2001).</p> <p>With the support of EuPC, reduce sales of lead stabilisers by 15% by 2005, by 50% in 2010 and to zero by 2015.</p>	<p>Support completion of phthalates risk assessment (EU process).</p> <p>Support the Lifecycle Inventory (LCA) evaluation of materials.</p>
Voluntary Commitment Approach	ECVM Industry Charters.	Research and develop alternative stabilisers. In parallel conduct and/or participate in risk assessments on cadmium, lead and tin.	<p>Scientific research and Risk Assessment.</p> <p>Public information resources (websites) on health and safety.</p>
Highlights of the Year	E-PVC Charter verification audit planned, based on 2004 results.	Lead Risk Assessment continued on track.	Research projects covering mechanisms of reproductive toxicity, epidemiological studies on asthma and research on human exposure and biomonitoring.

	Waste Management: EuPC Sectorial Projects	Waste Management: Pilot Projects and Studies	Social Progress and Dialogue
	EuPC	All	All
risers rtise on	Implement recovery and recycling schemes for specific applications.	Continue studies, research and trial projects: these are vital to achieving the targets set and to the long-term success of the Voluntary Commitment.	Collaborate with EU Trade Unions (EMCEF) to develop European safety, health and environment standards. Work to transfer standards to EU accession countries. Dialogue with European works councils.
s risk- LCI)	Recycle 25% and 50% of the collectable, available PVC waste from window profiles, pipes, fittings and roofing membranes by 2003 and 2005 respectively, and 25% of flooring by 2006 (50% by 2008).	Develop recovery and recycling schemes. Work in collaboration with local and regional institutions where possible.	Promote and enhance social progress within terms of sustainable development.
ssments. bsites)	Sectoral recycling projects on pipes and fittings, window profiles, roofing membranes, coated fabrics and flooring.	Develop and evaluate technologies of mechanical and feedstock recycling. Evaluate eco-efficiency of the available recovery and recycling options.	Social Dialogue Charter of the PVC industry.
anisms ology on ing.	Targets for 2003 met. Progressively enlarged the number of countries involved in sectoral recovery and recycling schemes.	Peer-reviewed and published eco-efficiency study on available recovery and recycling options. ACRR project – prepared the "Good practice guide on waste plastics recycling – a guide by and for local and regional authorities". Advanced on the Vinyloop and RGS-90/Stigsnaes projects.	Continued regular meetings to progress health, safety, social and environmental issues in the EU and in EU accession countries.

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Foreword



Making Steady Progress

Four years have passed since the establishment of Vinyl 2010 and once again I am pleased to report steady progress toward our long-term goals of sustainability.

The challenges we set for ourselves continue to demand commitment, investment and much hard work. Vinyl 2010 is a huge project in scope, depth and ambition and we are now seeing solid results across the many different undertakings and projects.

We are delighted to announce the achievement of our Voluntary Commitment target to recycle 25% of collectable, available PVC waste from window profiles, roofing membranes, pipes and fittings in 2003. It represents a true success for Vinyl 2010 and it demonstrates that we are fully on track to achieve the 50% objective in 2005.

Other important positive results come from the field of mechanical and feedstock recycling, where the Vinyloop®, RGS-90/Stigsnaes and Dow/BSL technologies showed a promising potential to increase volumes of recycling.

Our continuing work with the Trade Union organisation EMCEF⁽¹⁾ aims to take advantage of the Voluntary Commitment approach as an efficient way of transferring best practice to the acceding EU Member States, avoiding complex legislative processes.

We are preparing for the challenge of integrating the EU accession countries into building a sustainable future for European industry. Several meetings were held in these states, including one involving Trade Unions, to help raise health, safety and environmental standards to higher levels.

Another landmark in 2003 was the establishment of a Monitoring Committee with the participation of senior Commission officials and representatives of the European Parliament. The importance of "keeping under continual review the progress towards achieving the Voluntary Commitment" was emphasised by European Commissioner Margot Wallström⁽²⁾ and we are pleased that the Monitoring Committee has for the first time reviewed Vinyl 2010's progress report.

Vinyl 2010 is still waiting for a Communication from the European Commission and everyone in the industry would welcome policy clarity to facilitate progress. With or without this, however, Vinyl 2010 will continue to put into practice the Commitment of the industry chain toward sustainability.

There remain many challenges to overcome; challenges that Vinyl 2010 is taking on with vigour and enthusiasm to further protect the environment, create social advancement and increase economic wealth within the PVC industry for the ultimate benefit of the citizens of Europe.

A handwritten signature in black ink, which appears to read "David Thompson". The signature is written in a cursive, flowing style.

David Thompson
Chairman Vinyl 2010

⁽¹⁾ EMCEF: European Mine Chemical and Energy Workers Federation.

⁽²⁾ 18.09.03 /Answer given by Ms. Wallström to question E-2416/03 by MEP Concepcio Ferrer

Statement from the Chairman of the Monitoring Committee

2003 was the first year for the Monitoring Committee, a group that brings together stakeholders to provide an independent review of the progress of Vinyl 2010.

The simple fact that the Committee exists shows the seriousness of the PVC industry. As Chairman, I am especially pleased about the participation of members from outside industry – currently from the European Commission, the European Parliament and the Trade Unions. They are helping Vinyl 2010 to succeed and therefore to move toward sustainable development as a practical reality. I would welcome the inclusion of representatives from Non Governmental Organisations who likewise have a strong interest in this area.

The Committee is a transparent group and our minutes are open to everyone. They can be found on the website of Vinyl 2010.

We have reviewed this report and are in agreement with its contents as published.



Professor Alfons Buekens



Milestones and Targets

Achievements and Results in 2003

Q U A R T E R 1

Publication by ESPA of 2002 statistics on the three main uses of lead

-Achieved 

Q U A R T E R 2


Peer-review and publication of eco-efficiency study

-Achieved 

Conclusion from the improved logistics scheme for the Dow/BSL plant

-Achieved 

Set-up of Recovinyl SA to boost PVC mechanical recycling by independent recyclers


-Achieved 

Going on-line of Recovinyl SA website interface with waste owners (input specifications)


-Delayed, please see project report 

Q U A R T E R 3

Start of large-scale pilot production for Redop project

-Achieved in Q4, please see project report 

Start of plant modifications for large-scale Stigsnaes feedstock recycling plant

-Planning permission obtained in October 2003 from district authorities; construction work ready to start (early 2004) 

Initiation of various pilot collection tests by EPFLOOR

-Achieved 

Start of test collection under the EPCOAT project in France

-Achieved 

Start of test collection under the EPCOAT project in Germany

-Postponed to Q1 2004 

Recovinyl SA sales department on-line

-Delayed, please see project report 

Q U A R T E R 4

Compliance deadline for the ECVI E-PVC Charter

-Achievement will be verified through audit planned in 2004 and will be reported next year



Completion of EU risk assessments on DBP, DINP and DIDP

-Awaiting publication, please see project report



25% recycling of collectable, available PVC post-consumer waste from pipes, windows, fittings and roofing membranes by EPPA, TEPPFA and ESWA

-Achieved



Final choice on recycling process for ESWA project

-Achieved



Completion by EPFLOOR of pilot tests to expand flooring waste collection scheme

-Achieved (Pilot in the Netherlands completed; joint application synergy project to be continued for expanding collection schemes in Germany)



Completion by EPCOAT of study on artificial leather collection and recycling

-Achieved



Results from survey on novel gasification processes for treating PVC-rich waste streams

-Achieved



Interim conclusion of UK mixed PVC recycling project

-Achieved



Evaluation on start-up period of Recovynyl SA

-Delayed, please see project report



Targets for 2004

Q U A R T E R 1

Test collection under the EPCOAT project to start in Germany
2003 statistics on the tonnages of PVC stabilisers to be published by ESPA

