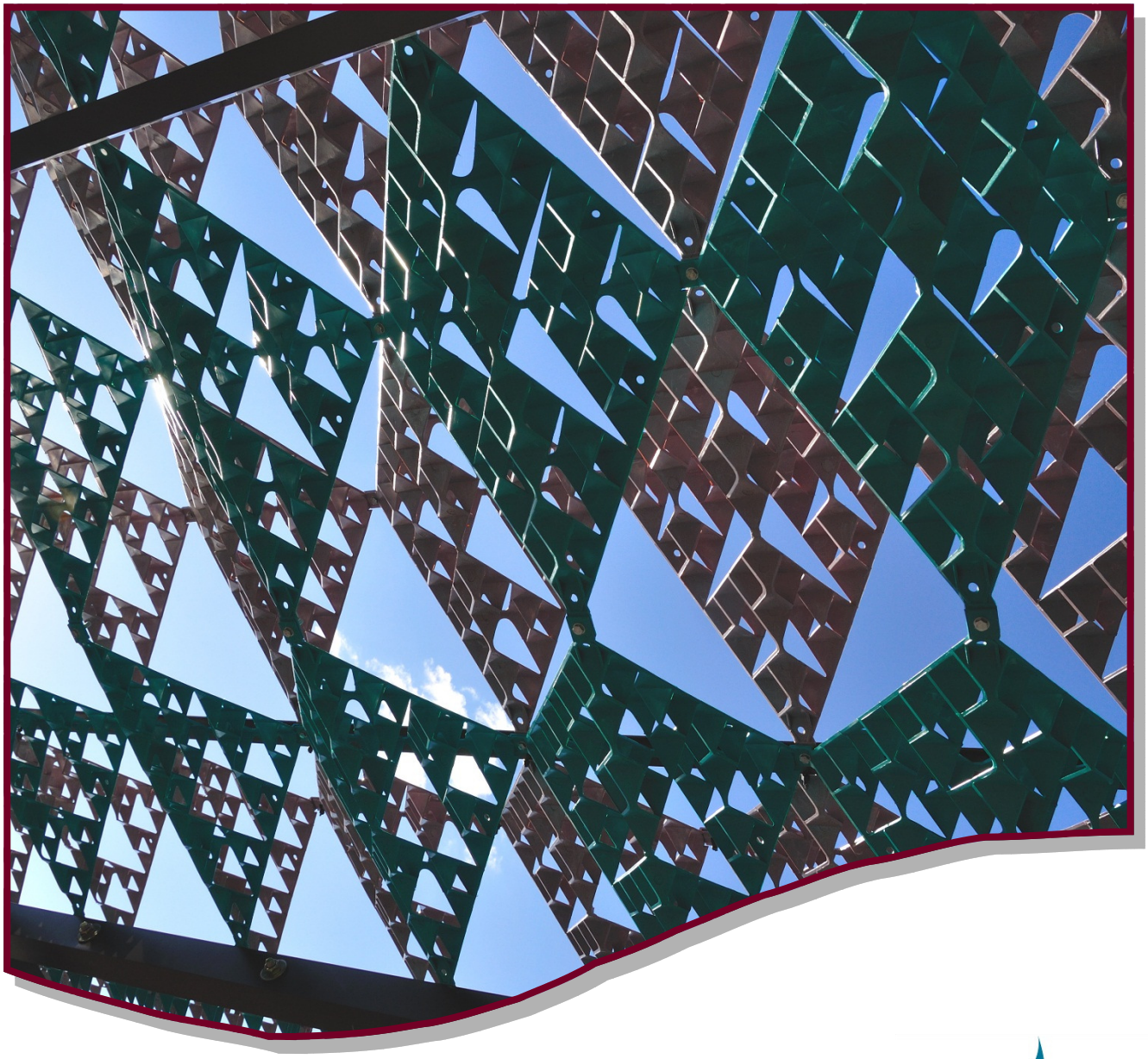
2010
PVC Product Stewardship Program



The annual progress report for the Australian PVC industry's Product Stewardship Program.

PVC PRODUCT STEWARDSHIP

PVC Product Stewardship Program 2010 Annual Report

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Front Cover: *The Sierpinski tetrahedron 'Forest Shade' for urban environments, developed in Japan and made from recycled PVC, provides a similar, cooling environment to that of a natural forest.*

Glossary

APC: Australian Packaging Covenant

ARFA: Australian Resilient Flooring Association

BBP: Butylbenzyl phthalate

Converter: a manufacturer of PVC product from resin or compound.

DBP: Dibutyl phthalate

DEHP: Diethylhexyl phthalate

DIDP: Diisodecyl phthalate

DINP: Diisononyl phthalate

EMS: Environmental Management System

MRF: Materials Recovery Facility

The Program: the Product Stewardship Program, signed by members of the Australian PVC industry.

Phthalate Plasticiser: Softeners from the phthalate family of chemicals added to PVC resin to impart softness and flexibility.

PIPA: Plastic Industries Pipe Association

PVC (Vinyl): Polyvinyl chloride

REACH: Registration Evaluation and Authorisation of Chemicals — the European Community Regulation on chemicals and their safe use

Signatories: the members of the Australian PVC industry who have signed the Program as an indication of their Commitment to product stewardship.

Stabiliser: A compound used to improve the thermal stability during processing and the heat and/or UV stability of the end-use product.

Stakeholders: The PVC industry, its employees, suppliers and customers, the local and general communities, consumers, government and regulators, and any other groups significantly impacted by the industry.

VCA: Vinyl Council of Australia

Significant developments in 2010

- The recently reduced vinyl chloride monomer (VCM) emission standard of 30 grams per tonne of PVC produced was met by the local resin manufacturer, with emissions of 21.4 grams per tonne.
- The phase out by the end of 2010 of the use of lead stabilisers in Signatory products across all applications has largely been completed, with minor quantities being used during 2010 as customers transition to new formulations.
- Stakeholders representing diverse interests were engaged through a workshop to provide input on a process to develop a strategy for advancing PVC recycling in Australia.
- Four new Signatory companies joined the Program in 2010.
- The Product Stewardship Program commitments will be extended in 2011 to include a vinyl chloride emission standard for Emulsion PVC.
- The Technical Steering Group has been developing a PVC industry Charter on Energy and Greenhouse Gas Emissions, to be adopted in 2011.

Foreword

For the purpose of this document, the Australian PVC industry is the Vinyl Council, its member companies and other PVC companies which are Signatories to this Program. In addition to key raw material and additive suppliers, the Vinyl Council estimates that the Signatory companies represent approximately 80 per cent of the local vinyl manufacturing sector in Australia, plus a number of importers of finished vinyl, or PVC, products.

Signatories to the Product Stewardship Program (PSP) are required to supply data for analysis and monitoring by the Program's Technical Steering Group (TSG) for preparation of the Program's annual progress reports and to show evidence of meeting the Program's commitments.

In 2010, there were 30 Signatories to the Program and of these, 28 submitted data for the year. Two Signatory companies – Forbo Floorcoverings Pty Ltd and Plaspak Peteron Pty Ltd - did not engage in the PSP data collection process and therefore did not fulfill Signatory obligations. Their ongoing status as Signatories is being considered by the TSG in 2011 and for the purpose of this report, they have been excluded from the calculations which have been based on the 28 Signatories that submitted data for the year.

The relevance of the each commitment to each Signatory varies depending on whether they are a supplier, compounder or converter and the type of product produced or supplied.

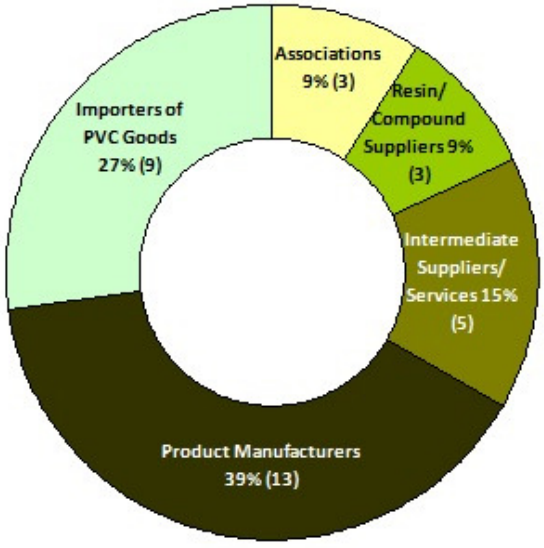


Figure 1: 2011 Signatories by type

Summary of Progress in 2010

Issue	2010 Commitment	2010 Progress	2011 Commitment
1: Production and Storage			
VCM in finished suspension resin	Residual VCM in finished suspension resin powder not greater than 1ppm	Achieved by 18 out of 21 relevant Signatories	Residual VCM in finished S-PVC, not greater than 1ppm in 99% batches tested
VCM emissions resulting from local suspension resin manufacturing	VCM emissions no greater than 30g/tonnes PVC	Achieved. Emissions of less than 22g/tonne PVC as at 30 June 2010	VCM emissions no greater than 30g/tonne S-PVC
Environmental management systems at manufacturing and storage sites	Comply with or exceed the industry's Minimum Acceptable Standard	20 of 28 Signatories met or exceeded the Minimum Acceptable Standard. Eight Signatories were non-compliant, but were working towards improving their environmental management systems. Two failed to report	Ongoing. ***2011 ACTION*** - the Vinyl Council to assist non-compliant companies to achieve compliance
	Show that the Program's Commitments are embedded into companies' Business Management Systems	20 Signatories indicated that the program commitments were embedded in their Company Business Plan	Ongoing
Mercury Avoidance	Ensure avoidance of mercury in the PVC supply chain for PVC products in Australia	12 Signatories verified VCM, PVC resin or PVC product sourced from mercury-free processes	Ongoing ***2011 ACTION*** - clarify and correct data survey
VCM in finished emulsion resin		N/A	Residual VCM in supplied E-PVC resin not greater than 1ppm
VCM emissions resulting from manufacturing of emulsion resin supplied to Signatories		N/A	VCM emissions no greater than 1000g/tonne E-PVC
2: Heavy Metal Additives			
Code of Practice	Adhere to the industry Code of Practice for use of lead and cadmium in PVC products in Australia	All but one Signatory for whom it is relevant confirm adherence to the industry Code of Practice	Ongoing
Cadmium use	Maintain Commitment to avoid the use of cadmium stabilisers	No report of cadmium use by Signatories	Ongoing
Lead use	Phase out the use of lead stabilisers in all applications by 2010	Use of lead stabiliser in 2010 fell to 48,816kg One Signatory completed phase out in 2010 Two newer Signatories are targeted to phase out by 30th June 2011	Maintain the commitment to avoid the use of lead stabilisers
Pigments	Substitute lead, cadmium & hexavalent chrome pigments by 2010, where technically feasible and alternatives are available	Two Signatories continue to use them and are working towards phasing them out	Ongoing
Other additives	Monitor any pertinent overseas developments.	Monitoring maintained.	Ongoing
Open Disclosure	Provide information on additives used in PVC products or components to stakeholders upon request	Implemented by most Signatories. Over 65% of Signatories now have a specific system in place to record and respond to such requests	Ongoing

Issue	2010 Commitment	2010 Progress	2011 Commitment
3: The Use of Plasticisers			
Phthalate plasticisers	Implement the industry Policy on Plasticiser Use	13 of 17 relevant Signatories confirmed adherence	Ongoing ***2011 ACTION*** - clarify why relevant Signatories have not confirmed adherence to the Policy
	Share relevant information with NICNAS	Dialogue maintained with NICNAS	Ongoing
4: Waste Management			
Australian Packaging Covenant (APC)	All relevant Signatories submit waste management Action Plans under the APC and maintain compliance with APC obligations	All relevant Signatories (three) are signed up and action plans lodged	Ongoing
Recycling	Implement the **Vinyl-2-Life** action plan	Most actions completed and new actions have been set (refer Appendix I)	***2011 ACTION*** - develop industry wide strategy to improve PVC recovery and recycling
	Monitor overseas developments	Information on recycling developments overseas shared with Signatories and TSG	Ongoing
Consumer responsible care	Provide information to end consumers on management options for end-of-life PVC	Almost half the Signatories reported compliance using a range of methods to provide information to end consumers. Other Signatories are working towards compliance	Ongoing ***2011 ACTION*** - assist non-compliant Signatories to achieve compliance
Life cycle thinking	Consider whole-of-life in the development of new products	Signatory initiatives have embraced life cycle thinking as part of their environmental framework. Companies are becoming more familiar with the life cycle assessment tools that are available	Ongoing
5: Research			
Research	To monitor national and international scientific research and share pertinent information with Signatories and stakeholders	Information on a range of issues and matters was shared with Technical Steering Group members and/or Signatories (refer page 14)	Ongoing
6: Public Reporting			
Performance against Commitments	Publish 2009 annual performance report by 31 August 2010	Not achieved. Published in October 2010. Report verified by independent third party. Audit statement provided	Publish 2011 annual performance report by 1st April 2012 ***2011 ACTION*** - implement new data survey and audit process
PVC life cycle impacts	To publish annual product stewardship issues review	Review for 2010 published in this document	Ongoing
Review implementation and effectiveness of the product stewardship program	Complete a review by end 2012 and publish recommendations by end March 2013	N/A	Ongoing

Executive Summary

Progressing Product Stewardship

The Australian PVC industry voluntarily established a product stewardship program in 2002 to provide a framework of voluntary initiatives to address the life cycle impacts of PVC. Over the last eight years, the Program's focus has been directed to a range of environmental and health aspects associated with production, use and disposal of PVC products in Australia.

Today, at a time when the Federal Government is actively pursuing legislation via a Product Stewardship Act, the PVC industry can demonstrate that it has a model voluntary program in place, with a sound track record of industry participation, delivering tangible and measurable benefits.

In 2010, the progress of the Australian PVC industry through its Product Stewardship Program to improve the environmental performance of PVC products was a significant factor in the Green Building Council of Australia revising the PVC Credit in the Materials category of its Green Star building rating tool to allow the use of best practice PVC products.

In the year under report, we have continued the momentum of the Program with the development and introduction of new commitments reflecting stakeholder expectations. The first of these new commitments relates to the avoidance of mercury in the manufacture of PVC precursors, and the second sets a maximum emission standard in respect of emulsion, or paste, resin, complementing the emission standard set for suspension resin.

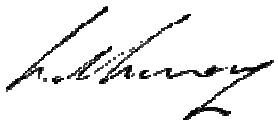
The Technical Steering Group which oversees the development and implementation of the Program, has also been discussing the introduction of an industry charter setting out principles to guide Signatories in reducing energy consumption and greenhouse gas emissions.

All this is underscored by the commitment to public reporting on an annual basis. This Report, together with a sample number of the Signatory companies, has been verified through an independent third party auditor.

The Vinyl Council complements our objective of openness by providing detailed information on the Program through a dedicated website and via the enabling of social networking conversations.

PVC has broad applications in manufacturing and it is pleasing to welcome as Signatories in 2010: Advance Cables, Specialty Polymers and Chemicals, RojoPacific and Altro APAC.

The Technical Steering Group met quarterly during the year and has been actively supported by the NSW Department of Environment and Climate Change (now, the Office of Environment and Heritage) and CSIRO. We value the counsel and engagement with these and all external stakeholders in helping us to shape this Program and to demonstrate its effectiveness and viability to the wider community. As a reader of this report, please feel free to provide your feedback or suggestions for improvement.