Q U A R T E R 2

ESWA project: geographic extension in Benelux, France and Austria

Light concrete project: conclusion of feasibility study

EPFLOOR: evaluation of test with novel mechanical recycling partner in Spain

Vinyloop Dreux project: completion of feasibility study

Steering committee to decide future steps for the Redop project

Q U A R T E R 3

Start testing Halosep-Watech process at pilot plant level

Q U A R T E R 4

Commissioning of large-scale RGS-90/Stigsnaes feedstock recycling plant

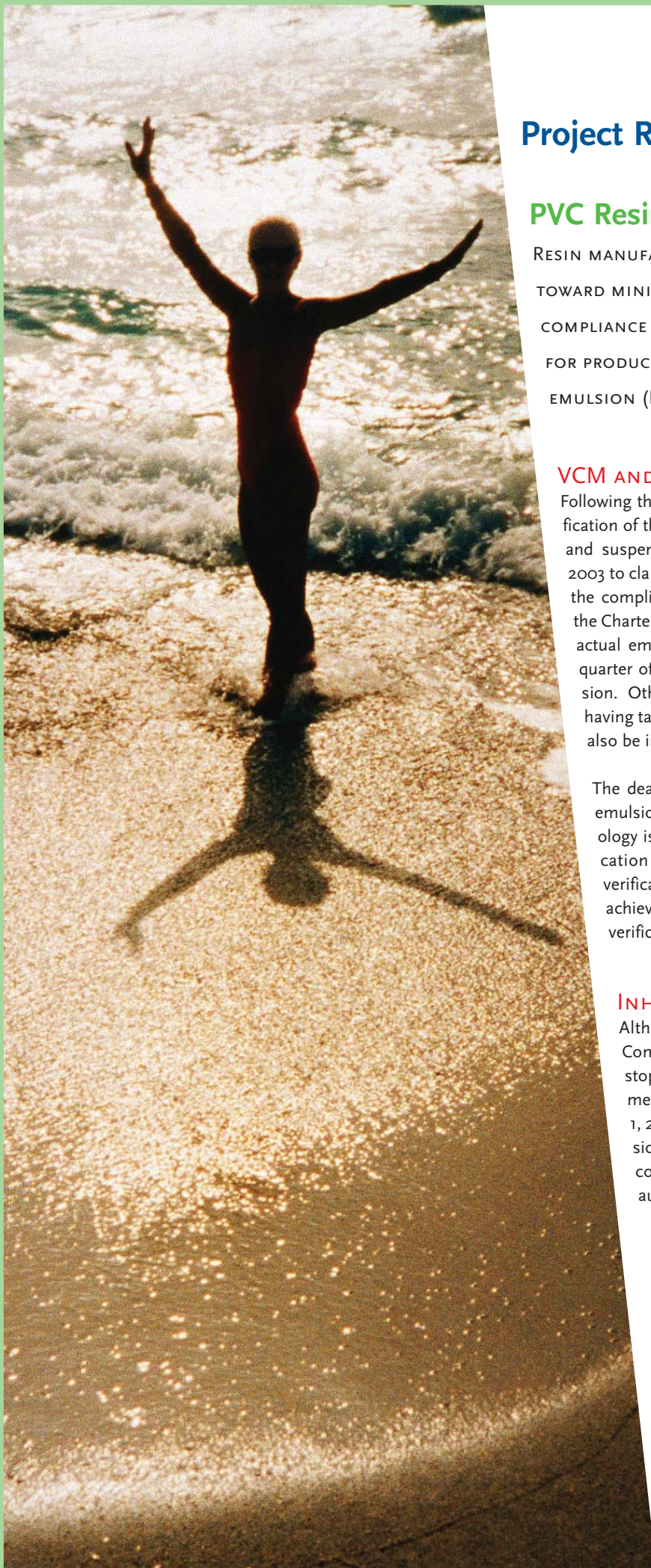
EPFLOOR: recycling of PVC flooring in feedstock recycling plant RGS-90/Stigsnaes to begin

EPFLOOR: evaluation of pilot collection tests in France, Germany and UK

Completion of EU risk assessments on DEHP and BBP

Decision on investment and starting operation of UK mixed PVC recycling project

EPCOAT: signature of the commitment related to the achievement of project objectives in 2007



Project Reports

PVC Resin Manufacturing

RESIN MANUFACTURERS ARE CONTINUING THEIR EFFORTS TOWARD MINIMIZING ENVIRONMENTAL IMPACT THROUGH COMPLIANCE WITH THE ECVM(*) INDUSTRY CHARTERS FOR PRODUCING PVC BY THE SUSPENSION (S-PVC) AND EMULSION (E-PVC) PROCESSES.

VCM AND PVC

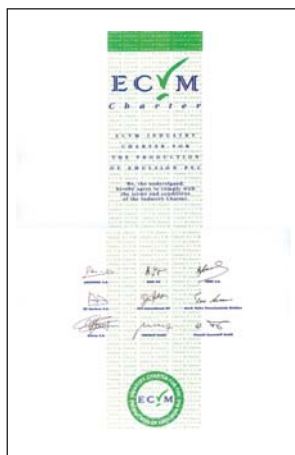
Following the results, announced in 2002, of the second verification of the ECVM Charter for the production of EDC/VCM and suspension PVC, an ECVM task force started work in 2003 to clarify any methodological uncertainties remaining in the compliance process and to investigate where and how the Charter could be updated. A comprehensive survey of the actual emissions levels will be completed during the first quarter of 2004 and will constitute an element of the revision. Other elements, including technological progress, having taken place since the Charter was signed in 1995 will also be included.

The deadline for compliance with the ECVM Charter on emulsion PVC was end 2003. Preparation work (methodology issues, site questionnaires, etc.) for the first verification of this Charter has started. The external verification will assess compliance, based on the actual achievements of 2004. We expect final results of this verification during the first quarter of 2005.

INHIBITORS

Although not included within the Voluntary Commitment, ECVM member companies have stopped using bisphenol-A as an inhibitor in the polymerisation stage of PVC production as from January 1, 2002. The decision was made following the conclusions from the risk assessment on bisphenol-A conducted under the responsibility of the UK authorities.

(*)ECVM - The European Council of Vinyl Manufacturers



ECVM Industry Charter

The UK authorities have formally accepted the voluntary action of the members of ECVM as a valid "risk reduction strategy". The voluntary action will thus be the only such strategy proposed to the European Commission.

To ensure proper compliance monitoring, ECVM has accepted to include this agreement in the next revision of the ECVM Charter.

ECVM Charters are regularly submitted to external verification and are an integral part of Vinyl 2010 and hence subject to the scrutiny of the Monitoring Committee.

RISK ASSESSMENTS

EU risk assessments of the commercially used phthalate plasticisers continued in 2003.



ECPI publication

ECPI is awaiting final approval by the European Commission of the EU risk assessments on dibutyl phthalate (DBP), diisononyl phthalate (DINP) and diisodecyl phthalate (DIDP). Risk assessments on di-(2-ethylhexyl) phthalate (DEHP) and butyl benzyl phthalate (BBP) should be finalised during the course of 2004. The technical risk assessment report on DINP has already been published in its final form by the European Chemicals Bureau and it shows no risk to human health or the environment for any current use. The report is available on the DINP Information Centre website at www.dinp-facts.com.

Plasticisers

PLASTICISERS ARE ADDED TO PVC TO MAKE IT FLEXIBLE, RESILIENT AND EASIER TO HANDLE FOR A WIDE RANGE OF FINAL APPLICATIONS.



PLASTICISER RESEARCH

In 2003, ECPI(*) contributed more than €500,000 to research projects on mechanisms of reproductive toxicity, epidemiology studies on asthma and research on human exposure and biomonitoring.

The latter included preparation for a major study in 2004 with human volunteers. These activities fulfil the plasticiser industry's continuing commitment to build up its scientific database and to ensure that plasticisers can be used without risk to the environment or human and animal health.

SECOND GLOBAL SCIENTIFIC WORKSHOP

Preparatory work began in 2003 for the second Global Scientific Workshop, which will take place in Europe during 2004. The aim of this major event is to enhance understanding of the safe use of plasticisers. It will bring together industry and other scientific experts to discuss and evaluate findings from the latest research studies and to exchange information.

AVAILABILITY OF INFORMATION

ECPI remains committed to increasing people's understanding of the safe use of phthalates and invests accordingly. During 2003 further specialist Internet sites were developed and brought online and can be visited at www.plasticisers.org and www.phthalates.com. With the expansion of the European Union, it is now even more important to have ready access to detailed information in a form that is clear and easy to understand.

(*)ECPI - The European Council for Plasticisers and Intermediates

Stabilisers

STABILISERS ARE ADDED TO PVC TO ALLOW IT TO BE PROCESSED AND TO MAKE IT RESISTANT TO HEAT, SUNLIGHT (ULTRAVIOLET RAYS) AND OTHER EXTERNAL FORCES.

RISK ASSESSMENTS

Risk Assessments involving ESPA^(*) on cadmium, lead and tin continued throughout 2003.

The voluntary risk assessment of lead is on track for submission in September 2004 to the Dutch rapporteur. The assessment is then expected to go through the Existing Substances procedures for discussion by all EU Member States – the first example of such a voluntary procedure.

With respect to cadmium, ESPA members phased out the sale of all cadmium stabilisers in the EU, Norway and Switzerland in 2001.