George Macovaz:- Chairman, Technical Steering Group.

Commitment 1: Production and Storage

Residual Vinyl Chloride Monomer

Vinyl chloride monomer (VCM) is a hazardous substance. Once polymerised to PVC resin, the resin is essentially inert and does not revert back to the monomer; however, minute amounts of unreacted VCM may remain in the resin.

Under the Product Stewardship Program, the Australian industry has set a standard that the concentration of Residual VCM (rVCM) in finished resin powder be no greater than 1 part per million in 99 per cent of resin batches tested. Such a standard protects the health of workers from exposure to VCM during conversion of the resin into finished goods, as well as consumers of these products.

Australian Vinyls Corporation, the only local manufacturer of PVC resin, and a further 16 Signatories who import PVC from overseas, reported 100 per cent of batches complied. One Signatory confirmed that 99 per cent of batches complied. Three Signatories were non-compliant, failing to report their data. They will be followed up in 2011.

In 2009, two Signatories were not compliant with this commitment. The Vinyl Council advised each one and encouraged them to work towards compliance. Both achieved compliance this year.

Figure 2: Residual VCM compliance

ACTION 2011
Follow up non-compliant Signatories and assist them to move towards compliance.

Manufacturing VCM Emissions

The Program includes a commitment that VCM emissions are no greater than 30 grams per tonne of PVC produced. Measurement includes the total emissions of VCM to air and water, including point source and an estimate of fugitive emissions for the year, divided by the total tonnes of PVC produced for the same period.

Australian Vinyls Corporation, the only local manufacturer of PVC, reported VCM emissions were 21.37g / tonne PVC for the period of the financial year 2009-10, a significant improvement on the previous year (28.11g /tonne PVC).

Environmental Management Systems

The objective of the Environmental Management System (EMS) commitment in the Product Stewardship Program is to demonstrate environmentally responsible manufacturing, storage and transport practices by the PVC industry in Australia.

Since 2005, Signatories have been encouraged to work progressively towards establishing and implementing an EMS appropriate for their operations by the end of 2010. The Program outlines *A Minimum Acceptable Standard for Environmental Management* to guide them.

Under the Program, Signatories commit to having their EMS meet one or more of the following standards:

- ISO14001
- The international chemical industry's *Responsible Care* program
- The Program's *Minimum Acceptable Standard for Environmental Management.*

Signatories are further expected to show that the Product Stewardship Program commitments are embedded into their company's current business management systems.

This objective has proved difficult for some smaller sized companies to achieve. In 2010, to assist in the process, the Vinyl Council adopted a model framework, originally developed by EPA Victoria for small businesses. This EMS framework provides a step by step approach which can be followed by a company to implement an EMS. During the year, six companies commenced the establishment of their EMS using this, or other frameworks. Of these companies, three achieved compliance in 2010, and three expect to be compliant by the end of 2010.

Of 28 reporting Signatories for whom it is a relevant commitment, a total of 20 reported that they complied with the commitment. Nine Signatory companies are ISO 14001 accredited and three are Responsible Care signatories.

As at 2010 year end, a total of eight Signatories remained non-compliant in that they have not finalised or implemented an EMS at their operations; three, as mentioned above, expect to be compliant by end 2011; the remaining five are relatively new Signatories to the Program so have only just commenced the journey.

In 2011, the Vinyl Council will assist these companies to move closer towards compliance.

Three-quarters of the Signatory companies indicated that their Product Stewardship commitments were

embedded in their company's business management systems.

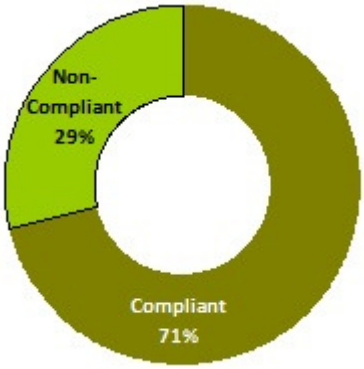


Figure 3: EMS compliance

ACTION 2011
Follow up non-compliant Signatories and assist them to move towards compliance.

Mercury Avoidance

Signatories to the Australian PVC industry Product Stewardship Program are committed to removing toxic heavy metals from PVC product. A commitment to ensure avoidance of mercury in the PVC supply chain for PVC products in Australia was developed in 2009 and implementation commenced in 2010.

There are two possible routes for mercury emissions in the PVC supply chain:

- Chlorine, which is used in the manufacture of ethylene dichloride (EDC) is produced in some plants using the older mercury cell technology. This process is being substantially replaced worldwide by mercury-free processes.
- Vinyl chloride and PVC resin can be manufactured via the ethylene route, or a carbide-acetylene route. The latter, predominantly found in China, uses mercury chloride as a catalyst and cannot therefore be deemed a mercury free production process.

Under the Program, Signatories who import VCM, PVC resin or PVC products into Australia, are obliged to verify via suppliers that the imported material is sourced from mercury-free processes.

A total of 12 companies reported that they imported VCM, PVC resin or PVC products from overseas and that they had verified the materials were sourced from mercury-free processes.

One company declared it was not able to verify this and is deemed non-compliant.

The reporting under this commitment is regretfully incomplete in this first year of implementation. An error in the wording of the data survey resulted in a number of Signatories who import PVC products reporting that the commitment was not applicable.

The 'not applicable' result has been accepted for 2010 and is reflected in Figure 4. The applicability of the commitment to Signatories will be clarified and a correction will be been made to the data survey to be used in 2011.

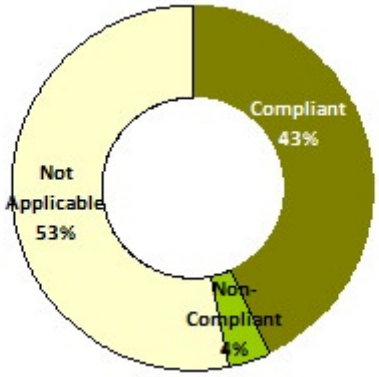


Figure 4: Mercury avoidance compliance

New Commitment: Setting Standards for Emulsion PVC

There are two significant production processes used in the manufacture of PVC:

- suspension process
- emulsion process

In 2010 the Technical Steering Group (TSG) recognised the need to encourage best practice and improvement in the use of emulsion PVC.

The continuation of production globally of the two different processes is mainly due to the very different characteristics of the resulting PVC particles. The suspension process (S-PVC) is better suited to the large volume production of a limited number of grades. Emulsion PVC (E-PVC) consists of fine powdered products with residual emulsifier content particularly suitable for paste processing. At the resin drying stage, there is less stripping in the E-PVC process, and consequently more vinyl chloride is emitted up the licensed stacks. The regulatory emission limits for E-PVC are higher.

There are specific characteristics of E-PVC which benefit a number of particular applications, such as carpet backing, some resilient flooring and membranes, for which S-PVC is technically unsuitable.

The global market for E-PVC accounts for about 6 per cent of the total market for PVC, with Europe the largest producer region. It is not manufactured domestically in Australia.

Following an extensive consultation with Signatories, the TSG proposed the following Standards be included in the Product Stewardship Program, to be met and reported on by Signatories using E-PVC:

- Residual VCM concentration in supplied E-PVC resin shall be no greater than 1ppm.
- Total VCM emissions (licenced and fugitive) resulting from manufacturing of E-PVC, shall be no greater than 1000g/tonne E-PVC measured on an annual basis.

These standards are consistent with the European Council of Vinyl Manufacturers' (ECVM) Charter for Emulsion PVC.

The new commitment was introduced in early 2011 and will be reviewed in 2012, based on data reported by Signatories for 2011.