EUROPEAN PRODUCTION DATA

Tonnes of stabiliser systems	2000	2001	2002	2003
Formulated Lead Stabilisers ⁽¹⁾	120,421	113,378	113,256	118,927
Formulated Mixed Metal Solid Stabilisers e.g. Ca/Zn systems ⁽²⁾	17,579	17,988	23,946	29,758
Tin Stabilisers ⁽³⁾	14,666	15,614	14,756	14,180
Liquid Stabilisers – Ba/Zn or Ca/Zn ⁽⁴⁾	16,709	13,351	13,975	13,441

Notes

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

- 1 Used in pipe/profiles for construction and electrical cables.
- 2 Includes food-contact and medical applications, plus all lead replacement systems.
- 3 Used primarily in rigid applications including food-contact use.
- 4 Used in the wide range of flexible PVC applications, calendered sheet, flooring etc.

The tonnage figures represent sales to EU countries plus Norway, Switzerland and Turkey. In 2002 and 2003 ESPA managed to bring new members into its organisation and so make the tonnage figures closer to 100% coverage. This explains the apparent decrease in the rate of substitution of lead in the figures for the last two years.

PROGRESS ON LEAD SUBSTITUTION

The first target regarding lead substitution is the reduction of lead stabiliser sales by 15% in 2005. It will be important to be able to accurately verify the achievement of this target, towards the real market in the EU15 member states, as committed in the Voluntary Commitment.

- Figures in previous Progress Reports cover sales by members of ESPA. ESPA represents approximately 90% of the market from 1999 to 2002, and 97% for 2003 (and not 2002 as indicated erroneously in the 2003 report).
- The reference figures for 2000 must relate to the EU15 member countries only. This means that the above-mentioned lead volumes will have to be corrected, as they currently include Switzerland, Norway and sales by ESPA members to Turkey. The result will be presented in the next Progress Report and all future statistics will only relate to the EU15 member countries.
- It is important to provide statistics for the whole EU15 market and to include all ESPA members. Consequently, the ESPA 2000 figures will be adjusted in future Progress Reports to take this into account.
- To reflect the real situation, ESPA will also include estimates of the volumes sold to the market by non-ESPA members (which are believed currently to represent approximately 3% of the EU market).

The table below shows that the usage of lead stabilisers, based on our understanding of the market, has dropped by 5.3% in the four years to 2003 and that substitution has been 11.3%.

Calculation of the Substitution Rate^{**}

Tonnes of stabiliser systems	2000	2003	Difference (%)
Formulated lead stabilisers (A)	128,721 ⁽¹⁾	121,927 ⁽²⁾	- 5.3
Formulated solid stabilisers Ca-Zn (B)	17,579	34,258 ⁽³⁾	+ 100.0 ⁽⁴⁾
(A) + (B)	146,300	156,185	+ 6.7
(A)/((A) + (B))	87.9%	78.0%	

- (1) 120,421 + 8,300 estimated non recorded
- (2) 118,927 + 3,000 estimated non recorded
- (3) 29,758 + 4,500 estimated non recorded
- (4) This number corresponds to the PVC consumption growth

^{**} including Switzerland, Norway and sales by ESPA members to Turkey

Substitution corresponds to the change in ratio (A)/((A)+(B)). The comparison of this ratio between 2000 and 2003, respectively 87.9% and 78%, shows a real decrease of 11.3%. Substitution is faster than the impression we can get from the reduction in lead consumption.

^(*)ESPA - The European Stabiliser Producers Association

PVC Waste Management: Sectoral Projects with Specific Recycling Targets

OUR INDUSTRY'S COMMITMENT IS TO RECYCLE 25% BY 2003 AND 50% BY 2005 OF COLLECTABLE, AVAILABLE PVC WASTE FROM WINDOW PROFILES, PIPES, FITTINGS AND ROOFING MEMBRANES. FOR FLOORING WASTE THE COMMITMENTS ARE 25% BY 2006 AND 50% BY 2008.

WINDOW PROFILES

EPPA^(*) has made significant progress in 2003 with collected post-consumer PVC window waste increasing to 4,817 tonnes. This result allowed EPPA to exceed the target to recycle 3,407 tonnes, representing 25% of the total available, collectable volume of post-consumer PVC windows. This target is based on waste availability studies ordered by EPPA.

2003 was a breakthrough year for the post-consumer PVC window collection and recycling project. Moreover, it was the year where the synergy projects – joint collection of post-consumer PVC construction products – started in the key countries of Germany and the UK as well as leading to more dense collection networks in France and Denmark. In addition, synergy projects among the existing collection projects in Austria, the Netherlands and Belgium continued or started up, as in Italy.

In terms of important research, participation in the ACRR project in the regions of Catalonia and of Porto demonstrated that the volumes in these regions are still very limited.

National Developments

In Germany, the window market shrank once again, decreasing by a

PVC waste ready for recycling.



^(*)EPPA - The European PVC Window Profile and Related Building Products Association, an EuPC sector group

further 7.1%. The total window market has decreased from 25.2 million units in 1995 to 13.1 million units in 2003. It was therefore a major success that, despite this unpropitious economic environment, REWINDO succeeded in increasing collected and recycled waste volumes by over 15%.

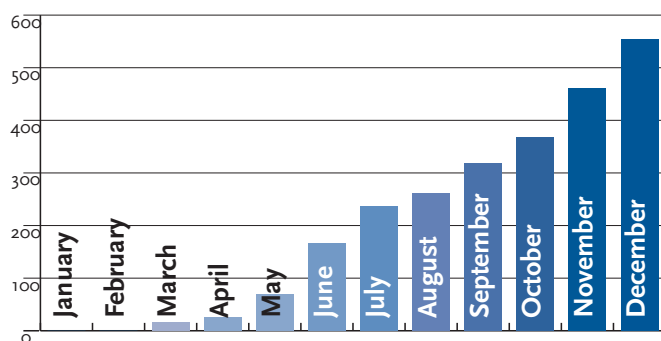
Joint collection initiatives together with the PVC pipe, roofing membranes and flooring industry were set up in the regions of Bremen, Rhein-Sieg, Würzburg and Munich, and expanded to Heidelberg/Mannheim and the Ruhr region. Increased cooperation with the demolition industry and the German Chambers of Commerce were also highlights of this excellent year.

Towards the end of 2003 REWINDO received the results of an analysis – conducted by the Consultic market research firm – of the potential waste streams in different market segments. The study came, among others, to the remarkable conclusion that over 11% of dismantled post-consumer windows are being re-used. (For more information please visit www.rewindo.de.)

In France, the joint post-consumer window and pipe project continued and resulted in the foundation of a separate legal entity: PVC Recyclage sarl with the appointment of a managing director.

The network of collection points was enlarged to 45 and the collected volume increased drastically. Due to a lack of local capacity for recycling, France has difficulties in reducing the collection costs to an acceptable level. This will therefore be a major challenge in 2004.

End-of-life pipes and profiles: collected waste, France 2003 (tonnes).



The UK, through the British Plastics Federation (BPF), gained further expertise in the dismantling and collection of post-consumer windows via the Oldham and Warrington refurbishment projects. The BPF sees considerable value in approaching window recycling aspects in synergy with other plastics and building sectors, and has developed a joint approach under the umbrella of the Vinyls Group Voluntary Commitment Implementation Committee.

The BPF is leading a synergistic project aiming to find the most appropriate 'best practice' solutions to collect and manage PVC construction and demolition waste in the UK. The project will take advantage of the experience gained with the Weaver Vale Housing Trust Project, where 50,000 PVC window units are to be replaced during the coming five years. In addition, the practicalities of window collection, dismantling and sorting will be tested at eight different sites, including Weaver Vale, Burnley, Reading, Peterborough, Oldham and Rochdale. Collaborators in the project include the Building Research Establishment Ltd (BRE), the National Federation of Demolition Contractors and PVC recyclers and waste management companies. See also UK Mixed PVC Recycling Project (below).

In September 2003, the BPF participated in a consultancy project started under the leadership of BRE to increase glass recycling from windows. The BPF and some of its key Windows Group members examined the feasibility of increasing recovery of PVC alongside glass.

In Denmark, EPPA continued its joint collection efforts with PVC pipe manufacturers (TEPPFA) under the WUPPI A/S recycling venture, now covering more than 75% of the country's municipal waste centres. (For more information please visit www.wuppi.dk.) EPPA, meanwhile, is forging ahead to develop similar collection and recycling schemes in Austria, the Netherlands, Italy, Belgium and Ireland.

PVC recycling at Rulo NV, Belgium.