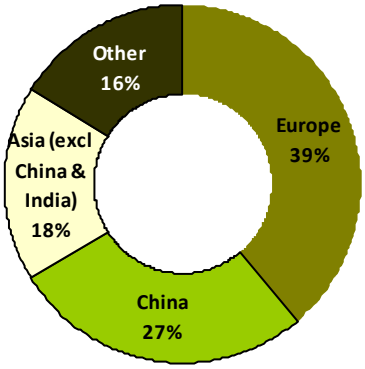


Figure 5: Global capacity for E-PVC production
Source: Vinnolit GmbH & Co, 2011

New Commitment:
PVC Industry Charter on Energy and Greenhouse Gas Emissions.

To demonstrate industry's commitment to energy efficiency and greenhouse gas reduction measures, the Technical Steering Group discussed and developed a draft Charter for Energy and Greenhouse Gas Emissions during 2010.

At the time of the PSP's establishment in 2002, energy, climate change and carbon pricing were not as high a community and political priority as they are today. However, in 2009, the PVC industry identified rising energy costs and the impacts and response to climate change as key drivers in relation to the industry's future. The degree to which action on climate change from governments, business and the community is strong and coordinated and the extent to which rising energy costs influence industry's response in terms of energy efficiency of operations and energy and feedstock sourcing, were seen as key influences on the industry's sustainable future.

Energy and emissions management are considered fundamental elements of a sustainability framework. Applying life cycle thinking to product and process design may result in significant reduction of energy and greenhouse gas emissions in the supply chain. In addition improvements in energy efficiency in manufacturing may maintain cost competitiveness.

The Product Stewardship Program is a framework of voluntary initiatives to address the life cycle impacts of PVC. It is therefore appropriate for the Program to include a set of guiding principles related to reduction of energy use and greenhouse gas emissions. This will reaffirm the Australian PVC industry's commitment of improving the energy and greenhouse gas emission profile of PVC products. The Charter intends to do this and will be finalised and included in the Program in 2011.

Commitment 2: Heavy Metal Additives

Under the Product Stewardship Program, Signatories commit to:

- maintain the avoidance of cadmium-based stabilisers;
- phase out the use of lead-based stabilisers in all applications by the end of 2010; and
- substitute lead, cadmium and hexavalent chrome pigments where technically feasible and alternatives are available, by the end of 2010.

The phase out of cadmium-based stabilisers by Signatories was completed in 2004.

The phase-out of lead based stabilisers is nearing completion. Three companies reported consumption of lead-based stabilisers in PVC products in 2010, equivalent to 48,816 kilograms of metal content. This represents a reduction of approximately 16,000 kilograms from 2009 levels and a 96 per cent reduction in lead stabiliser use by Signatories over the period 2005 – 2010.

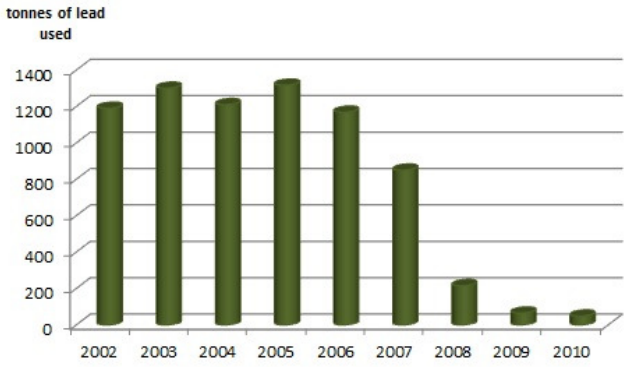


Figure 6: Lead stabiliser use (tonnes metal) by Program Signatories

Of the three companies who reported use of lead stabilisers, one has declared that their phase-out will be completed by 1 May 2011, and one by 30 June 2011. The third company is holding a small stock of stabiliser that it is seeking to provide to a third party for re-use preventing its disposal to landfill.

This significant reduction in lead-based stabilisers is a voluntary initiative by Signatories to the PVC industry Product Stewardship Progam. The use of these stabilisers has not been completely phased out of all PVC products consumed in Australia. There are a small number of local manufacturers who are not Signatories to the Program and PVC products continue to be imported into the country which may contain lead-based stabilisers.

As the phase out has been nearing completion, in 2010 the Vinyl Council encouraged Signatories to amend internal documentation, such as product formulation / technical data sheets to remove references to the use of lead-based stabilisers being permitted in products.

Pigments

As part of the commitment, Signatories have largely ceased to use lead, cadmium and hexavalent chrome pigments. In 2010, only two Signatories continued to use them, albeit in small quantities where substitution is difficult. These companies have committed to substituting these when technically feasible and alternatives are available

Open Disclosure

Under the Open Disclosure commitment, Signatories agree to provide general information on the additives used in their PVC products or components, to stakeholders upon request. This will include a list of all hazardous substances intentionally added. However disclosure of exact amounts of each additive used is not required under this commitment as it is proprietary, commercially sensitive information.

To demonstrate compliance, Signatories should show evidence of a system or process to track receipt of and responses to requests, and of staff training and awareness of this commitment.

Two thirds of Signatories reported that they had a system in place in 2010. For example, Australian Vinyls Corporation reported that the requirements for Open Disclosure were integrated into the company's customer service management system. Four of the nine non-compliant Signatories have planned for Open Disclosure record systems to be in place in 2011.

ACTION 2011
Follow up non-compliant Signatories and assist them to move towards compliance.

Commitment 3: The Use of Plasticisers

Plasticisers are added to PVC resin to enable it to be used in flexible products such as resilient flooring, electric cable insulation, hoses, packaging films, clothing and footwear, PVC toys and medical devices.

The most commonly used type of plasticisers is a group of substances called phthalate esters, which have been in use for around 70 years. Each type of phthalate ester has a unique chemical profile and properties which lead to suitability in certain applications. The most common phthalate plasticisers used in products in Australia are:

- DIDP (di-isodecyl phthalate)
- DINP (di-isononyl phthalate
- DEHP (di-2-ethylhexyl) phthalate, sometimes known as DOP (di-octylphthalate).

Each phthalate ester has its own toxicity and safety profile and can be categorised by their chemical structure as Low Molecular Weight (LMW) phthalates which have a molecular carbon backbone of C3-C6 and High Molecular Weight (HMW) phthalates which have a carbon backbone C7-C13. The longer alcohol chain of HMW phthalates appears to provide more permanency and durability.

On the other hand, LMW phthalates, including DEHP (C6), have been considered of potential concern. As a consequence, in Europe, the LMW phthalates require REACH[1] registration. If no authorization for use is granted, these substances will have to be phased out by February 2015 except for specific, critical authorised uses. DINP has been registered and authorised under REACH in Europe (see Figure 7).

There is an increasing trend in Europe over the last 10 years to substitute DEHP in most general vinyl applications by HMW phthalates and non-phthalate plasticisers.

Committed to safe use

Signatories to the Product Stewardship Program commit to implement the *Policy for the Use of Plasticisers*. They acknowledge their responsibility to use phthalate plasticisers where they are reasonably and properly regarded as safe in the light of available scientific evidence of their environmental and health impacts. Signatories agree to cease the use of a phthalate plasticiser in any application where available scientific evidence shows it to have unacceptable health or environmental impacts.

There were 17 Signatory companies that used or supplied phthalate plasticisers in 2010. Of these, four did not confirm adherence to the Policy.

These companies will be followed up in 2011 to identify any non-compliance issues.

ACTION 2011
Follow up non-compliant Signatories and assist them to move towards compliance.

[1] *Registration Evaluation and Authorisation of Chemicals — Europe's chemical regulatory process.*

Australian developments

The National Industrial Chemicals Notification and Assessment Scheme (NICNAS), Australia's industrial chemical regulator, has been conducting a review of phthalates since 2006, including conducting risk assessments of nine phthalates. In early 2010, NICNAS released the first of its Risk Assessments, on DEHP. The Assessment focused on two exposure scenarios: the use of toys and childcare articles by children, and the use of cosmetic products by the general population.

The Vinyl Council sought expert advice from industry toxicologists and submitted requests for corrections/variations on the draft DEHP assessment. These variations were considered by NICNAS and were partly accepted. The final report was subsequently released.

Key findings of the Risk Assessment include:

- Acute effects from DEHP exposure are low and not a concern; however, evidence of chronic effects (repeated exposures) are a high concern.
- There is clear evidence of organ effects in male rodents leading to reproductive development and fertility effects. The suspected mode of action for these is similar between rodents and humans and therefore relevance to humans is assumed.
- The Margin of Exposure for children exposed through toys in a worst case scenario of DEHP migration, and for women from cosmetics, is less than 100 (>100 would be considered 'safe'). Therefore the risk is considered a concern.

The NICNAS report made a number of recommendations that resulted in the Australian Competition and Consumer Commission (ACCC) restricting toys and childcare articles intended for use by children up to and including 36 months of age from containing more than 1% DEHP. This was largely a precautionary measure as DEHP was not found to be used in toys in the Australian market, nor in cosmetics.

The Vinyl Council and Signatories to the Program have cooperated with NICNAS to share industry information and research. Following release of the DEHP Risk Assessment, the Vinyl Council coordinated with NICNAS to host a briefing for stakeholders in Melbourne on the Risk Assessment. A number of participants from the PVC sector as well as the ACCC, the Australian Toy Association (ATA) and other stakeholders attended.

NICNAS completed an assessment of the use of DEHP in medical devices on behalf of the Therapeutic Goods Administration which regulates these applications. We understand there have been no new measures taken in relation to these products.

NICNAS are continuing their program of risk assessments with di-isononyl phthalate (DINP) due in 2011.

The Technical Steering Group has considered the need to review the PSP policy on the use of phthalates to reflect the NICNAS risk assessments and other stakeholder views. It was agreed that a change to the Policy was not required.

US developments

In late 2009, the US EPA unveiled a chemical Action Plan on phthalates under a new approach to manage the risks posed by controversial substances.

The Phthalates Action Plan was developed on the basis of the potential toxicity of eight phthalates (particularly to development of the male reproductive system), their prevalence in the environment, their widespread use and human exposure.

DEHP, DINP and DIDP are included. Exposure to the eight phthalates, the Plan notes, is via food, cosmetics, consumer products (other than toys) and toys.

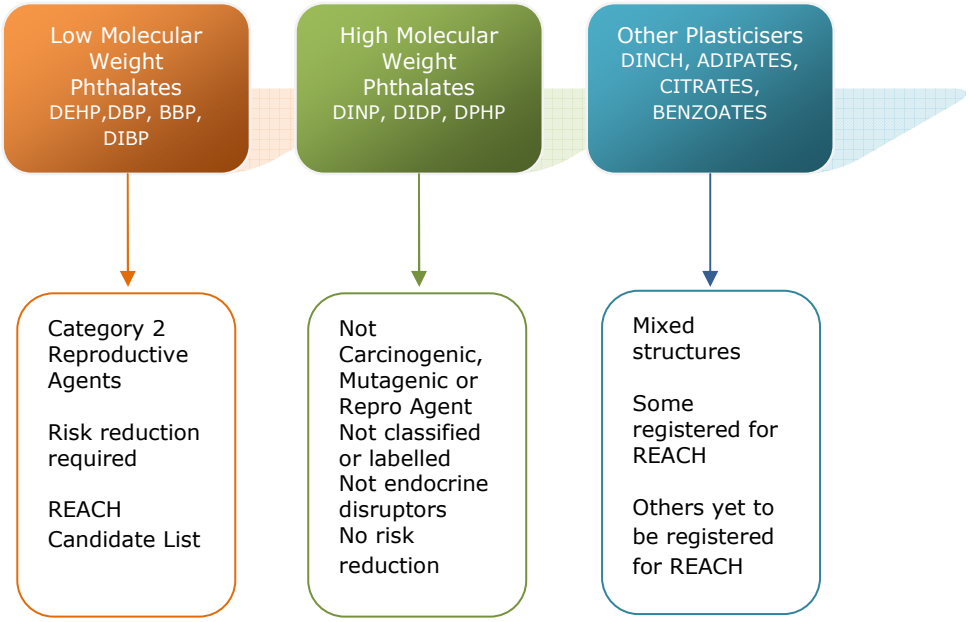


Figure 7: Plasticiser Profiles
Source: European Council of Plasticisers & Intermediates, 2011

The Plan notes that studies suggest the most sensitive health outcomes from phthalate exposure are reproductive developmental effects, and that these effects seen in rodent studies are potentially relevant to humans. It also notes recent animal studies evaluating the cumulative effects of exposure to several phthalates, an area that the US Consumer Product Safety Commission's Chronic Hazard Advisory Panel (CHAP) has been investigating. The EPA may determine actions are warranted to protect children's health as a result of CHAP's findings.

The Plan notes the work being undertaken currently by the Australian Government to assess phthalates and references the 2008 Hazard Assessment Reports published by NICNAS.

Scientific news in 2010

The Vinyl Council and Signatories have continued to monitor scientific developments and consider the implications of findings for the use of phthalates. Some of these developments in 2010 included:

- A study by scientists at Mount Sinai School of Medicine, US (Engle S, *et al*, 2010, published in Environmental Health Perspectives) which attempts to link child behavioural problems to pre-natal exposure to phthalates.
- Details of the US EPA's chemical Action Plan for Phthalates.
- News of the registration of DINP by REACH in Europe, meaning companies will be able to manufacture and import it to Europe in quantities greater than 1,000 tonnes per annum after 1 December 2010.

Commitment 4: Waste Management

Packaging

Any Signatory engaged in the packaging supply chain is required under the Product Stewardship Program to be a signatory to the Australian Packaging Covenant (APC), to submit Action Plans in accordance with the Covenant and to maintain compliance with APC obligations.

All the relevant Signatories in relation to PVC packaging have re-signed to the APC. These are the Aperio Group, and Berry Plastics, who are packaging manufacturers, and Australian Vinyls as a resin supplier to the industry.

Examples of packaging and recycling initiatives include:

- Aperio Group was a foundation signatory to the National Packaging Covenant, and executive management has made an ongoing commitment to the Australian Packaging Covenant. A new 5 year Action Plan (2011-16) has been developed to deliver continued reduction in scrap PVC going to waste. For the 2009/2010 Action Plan, the Kirrawee site where PVC is used, reduced total waste by 46 per cent. Further, the proportion of total waste that went to landfill fell from 41 per cent to 29 per cent for the year. The site now sells or recycles all but approximately three per cent of the scrap PVC generated during manufacture.
- Australian Vinyls' commitment to the Australian Packaging Covenant is now included in its parent company, Wesfarmers', Action Plan (June 2010-July 2011). Australian Vinyls is focused on continual improvement of its waste handling practices. It recently increased road sweeping programs and PVC powder leak detection and reporting regimes. This has reduced the quantity of PVC powder lost during bulk loading, resulting in less waste generation from logistics. The company reports significant increase in waste diverted from landfill, as a result of greater recycling of manufacturing waste, including cardboard, bulk bags, office paper, steel drums. General waste to landfill was reduced by 323 tonnes in the year to 30 June 2010.
- Berry Plastics focused on reprocessing factory waste and the recycling of cardboard. As a manufacturer of food contact film, further resource efficiency improvements were made with savings on stretch wrap of 4,822 kilograms, an 8 per cent improvement on 2009. 82 tonnes of cardboard were diverted from landfill.