PIPES AND FITTINGS

The main objective for TEPPFA's^(*) collection and recycling activities in 2003 was to improve cost/volume ratios in order to make the various national projects financially sustainable. With this objective in mind, TEPPFA concentrated its efforts on the higher volume waste countries and put into effect closer cooperation with representatives of other rigid PVC products used in construction such as window profiles, gutters, shutters, and corrugated roofing.

These efforts allowed TEPPFA to reach the target to recycle 25% of collectable, available PVC waste from pipes and fittings (5,067.5 tonnes). This target was calculated according to the EuPC model, as updated in the course of 2002.

Sluggish economic activity in 2003 had a negative effect on collection volumes. Recycled volumes reached 6,150 tonnes this year.

The most encouraging lesson to date from the TEPPFA programme is that demand for recyclate remains high and is much higher than current supply. The main obstacle to meeting demand is the collection and sorting of waste in sufficient volume and at a sustainable cost.

The most successful individual TEPPFA programme in this respect is the WUPPI scheme in **Denmark**, where TEPPFA works closely with municipal waste collection authorities. This 'bottom-up' approach relies on personal contacts by TEPPFA officials and visits to municipal waste operators. Under the scheme, PVC pipes, profiles, gutters and cladding are collected together at municipal waste collection centres. Experience shows that this is a successful approach that can be replicated in other European countries. TEPPFA is now working on this.

Other Country-by-Country Highlights of the Year

Sweden and Finland: Collection was hampered by high collection costs. TEPPFA is aiming to reduce costs by following the WUPPI collection model in Denmark.

The Netherlands: Pipe waste shows potential with favourable cost-volume ratios. TEPPFA will investigate further steps.

Germany: Following unexpected objections from the national competition authorities, TEPPFA was requested to put into place a new collection system that is expected to meet the regulators' concerns. TEPPFA is also encouraging municipalities to join the collection system.

Belgium: There is a good cost-volume ratio via the Belgium-based PVC recycling company Rulo NV. The initiative is being expanded to involve municipalities in the collection stream.

(*)TEPPFA - The European Plastic Pipes and Fittings Association, an EuPC sectoral association

Austria, France and Italy: Research has shown that cost-volume ratios are currently insufficient to warrant independent pipe-recycling schemes. TEPPFA is therefore pursuing cooperation with producers of other rigid PVC products such as profiles.

UK: TEPPFA has been preparing to start a collection and recycling scheme in cooperation with other rigid PVC product representatives including involvement with the BPF-led synergistic project to identify best practice for collection of demolition waste.

Priorities in 2004

The main objective is to improve the financial viability of the collection and recycling schemes. Countries with low volumes and high collection costs will be encouraged to continue but with the aim of reducing costs.

ROOFING MEMBRANES

ESWA – Project 'Edelweiss'

In 2003 the objective of recycling 25% (536 tonnes) of collectable, available PVC waste from roofing membranes was exceeded. This target is based on waste availability studies undertaken by ESWA^(*) and validated by the external audit of KPMG. 544 tonnes were recycled using the capacity of AfDR (Arbeitsgemeinschaft für PVC-Dachbahnen-Recycling), the German mechanical cryogenic unit, owned and operated by several ESWA members.

New Collection Schemes

Germany is by far the largest market for PVC roofing. Success in Germany is therefore crucial to meeting ESWA's targets. To boost collection, a new scheme was started in this country from June 2003, in partnership with the waste management firm Interseroh (www.interseroh.de). The system makes collection as easy as possible, using 'big bags' to collect the waste, and also features an incentive bonus for roofers and sales forces. Strong administrative and communications support is provided by the Industrieverband für

Kunststoff-Dach- und Dichtungsbahnen e.V. (DUD), the German Association for Thermoplastic Roofing and Waterproofing Membranes.

724 tonnes were collected in 2003, of which 564 tonnes were post-consumer waste. This represented a year-on-year increase of 30% and 54%, respectively.

The Recycling Process

All recycling of the collected volumes is taking place at AfDR (Arbeitsgemeinschaft für PVC-Dachbahnen-Recycling) but the recycling capacity will not be sufficient in the future. Therefore, a screening of several other processes was part of the Edelweiss study concluded in 2003. A number of technical trials were conducted.

Vinyloop®, which can deliver tailor-made recyclates, has been selected as a prime long term solution. However, in view of the timing and awaiting the start-up of the dedicated Vinyloop plant at Dreux, France, expected in 2006, alternative recycling routes are currently being considered. Large-scale tests for the recycling of PVC roofing membranes are being undertaken at the Vinyloop cable recycling facility in Ferrara, Italy. For more information, please visit www.eswa.be.

FLOORING

The European PVC flooring producers, represented in EPFLOOR^(*), recycled 545 tonnes of PVC flooring in 2003, which represents a 50% increase since 2001. EPFLOOR plans a similar increase for 2004 using collection and recycling systems now identified.

Studies, Tests, Research & Development and Recycling Options

Whilst developing new outlets for the recycling of flooring waste, EPFLOOR has focused on activating post-consumer PVC floor collection by launching several pilot collection studies.

The R&D programme coordinated by EPFLOOR and involving the R&D departments of member companies and universities in

Waste collection using 'big bags'.



^(*)ESWA - European Single Ply Waterproofing Association, an EuPC sectoral association

Recycling of PVC flooring.



^(*)EPFLOOR - European PVC Floor Manufacturers, an EuPC sector group

Belgium, the Netherlands and **Germany** has continued to develop high value applications for PVC recyclate from flooring, Recinyl®, with the solvent based technology Vinyloop. The programme has proven the feasibility of recycling in higher value applications such as calendered and coated interlayer applications. It is also expected that the programme will lead to a breakthrough in other coating applications as well as in foamed applications for flooring. This will ensure sufficient outlets for the next Vinyloop recycling plant which will treat PVC flooring waste, amongst others.

Meanwhile, tests have begun with other mechanical recycling partners (for example in **Spain** and **the UK**) in addition to the operating PVC flooring recycling AgPR plant in **Germany**. EPFLOOR is also negotiating with the Feedstock Recycling Plant RGS-90 for recycling flooring from late 2004 onwards.

Collection Schemes

The collection scheme in **Germany** has been expanded. Moreover tests were organised with the waste collector Tönsmeier and with a joint collection project for roofing, pipes and windows.

Collection schemes in **Austria** and **Switzerland** have continued their activities.

In the **Netherlands**, Retour Concept BV was appointed to study potential waste collection.

In **France**, in the second half of 2003, SFEC (the French association for coatings, calendering, flooring and wall covering) started a mapping and pilot collection project focused mainly on the region of Paris and Western France in cooperation with flooring installers, demolition sites as well as public and private waste platforms. The project is expected to be completed by the end of first quarter 2005.

Finally, in **Belgium**, EPFLOOR is involved in the implementation of the new Flemish Region law for the collection and recycling of flooring (resilient flooring such as vinyl, rubber and linoleum and carpets and laminates).

Waste Management Pilot Projects and Studies

COATED FABRICS

EPCOAT

EPCOAT^(*) operates within EuPC as the European coordinator for Vinyl 2010 on the recovery and recycling of PVC coated fabric products (such as tarpaulins, tents, marquees etc).

In 2002 EPCOAT initiated a study into the feasibility of contributing to the recycling targets of Vinyl 2010 with the collection of data and planned test projects in Germany and France. This work accelerated in 2003 with the following Vinyl 2010 studies, collection schemes and recycling projects involving coated fabrics:

Studies

SFEC ARTIFICIAL LEATHER

Artificial leather is a major potential source of recyclable post-consumer waste: It is estimated that 65,000 tonnes a year of PVC artificial leather are consumed annually (excluding automotive applications which are covered separately by the EU's End-of-Life Vehicles Directive). The study by SFEC, the French calendering and coating association, explored the different markets of artificial leather goods.

The aim was to identify where and how to collect potentially recyclable homogeneous waste. The most promising collection targets appear to be the prefabricators – who have a source of collectable, clean waste – and end-of-life furniture.

Collection Schemes

FERRARI SA

Ferrari SA is a French manufacturer of membranes and coated textiles, actively involved in PVC recovery and recycling. Ferrari's recycling activities fall under its Taxyloop® brand (see below).

Ferrari worked with EPCOAT in 2003 to obtain information from customers about the PVC coated fabric waste stream. Specifically, the work aimed to assess the volume of waste currently taken to disposal facilities or incinerated and the volumes at end-of-life that could be collected.

Ferrari initiated a collection scheme in October 2002. Although this primarily operates in France, the aim is to extend it to other countries. The scheme uses 'big bags' – produced by fabricators themselves – into which the waste is loaded. In the 15 months to December 2003, 91 tonnes of waste had been collected and stored awaiting start up of the Taxyloop industrial scale recycling plant.

For further details please see www.ferrari-textiles.com

(*)EPCOAT: EuPC PVC Coated Fabrics Sector Group

INDUSTRIEVERBAND KUNSTSTOFFBAHNEN (IVK)

The IVK (Plastics Foils Association) in Germany is to start a trial collection project involving 30 prefabricator sites and four coated fabric producers in 2004. The project will be in cooperation with a major waste management company.

Recycling

FERRARI - TEXYLOOP

In 2001, Ferrari constructed a laboratory pilot recycling unit for PVC coated fabrics. Known as Taxyloop, the technology used is based on the Vinyloop process.

Trials of the process continued in 2003 with further technical studies and the development of a larger scale pilot plant near Lyon (France), to be operational in 2004-2005.

This experience is essential to the planned construction of an industrial scale plant at Tavaux (France) with a capacity of 10,000 tonnes per year to prepare and then treat PVC coated fabric waste. Investment in the two sites is almost €20 million, with co-funding of €3 million from Vinyl 2010.

For more information about the project, please visit www.taxyloop.com.

FRIEDOLA

The Friedola company, a German firm which produces coated fabrics, decided in 2003 to renovate and expand an existing plant to treat the waste from the Industrieverband Kunststoffbahnen (IVK) project. The technology involves the mechanical shredding and compacting (or agglomeration) of post-consumer waste fabrics into new PVC products. The recyclate can then be re-used in tarpaulins and artificial leather.

The objective for 2004 is to invest and upgrade the existing machinery and control systems at Friedola.

COOPERATION WITH ACRR



The associations represented by Vinyl 2010, the plastics industry resin producers (APME) and recyclers (EuPR) signed, in September 2001, a Partnership Agreement with the Association of Cities and Regions for Recycling (ACRR), with the objective of improving the recycling of plastic waste collected by local authorities.

An important and increasingly obvious weak point in the plastics recycling loop is collection. There are four main sectors generating plastic waste that can be managed by the local authorities: house-



PVC used in construction

holds, the agricultural sector, trade and small and medium-sized enterprises (SME), and the construction and demolition (C&D) sector.

Pilot projects were completed in Catalonia and in the region of Porto.

The Catalonia project focused on the demolition sector. Although actual quantities of plastic waste collected were low, the project has provided very useful lessons: Demolition projects, especially of relatively old buildings, should not be the prime focus in view of the low volume of plastics that were used when built and of the contamination resulting from the standard demolition practices.

The Porto project covered the trade, SME and C&D sectors. The trade and SME sector has proven a significant source of plastic waste thanks to the extension and promotion of existing drop-off sites and door-to-door collection. According to information provided by LIPOR, the local authority in charge of waste management in the Porto region, approximately 10 tonnes of plastic waste was collected between December 2002 and October 2003, together with 34 tonnes of paper and cardboard. The C&D part focused on small construction companies. During 2003 waste collected from such firms resulted in the additional collection of almost 5 tonnes of plastic waste, of which 0.5 tonnes was PVC, as well as close to 15 tonnes of other materials (e.g. metals, wood and paper). This confirmed that packaging material is the most abundant source of plastic waste on construction sites.



Vinyl 2010, the plastics industry and recyclers as well as ACRR members in Italy, Spain, Portugal and Belgium and the European construction and demolition industries have presented to the European Commission a follow-up project to

research and promote the collection and recycling of plastic waste from buildings. The Commission has granted funding under its Financial Instruments for the Environment, or LIFE, programme. The project formally started in December 2003 and will run until mid-2006.

The project begins with a thorough evaluation of the current situation at local level, including the regulatory framework. At a later stage it will entail 20 to 30 pilot projects covering a wide spectrum of activities (construction, renovation and demolition) and will provide first-hand experience on the technical and economic aspects of the collection and recycling of plastics waste, including the outlets for the recycle.



VINYLOOP FERRARA

The Vinyloop plant in Ferrara, Italy, went on stream in February 2002. In 2003, the plant treated 2,199 tonnes of waste, which was short of full capacity due to technical difficulties. These were addressed through the installation of a second filtration unit.

At the same time, work continued on trials and modifications to running conditions with the aim of optimising performance and increasing capacity.

The plant is currently running at its nominal capacity.

However, there are still plans to install a second stripping unit. This will help achieve the 2004 plant target of 7,500 tonnes.

For more information please visit www.vinyloop.com.

VINYLOOP DREUX

Plans are progressing to construct a second plant using Vinyloop technology and benefiting from the technical knowledge and experience of the Vinyloop Ferrara plant. The new plant will be located in Dreux, France.

The Dreux project is currently sponsored by a partnership of four French companies – Récupération Industrielle de Produits Sidérurgiques (RIPS) and MTB Recycling SA (both of which recycle cables), as well as Eurocompound France (a plastics recycling firm) and Solvin France (a PVC resin producer). The results of the initial feasibility study will be presented in mid 2004 with construction scheduled to start in 2005 and entry into operation the following year.

This new Vinyloop facility is projected to recycle 42,800 tonnes of waste that is currently sent to landfill and of which 29,000 tonnes are post-consumer waste. The waste stream will be composed of cables, roofing membranes, floor coverings, windows, blister wastes and polymeric scraps.

Total investment is estimated at €47 million. Of this, Vinyl 2010 intends to provide €10.7 million as a loan, with the first instalment of €1.7 million, in 2004. Financing is expected to be aided by European and local authority grants.

REDOP PROJECT

Redop – derived from 'Reduction of iron ore in blast furnace plants by plastics from waste' – is a process that targets the mixed-plastics segment of municipal solid waste (MSW).

The chlorine level in such waste streams is less than is normally contained in the 'PVC-rich' waste streams used for feedstock recycling processes, but is too high for some other uses. The purpose of the Redop technology is to obtain a commercially viable product capable of replacing coal in steel production. An important and novel step is the de-chlorination of the mixed-plastics waste by a technology developed and patented by DSM Research.

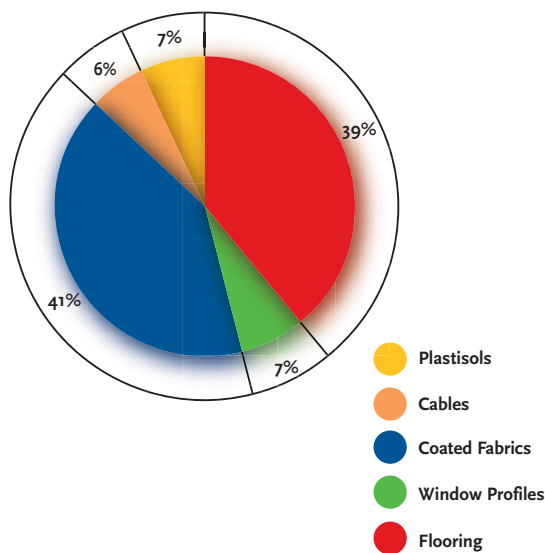
After initial promising results on a bench scale, it was decided in early 2002 to go ahead with the production of about 10 tonnes of Redop pellets to conduct trials in a blast furnace on a commercial basis. Suitable equipment was identified at DSM's Geleen facilities in the Netherlands and the required modifications were carried out during the second half of 2003. The production of the material started in November 2003 but was slowed down by some unforeseen difficulties. Injection trials on an industrial scale at the steel plant of Corus in the Netherlands will take place as soon as the production is completed and the product evaluated.

Dow/BSL

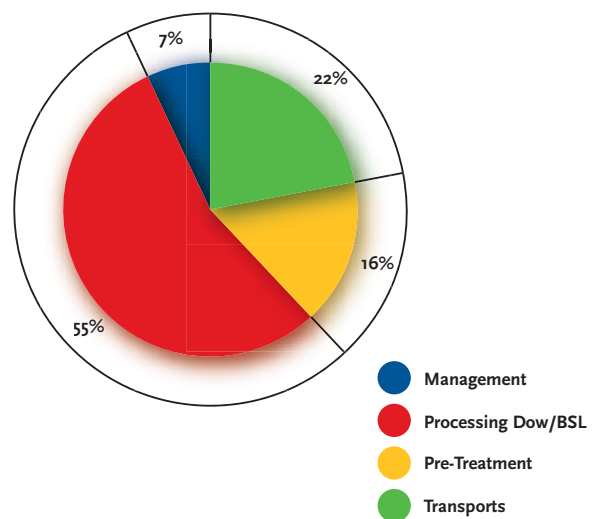
Since 1999 Dow has operated a commercial feedstock recycling plant at its Schkopau site near Leipzig. The plant technology is proven, robust and able to manage large quantities of many different types of widely used PVC waste products.