Industrial Recycling

Signatories have reported continuing effort to recycle, beginning with resource efficiency within the production process to minimise waste generation and then, where waste is unavoidable, the collection of waste product for reprocessing. The reprocessing of waste material has become a standard manufacturing practice; twelve of the Australian based PVC product manufacturers reported the reprocessing of their own PVC factory waste internally, or by using a third party in Australia.

In addition to this,

- Five companies producing or supplying flooring, pipe or signage materials, reported that they are engaged in the recycling of product installation off-cuts and waste;
- Six companies reported recycling of externally sourced post-industrial and post-consumer PVC waste into new products.

In summary, approximately 10,674 tonnes of PVC waste was being diverted from landfill in 2010 by Signatories. A further 482 tonnes of other general waste material generated by operations including paper, cardboard, metal and pallets, was sent for recycling, thus being diverted from landfill.

Signatories who supply products manufactured overseas into the Australian market reported a number of initiatives their companies undertake globally to manage waste, including significant recycling operations in offshore bases and the sending of Australian installation waste to overseas reprocessors.

Waste Management Highlights

- Armstrong World Industries doubled the amount of scrap product brought back from job site installations in 2010 over 2009 to 29,000 kilograms for use in new flooring products.
- Tech Plas Extrusions has developed products that use 100 per cent externally- sourced recycled material including storm water pipes and drainage channels.
- Rojo Pacific commenced a trial to collect end of life signage material and separate the PVC coating from the polyester fabric for reprocessing. The recycled, plasticised PVC has been used in new injection moulded products.

Vinyl-2-Life Waste Action Plan

The Vinyl-2-Life waste action plan was developed in 2006 based on the key findings of the 2005 PVC Waste Audit commissioned by the Vinyl Council. It sets out a series of goals and actions to improve recovery and recycling of key PVC waste streams of significant volume or having a particular sensitivity from the community's perspective. Progress against the plan is reported quarterly to the Technical Steering Group and actions are revised or new actions developed as the plan has progressed.

Key achievements and developments in the program during 2010 include:

PVC Medical Waste: continuation of the trial which commenced in late 2008, to test the viability of collecting and recycling PVC medical devices including IV bags, oxygen masks and tubing from hospitals in the Western Health network. The key findings and challenges identified to date are:

- It is technically feasible to reprocess the collected material into a recycled PVC compound.
- A committed reprocessor is required, together with a project champion at the hospital.
- Continuous education of staff is required to minimise waste contamination.
- Development of economically viable collection and transportation systems are essential.

Pipes and Profiles: The Plastics Industry Pipe Association (PIPA) oversees the recycling of pipes and profiles in Sydney, Brisbane and Melbourne. Waste PVC pipes, off-cuts and fittings are extracted from demolition and construction waste and the recyclate is used for new pipes suitable for non-pressure applications. In 2010 three sources provided a total of 442 tonnes of post-consumer waste PVC pipe scrap which was recovered and recycled into new PVC pipes.

Floor Coverings: A number of Signatory companies have commenced activities to recover floor waste on an individual basis, for example using bins on-site at construction projects to collect installation waste. Some importers of vinyl flooring returned material to the European vinyl recycling schemes, for reprocessing into new flooring. The Council has explored the issues and opportunities for recovery of flooring waste with stakeholders and continues to encourage development of broader initiatives with the sector.

Banner & Signage Material: A successful trial was completed to recover and remove PVC from the composite material commonly used in the printing and signage industry. The trial included three collections totaling 1500kg of sheeting and resulted in 80 percent of the PVC separated from the polyester fibre being recovered for recycling into new vinyl products. The next steps are to conduct a larger scale trial and to examine potential collection systems for waste material within Melbourne.

Research: The Vinyl Council explored a number of research projects to generate improved data on PVC recycling. The Council joined a consortium in an application for National Packaging Covenant funding for a project to implement mixed plastics recycling. The project planned to bring together the stakeholders needed to create an integrated supply chain solution that drives wide-scale recycling of non-bottle plastics packaging in Australia; however, the application was unsuccessful.

A summary of the progress of the Vinyl-2-Life program at the end of 2010 is detailed in Appendix I.

Advancing PVC Recycling

The Sustainability Scenario Planning exercise conducted with members of the Vinyl Council in 2009, identified recycling as one of the key drivers for the future sustainability of the industry in Australia. The industry saw the need to address the current perceptions and the realities of PVC recycling in Australia.

A stakeholder workshop was conducted in December 2010 to establish the best way to engage a broader range of stakeholders through whom industry could better understand the opportunities and barriers in PVC recycling. There were 20 participants representing the government sector, built environment, design, academia, packaging, PVC industry and the waste and recycling sectors.

The outcome of the workshop was a framework to engage and collaborate with relevant stakeholders in 2011 to develop a strategy for a viable long term PVC recycling sector.

Consumer Responsible Care

In order to assist end-consumers of PVC products on how best to manage the product at the end of its life, Signatories are required to make information available to end-consumers of their products, on how to reuse, recycle or safely dispose of the product. Almost half of the Signatories implement the commitment to encourage consumer responsible care. Examples of this included:

- Providing appropriate information for safe re-use, recycling and disposal methods on company websites.
- Producing a Guide to the Safe Handling of PVC resin.
- Referring consumers to specific recyclers that are part of the PIPA pipe recycling program.
- Reporting safety data and disposal recommendations in Material Safety Data Sheets (MSDS).
- Promotion of specific take-back schemes eg building site waste collection program.

Life Cycle Thinking

Signatories continue to recognise the importance of life cycle management of their products and the use of life cycle thinking and data in the development of new products. Under the Program, Signatories commit to considering whole-of-life in the development of new products containing PVC, taking into account, for example, de-materialisation, additive types, green procurement, end-of-life issues and waste management options.

During 2010, five companies considered life cycle thinking as part of new product development. Specific examples were provided by:

- Armstrong World Industries (Australia) Pty Ltd who developed a revised product line, Bravo vinyl sheet flooring, using less processing steps and reduced resource use. This is consistent with Armstrong's 'Four Stages of Lifecycle Assessment', which considers minimising the impacts at each stage: Raw Materials, Production and Distribution, Product in Use, and End of Life.
- Tech Plas Extrusion Pty Ltd who has developed a suite of products that use 100 per cent recycled material. The company is focusing on the steady increase in the use of recycled PVC, with a 19 per cent increase in 2010 over the previous year.

Commitment 5: Research

The agenda for the Technical Steering Group meetings, held quarterly, provides the opportunity to monitor national and international developments in scientific research relevant to the potential health and environmental impacts of the PVC product life cycle. During 2010, research or reports were shared on the following:

- The US EPA's hexavalent chrome risk assessment.
- Media reports on the concerns associated with use of bisphenol A.
- A published paper examining the sustainability of 12 polymers including PVC using LCA and green chemistry principles.
- The Australian Government's National Waste Report-2010 providing a comprehensive assessment of resource recovery and waste management in Australia today. The report highlights product stewardship as an approach for managing the impacts of a product or material during and at end of life.
- A review of the regulatory regimes for the risk management of hazardous chemicals around the world, comparing them with the EU's REACH program.
- A presentation from the European Council for Plasticisers and Intermediates providing an update on phthalate plasticiser use, trends and risk assessments.
- A video presentation of the European PVC industry's program, Vinyl 2010.

In addition, a number of guests made presentations at TSG meetings during 2010, including:

- Ms Trish Kerin, Sustainability Manager, Australian Vinyls, on life cycle thinking, covering aspects of the recently commissioned water recycling project. Members of the TSG inspected the water recycling plant.
- Ms Sharon Owens, Executive Officer Sustainability Programs, NSW Department of Environment, Climate Change and Water, providing an update on the NSW Extended Producer Responsibility strategy and the Federal Government's National Waste Policy Framework, agreed by the Environment Protectionand Heritage Council in late 2009.
- Mr Deng Jianneng, Hairma Chemicals, China on the application of epoxidised soy bean oil as a plasticiser and as a replacement for some phthalate use.
- Mr Damien Thomas, Director Business Development, CSIRO, on the work of CSIRO's Sustainable Polymeric Materials program and its interface with industry. He highlighted areas such as renewable feedstocks, and maximising the value and minimising the footprint of petroleum based polymers.