A prerequisite for practical success is the management of logistics and pre-treatment of the PVC waste. In 2002-2003 the German waste management company ASCON GmbH undertook trials as a 'clearing house' between the suppliers of PVC waste and the plant, in a field test to provide important, quality statistical data, including the economics for managing the logistics. In the trial, 1,027 tonnes of PVC were successfully processed and the recovered chlorine used on site for new VCM/PVC production. The main results are summarised below.

Breakdown of PVC Waste Streams (total 1,027 tonnes)



Breakdown of Clearing House Costs (total €459,200)



The trial has given information about the specific handling requirements of PVC waste, and important intelligence about financial aspects of this type of recycling. Cost competitiveness is now the key criteria when deciding on larger quantities of PVC waste to be processed at this plant.

LIGHT CONCRETE

The purpose of this feasibility study is to evaluate whether PVC waste from building demolition can be recycled as an aggregate for making light concrete – and thus re-used in buildings.

Research into collection has so far focused on the area around Rome. It showed that there is an abundance of available plastic waste including PVC waste in and around the Italian capital.

Preliminary tests showed light concrete made from recycled PVC could be comparable in technical specifications to other similar products, e.g. waste polystyrene as currently used in Italy.

The feasibility study is due for completion by April 2004. If preliminary, positive conclusions are confirmed, the project will move on to the following phases:

- Obtain compliance with official technical standards and obtain the required regulatory permits;
- Conduct a field test for collection of PVC waste, manufacture and marketing of the recycled product.

Given the early stage of the project, it is too early to estimate the impact of this process on volume.

RGS-90/STIGSNAES

RGS-90 is the owner of the Stigsnaes hydrolysis plant.

Vinyl 2010 signed a funding contract in July 2003 with an initial payment of €1 million in 2003 and €3 million in 2004. The project also benefited from grants of the EU's LIFE programme.

Following two successful series of technical trials, the plant is being upgraded to 50,000 tonnes per year capacity with commissioning scheduled in the fourth quarter of 2004. RGS-90 is actively promoting the plant and started storing PVC waste. The gate fee for PVC waste processing including pre-treatment is quoted at €200 per tonne.



In September 2003, RGS-90 also opened a major plant on the site to produce the sandblasting material trademarked as 'Carbogrit'. The plant uses waste water sludge as raw material and plans in due course to accept the solid fraction from the above PVC recycling plant.

NOVEL GASIFICATION PROCESSES

An increasing range of feedstock recycling technologies is available for treating both 'PVC rich' and mixed plastics waste streams containing normal percentages of PVC. Vinyl 2010 pays close attention to these as potential options for waste management in addition to projects already under way.

During 2003 an ECVI expert team visited and assessed processes in Europe and Japan against the principal criteria of practical experience, cost competitiveness and environmental impact. The team identified novel 'ready to go' gasification processes capable of treating varying percentages of PVC waste products. Further effort is needed to assess their economics and to compare them with existing facilities in Europe.

RECOVINYL INITIATIVE



Recovynyl is a new consortium that will facilitate the collection, dispatching and recycling of post-consumer PVC waste. It addresses the challenge of ensuring a steady, maximum supply of post-consumer PVC waste for recycling by mechanical processes. Such consistency is important for companies that have invested in plant and machinery.

Following a detailed study to identify and understand the business of PVC mechanical recyclers, Recovynyl was incorporated as a company in June 2003. It benefits from the practical experience of major shareholder-recyclers Rulo (Belgium), Swerec (Sweden), Tecni-Plasper (Spain), De Hoeve (Netherlands), AfDR (Germany) and Vinyloop Ferrara SpA (Italy) and is open to further partners.

Different legal frameworks between European countries have significantly complicated the preparation of this ambitious project. The planned launch of the multilingual Recovynyl e-business platform and website has been rescheduled to provide further time to develop the fundamental business plan and to agree on operating principles. The website and e-business platform are expected to come into operation in 2004.

Other Projects

UK MIXED PVC RECYCLING PROJECT

Starting from a relatively low base, the British Plastics Federation (BPF) is seeking to identify the most promising opportunities for achieving higher volumes of post-consumer PVC waste recycling in general.

The BPF has commissioned consultants to look at the relative merits of various recycling technologies in a UK context, and to examine potential commercial opportunities with a view to producing a formal business plan to increase PVC recycling.

Research is showing that the best opportunities in the UK, when volume and economic factors are taken into consideration, lie in PVC window and flooring waste. Wall coverings also provide excellent opportunities and their availability as well as their potential recycling technologies are being investigated at present.

WRAP (the Waste Resource Action Programme) established by the UK Government has provided a £390,000 (€565,500) grant to Bradford University in order to conduct comprehensive research into options for PVC recycling in the UK.

For more information please visit www.recyclepvc.com.

In 2004, the UK Project Team will continue developing economic and technical evaluations. Work is being undertaken on behalf of the BPF by specialists Axion Recycling. The WRAP-funded work conducted by Bradford University will conclude in March 2004. The results obtained will help provide the foundations of a viable, commercial operation'

DEVELOPMENTS OF MUNICIPAL INCINERATION

PROCESSES: HALOSEP-WATECH PROCESS

In October 2003, Vinyl 2010 signed a funding contract with Watech A/S, now part of the RGS-90 Group. The objectives are to test its Halosep-Watech process under pilot plant conditions and to assess the re-use potential of the recovered fractions for closing or minimising disposal options. The process uses aqueous hydrochloric acid to extract and separate chlorides and heavy metals from the neutralisation residues of municipal solid waste incinerators (MSWI).

Work has started on a mobile pilot plant and trials at MSWI plants with 'dry' and 'semi-dry' flue gas cleaning systems are scheduled to start in the second half of 2004.

ECO-EFFICIENCY OF RECYCLING OPTIONS

PE Europe GmbH – an off-shoot of the Institute for Polymer Testing and Polymer Science (IKP) of the University of Stuttgart – completed an eco-efficiency study in 2003. Entitled "PVC Recovery Options: Ecological and Economical System Analysis", the study investigated various treatment options for mixed cable waste.

Landfill was used as a base case for comparison with Vinyloop, two feedstock recycling technologies (Stignsaes and Watech) and a modern municipal solid waste incineration with energy and HCl recovery (MVR Hamburg).

The study concluded that all four recovery options are preferable to landfill from an eco-efficiency point of view. It showed, however, that selection of a recovery technology must take into account specific national or even local conditions because of differences in the applied environmental policies. The preliminary conclusions were confirmed by a peer review and the study was presented and published in 2003. Possible follow-ups are being considered in Denmark and in the UK.



Working Together

The Monitoring Committee

TO INVOLVE STAKEHOLDERS AND POLICY MAKERS MORE CLOSELY, VINYL 2010 HAS ESTABLISHED AN INDEPENDENT COMMITTEE TO MONITOR IMPLEMENTATION OF THE PVC INDUSTRY'S VOLUNTARY COMMITMENT.

The Monitoring Committee meets regularly (at least twice a year) and currently includes representatives from the European Parliament, the European Commission and Trade Unions. NGOs have been invited to join the committee but have currently no representative. The committee has asked the Chairman, Professor Alfons Buekens of the Free University of Brussels (VUB), to further investigate the possibilities with NGOs.

The first meeting was held on June 11, 2003, in the offices of the European Parliament in Brussels. Minutes are available on the Vinyl 2010 website.

MEMBERS

Professor Alfons Buekens, (Chairman), VUB⁽¹⁾

Mrs. Conceptio Ferrer, Member of the European Parliament, Industry Committee

Mr. Bernd Lange, Member of the European Parliament, Environment Committee⁽²⁾

Mr. Patrick Hennessy, Director, European Commission, Directorate General Enterprise

Mr. David-Grant Lawrence, Director, European Commission, Directorate General Environment

Mr. David Thompson, Chairman, Vinyl 2010

Mr. Joachim Eckstein, Vice Chairman, Vinyl 2010

Mr. Alexandre Dangis, Managing Director, EuPC

Mr. Jean-Pierre De Grève, Secretary General, Vinyl 2010

Dr. Brigitte Dero, Secretary General, ESPA

Mr. Oraldo De Toni, Political Secretary, EMCEF⁽³⁾

Mr. Reinhart Reibsch, General Secretary, EMCEF

Notes:

(1) VUB: Free University of Brussels

(2) Mr. Lange succeeded Mr. Guido Sacconi, Member of the European Parliament, Environment Committee, in September 2003

(3) EMCEF: European Mine Chemical and Energy Workers Federation

The Debate on Sustainability

THROUGHOUT 2003, VINYL 2010 PLAYED AN ACTIVE ROLE IN THE DEBATE ON SUSTAINABILITY AT VARIOUS EVENTS ACROSS EUROPE. THESE INCLUDED:

- The Citizen's Parliament on Sustainable Consumption organised by the Association of Cities and Regions for Recycling (ACRR) in March, where Vinyl 2010 representatives met in Brussels with regional and municipal officials from all over Europe.
- The PLAST International plastics and rubber exhibition held in Milan in May, where Vinyl 2010 held a press conference about the association's recent milestones and achievements.
- The Green Goals for Business conference held in Brussels in June 2003 during the European Commission's Green Week, where Secretary General Jean-Pierre De Grève gave a speech on "Enterprise and Government: Working Together Toward Sustainability".
- The Green Procurement Conference, in September in Gothenburg.
- Discussion with The Natural Step (TNS - www.naturalstep.org) in the UK to extend their environmental challenges model by a charter covering social and economic aspects of PVC.