- Mr Geoff Houston, Manager Flexible Electronics, CSIRO, outlined the electro-active materials/flexible electronics program, which uses polymer substrates as a base for CSIRO's electronic film. for use in printable electronics and light weight solar cells. Members of the TSG visited the state-of-the-art laboratory facilities and observed the micro production and testing equipment in the clean room.
- Dr Trevor Thornton, Deakin University on improving the quality of healthcare waste. PVC is widely used in the healthcare sector. Hospitals today are increasingly focusing on resource management, not waste disposal.

Commitment 6: Reporting

This 2010 annual report was published in October 2011 following a complex verification process. The annual reports include a discussion of PVC life cycle impacts, updating on developments and recent scientific findings.

The process for collecting the data from the Signatory companies, reviewing and analysing it, preparing the report and conducting the verification process has been discussed in 2011 by the Technical Steering Group. To overcome the lengthy delay in producing the report after year end, alternative and earlier arrangements are to be made for the Signatory audits.

A new target date of 1 April 2011 has been set for the 2011 progress report.

Program and Report Verification

As in previous years, the 2010 report has been independently verified by Net Balance Foundation. The objective of the verification process is to provide an independent opinion on the accuracy of the data and statements made in the Report.

Last year, Net Balance Foundation found the

had made a number of recommendations following the verification of the 2009 report including:

- Improving the Signatories understanding of the requirements of the PSP commitments, especially new Signatories and those with limited resources.
- Supporting relevant Signatories to meet the commitment on Minimum Standards for Environmental Management System.
- Assisting Signatories develop their data capture system particularly in relation to waste management.
- Developing strong and measurable new commitments to reflect issues within the PVC industry.

To address these issues, the 2009 data collection form was revised to reflect the requirements of the mercury avoidance commitment. In addition, a new waste management reporting matrix was included to provide guidance and consistency in the reporting of PVC waste generation and recycling.

The Vinyl Council continued to offer support to Signatories to achieve compliance and to clarify the requirements. Companies were visited and the requirements of the commitments explained.

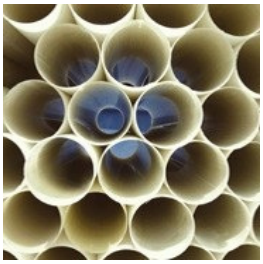
During the year, the Technical Steering Group developed new commitments for emulsion PVC and a PVC industry Charter for Energy and Greenhouse Gas emissions.

2010 verification

The verification process for this year's report involved four Signatory site visits to examine data sources and verify data and statements. Four other Signatories were audited via desktop data audits conducted by email and telephone. The methodology uses a specified set of principles and standards to assess the quality of a Signatory's reported data and the organisation's underlying systems, processes and competencies that underpin its performance.

Of the eight Signatories audited, one had made an error reporting against the residual VCM commitment, one against the Mercury Avoidance commitment, two against the adoption of the Plasticiser policy and two against the Waste Management information.

A copy of Net Balance's independent Verification Statement follows over page.



Technical Steering Group

As in previous years, the TSG held four meetings. Members of Technical Steering Group in 2010 were:

Member:	Organisation:
Chris Low	ARFA / Gerflor Australasia Pty Ltd
Keith Falk	Aperio Group (Australia) Pty Ltd
Peter Byron	Armstrong World Industries (Aust) Pty Ltd
Nigel Jones/Andrew Ferguson	Australian Vinyls Corporation Pty Ltd
Tom Elovaris	Berry Plastics (Australia) Pty Ltd
Alex Hruza	Chemson Pacific Pty Ltd
Mike O'Shea / Gary Peeters	CSIRO
Peter Marshall	Department of Environment Water Heritage and the Arts
Alan Whittle	Iplex Pipelines
Andrew Simmons	NSW Department of Environment & Climate Change
Nick Hayhurst	Plastral Pty Ltd
Kevin Doidge	Polyflor (Aust) Pty Ltd
Ian Lilja / Neil Stewart	Sun Ace Australia Pty Ltd
John Candela	Specialty Polymer & Chemical Pty Ltd
Colin Bray	Tarkett Australia Pty Ltd
George Macovaz	Vinidex Pty Ltd (Chair)
Barry Black	Vinyl Council of Australia (Secretary)
Sophi MacMillan	Vinyl Council of Australia
Matthew Hoyne/Stephen Dowling	Welvic Australia
Observers:	
Stephen Loffler	Sustainability Victoria
Hal Dobbins/ Shlomi Bonet	Green Building Council of Australia

Signatories

During 2010, four Signatories joined the Product Stewardship Program: Advance Cables, Altro APAC, Rojo Pacific and Specialty Polymer & Chemical. At the end of 2010 calendar year, the Product Stewardship Program Signatories are:

Organisation:	Organisation:
Advance Cables Pty Ltd	Plastic Industries Pipe Association (Australia):
Altro APAC Pty Ltd	Australian Plastic Profiles Pty Ltd
Aperio Group (Australia) Pty Ltd	Iplex Pipelines Australia Pty Ltd
Armstrong World Industries (Australia) Pty Ltd	Pipemakers Australia Pty Ltd
Australian Resilient Flooring Association (ARFA):	Vinidex Pty Ltd
Kenbrook Flooring (Aust) Pty Ltd	Polyflor Australia Pty Ltd
Pegulan Floorcovering Pty Ltd	Rojo Pacific Pty Ltd
Signature Floorcovering Pty Ltd	Specialty Polymer & Chemical Pty Ltd
Forbo Floorcoverings Pty Ltd	Sun Ace Australia Pty Ltd
Australian Vinyls Corporation Ltd	Tarkett Australia Pty Ltd
Berry Plastics (Australia) Pty Ltd *	Tech Plas Extrusions Pty Ltd
Chemson Pacific Pty Ltd	Terminals Pty Ltd
Dincel Construction System Pty Ltd	Tyco Water Pty Ltd
Gerfloor Australasia Pty Ltd	Ubique Polymers Pty Ltd
Pacific Plastics (Qld)	Vinyl Council of Australia
Plaspak Peteron Pty Ltd	Welvic Australia
Plastral Pty Ltd	

In September 2011, Forbo Floorcoverings Pty Ltd was de-listed as a Signatory to the Product Stewardship Program for failing to meet its commitment in that it did not engage in the data collection process for the reporting years 2009 and 2010. It therefore did not fulfil its obligations as a Signatory. Further Forbo Floorcoverings was deemed to be non-compliant for reporting purposes in the annual Product Stewardship reports for both years. While it is regrettable that a Company is delisted, it is imperative that the integrity of the Product Stewardship program is maintained for the benefits that are derived by the Industry and its stakeholders.

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INDEPENDENT VERIFICATION STATEMENT

To the Signatories and Management of the Vinyl Council of Australia:

The Vinyl Council of Australia (VCA) commissioned Net Balance Foundation Limited (Net Balance) to provide independent verification of the information presented within the VCA Product Stewardship Program Progress Report 2010 (the 'PSP Report').

The PSP Report presents the performance of the Product Stewardship Program Signatories (the 'Signatories') against the commitments of the VCA Product Stewardship Program (PSP) over the period 1 January 2010 to 31 December 2010. The VCA was responsible for the preparation of the PSP Report and the verification statement represents Net Balance's independent opinion on the reliability of information presented within it. Net Balance's responsibility as an independent verification provider is to VCA alone and in accordance with the agreed terms of reference. Other stakeholders should perform their own due diligence before taking any action as a result of this statement.