Vinyl 2010 Board Members

Social Dialogue: Challenges and the Role of Vinyl 2010 in EU Enlargement

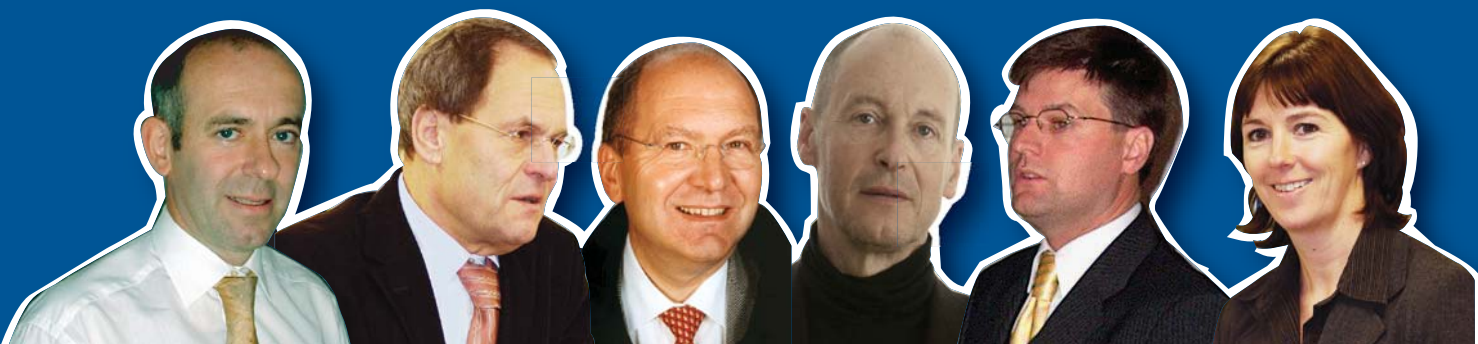
Voluntary Commitments are an effective tool for advancing the cause of Sustainable Development. This is even more pertinent in the context of an enlarged EU with 25 or more member states. Purely regulatory approaches are unlikely to be fully effective, as they will not answer market diversities, local financial constraints or consumers' behaviour. Furthermore, Voluntary Commitments are efficient in transferring best practice to the East without becoming enmeshed in a complex legislative process.

Vinyl 2010 held meetings during 2003 in the EU accession countries, one of which involved Trade Unions with the objective of raising health, safety, and environmental standards to higher levels and to harmonise sustainability goals.

Two PVC producers from Central Europe, Spolana and Novacké, have already joined ECVN as full members, demonstrating their willingness to make progress towards sustainability. Their position with respect to EU regulations and to the ECVN Charters was investigated during the course of 2003.

Together with the Unions, actions for improving HSE standards had already been initiated by these companies and further actions are underway to achieve full compliance with EU regulations as well as the desired convergence of the industry standards.

The aim of Vinyl 2010 is also to obtain a gradual enlargement of the Voluntary Commitment to the new EU Member States, possibly by 2005, even if there are serious difficulties due to the historical structure of the PVC industry in some countries and the strong investment needed. A dedicated conference is planned in Budapest in April 2004 to further discuss the issue with Central European PVC manufacturers and converters.



Mr. David Thompson
Chairman

Mr. Joachim Eckstein
Vice-Chairman

Mr. Jean-Pierre De Grève
Secretary General

Dr. Michael Rosenthal
Treasurer

Mr. Alexandre Dangis
Board Member

Dr. Brigitte Dero
Board Member

Financial Report

The expenditure of Vinyl 2010, including EuPC and its members, amounted to €4.4 million in 2003, compared with €4.5 million the year before. Expenditure on projects is expected to substantially increase in 2004.

The slight decrease in 2003 expenditure reflects greater cost efficiency and the postponement of two projects:

- A planned investment of €1.3 million as subsidy for the Taxyloop Pilot Plant was postponed until the first quarter of 2004.
- Likewise, the ERPA/CIFRA mechanical recycling project was postponed to 2004. The subsidy allowance for this project, however, was substantially increased from the initially planned €100,000 to €500,000 to be paid out in 2004 and 2005.

The 2003 figures were audited by KPMG.

VINYL 2010 WASTE MANAGEMENT PROJECTS

figures in 1,000s of €	Total expenditure in 2003 including EuPC and its members	Total expenditure in 2002 including EuPC and its members
Vinyloop Ferrara	0	1,840
Ferrari Taxyloop	0	0
EPFLOOR	524	245
EPCOAT	122	363
UK mixed PVC waste project	106	0
ESWA - Edelweiss	846	172
2.15 NKT Halosep	8	0
RGS-90/Stigsnaes	1,001	58
Dow/BSL : ASCON	109	181
REDOP	0	0
ACRR	0	145
Eco-efficiency study/LCA	53	94
EuPR	100	229
Recovynyl SA	100	0
Light concrete Italy	24	0
TEPPFA	669	740
EPPA	724	443
ERPA/CIFRA	0	0
Total	4,386	4,510

Verification Statements

KPMG Certification

KPMG CERTIFICATION OF EXPENDITURE

Cvba Klynveld Peat Marwick Goerdeler Bedrijfsrevisoren - Reviseurs d'Entreprises Scrl

Report of the Auditor on the statement of supported charges for Project Vinyl 2010 during the period between 1st January 2003 and 31st of December 2003.

We are reporting to you on the completion of the mission, which you have entrusted to us. We have performed a verification of the table presenting the supported charges for the different projects of Vinyl 2010, as included in the Vinyl 2010 Progress Report 2004.

Total of supported charges related to the different projects of Vinyl 2010 amounts to €4,386,592.74.

The persons responsible for establishing the table presenting the supported charges for the different projects of Vinyl 2010 have provided us with all explanations and information which we required for our audit. We examined evidence supporting the amounts in the statement. We believe that our audit provides a reasonable basis for our opinion.

In our opinion, the statement as per 31st December 2003 presents fairly the position of supported charges for the different projects of Vinyl 2010 during the period between 1st January and 31st of December 2003.

Klynveld Peat Marwick Goerdeler Bedrijfsrevisoren - Reviseurs d'Entreprises Scrl, represented by

Dominic Rousselle, Partner



Brussels, March 9, 2004

KPMG Certification

KPMG CERTIFICATION OF TONNAGES AND FULFILMENT OF SECTORAL VOLUNTARY TARGETS

Cvba Klynveld Peat Marwick Goerdeler Assurance and Advisory Services Scrl Business Unit Environmental Services

Report of the independent expert concerning the audit of the tonnages post-consumer PVC waste collected and recycled in 2003 by the sector groups EPPA & EPFLOOR of the EuPC, by the sector associations ESWA & TEPPFA of the EuPC and by the subsidised recycling plant Vinyloop Ferrara, during the period between 1st January 2003 and 31st of December 2003.

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 and the fulfilment of the Voluntary Commitment objectives mentioned in the Vinyl 2010 Progress Report 2004.

The conclusions of this audit are summarized in the table here below:

Project	Type of PVC post-consumer waste	Tonnage recycled		Voluntary Commitment target in tonnes	
				25 % of the available collectable waste in the EU of the 15	
EPPA	Windows	4,817		3,407	(b)
EPFLOOR	Flooring	545	(a)	NA	
ESWA	Roofing membranes	544		536	(c)
TEPPFA	Pipes & fittings	6,150		5,068	(d)
Vinyloop	Mainly cables	2,199		NA	

NA Not applicable

(a) Amount calculated for the 15 EU member states plus Switzerland

(b) This amount of 3,407 tonnes is based on national sales statistics gathered from member associations, a study undertaken by Mr. Berndtsen and expert estimations

(c) This amount of 536 tonnes is based on sales estimations of the total market between 1980 and 2000, gathered from member companies and experts

(d) This amount of 5,068 tonnes is based on the EuPC model, updated in 2002

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 recognised any elements which are of nature to influence significantly the presented information.

Cvba Klynveld Peat Marwick Goerdeler Assurance and Advisory Services Scrl Business Unit Environmental Services.

Represented by

Ludo Ruysen, Partner



Brussels, March 11, 2004

DNV Verification Statement

DNV CONSULTING IS PART OF DNV, AN INDEPENDENT FOUNDATION ESTABLISHED IN 1864 WITH THE OBJECTIVE OF SAFEGUARDING LIFE, PROPERTY AND THE ENVIRONMENT.



DNV Consulting was commissioned by Vinyl 2010 to provide an independent verification of the 2004 Progress Report.

The objective of the verification was to validate statements made in the report. This verification statement represents our independent opinion. DNV Consulting was not involved in the preparation of any part of this report or the collation of information on which it is based.



VERIFICATION PROCESS

The verification consisted in 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, balance and interpretation of presented statements.

The verification process included the following activities:

- Desk-top review of project related material and documentation such as plans, agreements, minutes of meetings, presentations and more;
- Communication with relevant Vinyl 2010 personnel responsible for collating and writing various parts of the report, in order to discuss and substantiate selected statements.

The following areas of the 2004 Progress Report were excluded from the verification scope:

- The underlying data and information on which the desk-top review documentation is based;
- The table "European Production Data" presenting tonnes of stabiliser systems sold and the section "Progress on Lead Substitution";
- The presented tonnages and fulfilment of sectoral voluntary targets (verified by KPMG);
- The Financial Report (verified by KPMG).

VERIFICATION RESULTS

In our opinion, the 2004 Progress Report is a fair and honest representation of Vinyl 2010's performance and achievements in 2003. It is particularly encouraging to note Vinyl 2010's achievement of the 2003 target to recycle 25% of collectable, available PVC waste from window profiles, roofing membranes, pipes and fittings.

Whilst recognising Vinyl 2010's achievement of targets set out in the Voluntary Commitment of October 2001, we stress that there are challenges in the future, which Vinyl 2010 has identified and is addressing. We would endorse this proactive approach and, based on the verification process, consider important challenges to include: improving the financial viability of collection and recycling schemes, ensuring there is sufficient recycling capacity for collected volumes, as well as taking into consideration the consequences of the enlargement of the Voluntary Commitment to the new EU Member States.

Høvik, 11 March 2004



Kristin MacBeath



Christen M. Heiberg

Frequently Asked Questions About PVC

PVC HELPS SOCIETY – HERE ARE SOME POINTS YOU MIGHT LIKE TO KNOW

WHAT IS PVC?

Polyvinyl chloride or 'PVC' is a member of the ethylene family of polymers. Made from salt (57 per cent) and oil/gas (43 per cent), it was first produced commercially in the late 1920s and is the second largest commodity plastic. Most of its very numerous applications are for long life products.

WHAT IS THE VOLUNTARY COMMITMENT?

The Voluntary Commitment of the European PVC industry chain is a 10-year plan. It progresses the industry toward sustainability on many fronts: by improving production processes and products, investing in technology, minimising emissions and waste and boosting collection and recycling. The scope of these activities is very large and it is the first time in Europe that an entire industry chain, in close relation with Trade Unions represented by EMCEF, has taken such a step.

WHAT IS VINYL 2010?

Vinyl 2010 is the legal entity set up to provide the organizational and financial infrastructure to manage and monitor the actions undertaken as part of the Voluntary Commitment. It groups European vinyl resin manufacturers, plastic converters and producers of stabilisers and plasticisers.

The Four Founding Associations are:

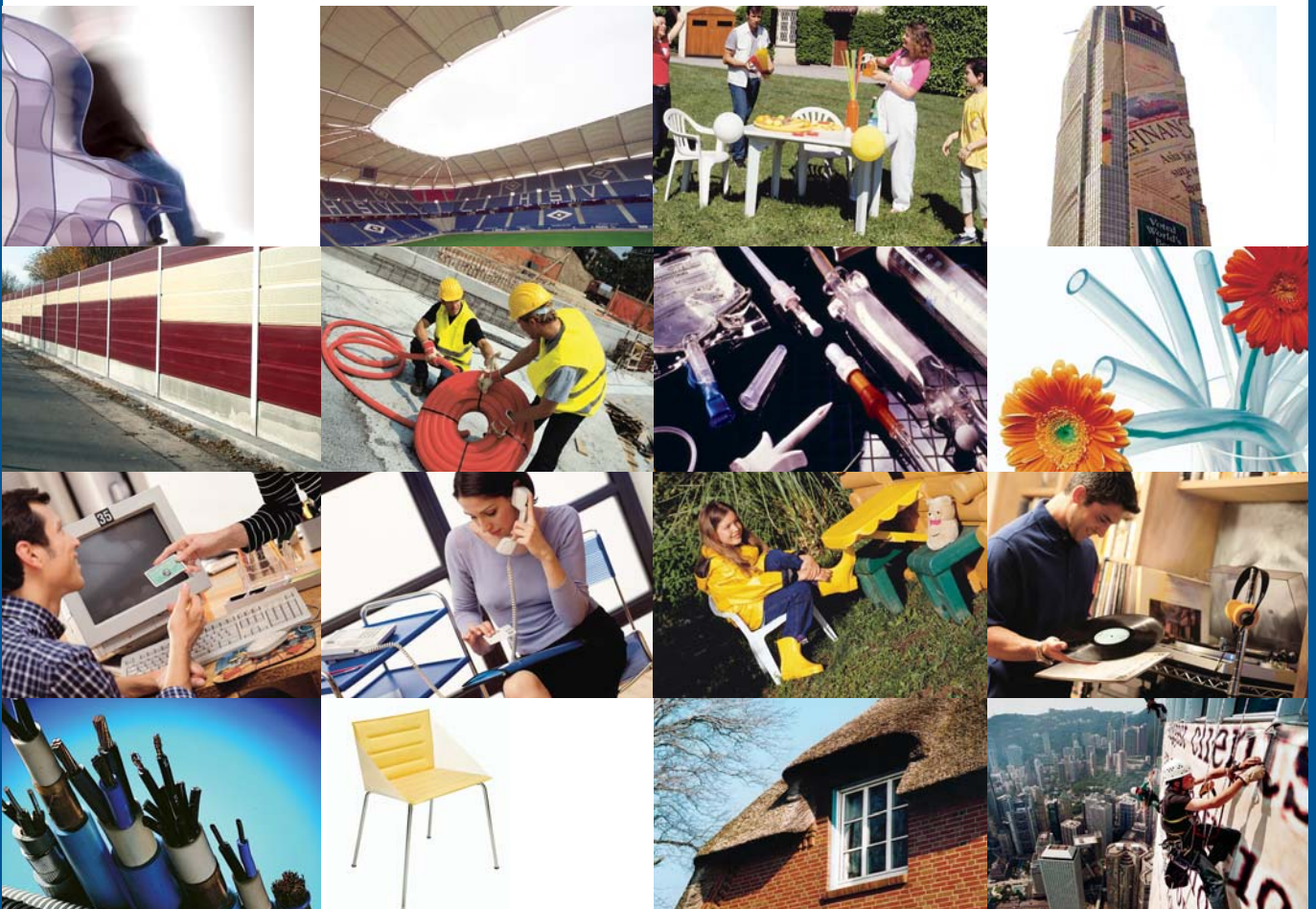
the European Council of Vinyl Manufacturers (ECVM), the European Plastics Converters (EuPC), the European Council for Plasticisers and Intermediates (ECPI) and the European Stabiliser Producers Association (ESPA).

WHAT IS THE ROLE OF VINYL 2010 IN SUSTAINABLE DEVELOPMENT?

Vinyl 2010 advances the PVC industry toward a better sustainability profile by implementing the Voluntary Commitment. This is not just about targets and commitments. It necessitates a change of approach and understanding at all levels and across the three pillars of economic prosperity, environmental protection and social well being.

WHY IS PVC IMPORTANT TO SOCIETY?

PVC products make life safer and more comfortable. PVC is used in areas as diverse as construction, automotive, cabling, luxury goods and medical devices, to name just a few. Most PVC applications are long lasting – up to and over 60 years – and they make good use of raw materials and prevent unnecessary depletion. In Europe the industry includes more than 23,000 firms and provides some 530,000 jobs. It is also a dynamic sector that facilitates innovation and invention: dynamism that also aids true Sustainable Development.



Members of Vinyl 2010:



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