Verification objective

The verification objective is to provide VCA and its stakeholders with an independent opinion on the accuracy of the information presented within the PSP Report. This is confirmed by verification of the claims made through a review of the underlying systems, processes, information and data used to support the information presented.

Verification process and limitations

The level of verification provided is defined by the methodology described in this verification statement. The verification engagement covered the complete PSP Report and focused specifically on the systems and activities of a selection of eight Signatories during the reporting period, with the following limitations:

- Eight Signatories were selected for verification by the VCA. These signatories were selected by Net Balance and the VCA to provide an appropriate representation sample of the Signatory group, which comprised 30 organisations in 2010. Similar to past years, it is expected that future verification programs will select a different group of Signatories and thus allow for breadth of coverage across the PSP.
- The scope of work was limited to verification of data and statement accuracy.

Verification methodology

The verification process comprised two stages, and was undertaken between May and October 2011. This involved:

1. **Review of the Signatory data**

   Review of the accuracy and source of data and statements submitted by the Signatories to the PSP. This included the following tasks:

   - The examination of 78 selected data points.
   - Interviews with key Signatory personnel responsible for collating and submitting data to the PSP to verify the veracity of the submitted data. This took place by undertaking site visits and examining the relevant site-based data for four selected Signatories.
   - Reviewing data from an additional four Signatories via desk-top assessment including telephone and e-mail dialogue.
   - Completing a logic review for compatibility and consistency on the remaining data submitted by Signatories, which was not formally verified by Net Balance.

   Signatories subjected to site-based review were:

   - Armstrong Flooring Division: 29 - 39 Mills Road, Braeside VIC 3195.
   - Australian Vinyls Corporation Pty Ltd: 65 Leakes Road, Laverton VIC 3028.
   - Dincel Construction System Pty Ltd: Level 3, 7K Parkes Street Parramatta NSW 2150.
   - Vinidex Pty Limited– 254 Woodpark Road, Smithfield NSW 2164.

   Signatories subjected to desktop review were:

   - Altro APAC Pty Ltd: 3 St Andrews Court, Rowville VIC 3178.
   - Chemson Pacific: 25 Euston St, Rydalmer NSW 2116.
   - SunAce Australia Pty Ltd: 32-38 Remington Drive, Dandenong South VIC 3175.
   - Tarkett Australia Pty Ltd: 16 Anella Avenue, Castle Hill NSW 2154.

2. **Review of PSP Report**

   A review of the accuracy and source of aggregated data and statements contained within the PSP Report was undertaken. This included the following tasks:

   - The aggregation of data and statements submitted by Signatories to allow analysis of overall performance against the commitments of the VCA Product Stewardship Program.
   - The examination of 38 selected aggregated data points and statements.
   - Interviews with the key VCA personnel responsible for aggregating data and statements from the submitted Signatory data and preparing the PSP Report to verify the veracity of the reported data. This took place through a site visit and various e-mail and telephone dialogues.

Our independence

Net Balance was not responsible for preparation of any part of the PSP Report. Net Balance has provided the VCA with advice on the potential impacts of the recently announced Australian Carbon Price Framework during the reporting year. This work was determined not to be in conflict with Net Balance's role as an independent verification provider. Net Balance therefore confirms that it is not aware of any issue that could impair objectivity in relation to this verification engagement.

Our competency

The verification team was comprised of individuals with expertise in environmental performance measurement. The verification team has collectively undertaken over 120 verification or assurance engagements in Australia over the past 10 years and is led by a Lead Sustainability Assurance Practitioner (Lead CSAP) accredited by the Independent Register of Certified Auditors (IRCA UK).

Our opinion

Based on the verification procedures undertaken, the following represents Net Balance's opinion:

On data submitted by Signatories:

- The Signatories' systems and processes to track performance against the commitments of the PSP were mixed, but generally provide confidence in the information reported. The quality of the systems was typically dependent on the size and resources of the organisation.
- A number of Signatories would benefit from further explanation of the evidence required to meet *Commitment 1.4 Mercury Avoidance*.
- Adherence to Commitment *1.3 Minimum Standards for Environmental Management Systems* continues to present a challenge for the smaller Signatories.
- A number of Signatories would benefit from further explanation of the evidence required to meet the waste management commitments.
- Data trails selected were in general identifiable and traceable, and the personnel responsible were able to demonstrate the origin(s) and interpretation of data.
- The level of accuracy for the information submitted by the Signatories to the VCA Product Stewardship database was found to be within acceptable limits.

On the report:

- The findings of the PSP Report verification provide confidence in the reporting processes established.
- Data trails selected were easily identifiable and traceable, and the personnel responsible were able to reliably demonstrate the origin(s) and interpretation of data.
- The level of accuracy of the data and statements made were found to be within acceptable limits. In the longer term, VCA should move towards a more automated process of data collection and consolidation. This would avoid the potential for transcription errors particularly when aggregating Signatory data.
- The statements made in the Report appropriately reflect the environmental performance achieved during the period.
- All suggested changes were satisfactorily addressed by VCA prior to finalising the Report.

Overall, it is Net Balance's opinion that the information presented within the Report is fair and accurate and that the Report is a reliable account of the Signatories' and the VCA's performance against the PSP commitments during the reporting period.

The way forward

The VCA has developed a sound process for collecting and reporting Signatory performance information against the commitments of the PSP. This transparent reporting against commitments is helping to raise the standard of environmental performance in the vinyl industry in Australia.

To continue to drive improvements in environmental performance and reporting amongst its Signatories, it is recommended that the VCA continues to:

- Engage with Signatories regarding the format of the data submission document and how to make the process of submitting data easier.
- Work with Signatories to improve their understanding of the requirements of the PSP commitments, especially new Signatories and those with limited resources.
- Provide additional guidance and support regarding *Commitment 1.3 Minimum Standards for Environmental Management Systems, Commitment 1.4 Mercury Avoidance* and the Waste Management Commitments to assist relevant Signatories to understand and meet the requirements prior to the next reporting period.
- Assist Signatories to further develop their data capture systems, particularly in relation to waste management.
- Improve record keeping with regards to information received from Signatories that was additional to the data sheet requirements.
- Define the internal expectations of the VCA with regards to the verification process.
- Continue to develop strong and measurable new commitments as current commitments are achieved.

These have been outlined in a more detailed report presented to the VCA.

On behalf of the verification team
11 October 2011
Melbourne, Australia

Terence Jeyaretnam, FIEAust
Director, Net Balance & Lead CSAP (IRCA UK)

Appendix I: Vinyl-2-Life Action Plan - Report of Activities 2010

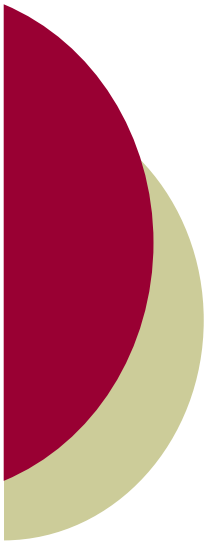
Medical Waste	Action	Progress
Develop program for recovery of PVC medical waste.	Engage with stakeholders to address barriers identified in the medical waste trial.	• PVC medical general waste trial underway in conjunction with Western Hospital, Melbourne and PVC reprocessor. • Discussions with third party to identify logistics improvements. Held discussions with stakeholders to explore up-scaling the project.
	Assess feasibility to extend trial to other hospitals.	• Trial extended to second hospital in the Western Hospital Group. Contact with other hospitals.
	Production of promotional/educational material for the project.	• Reprocessor SRM collecting approx 500kg every 3-4 weeks • Meetings held with hospital staff to educate on reducing contamination by other plastic materials. • Bin labels/posters produced.

Pipes & Profiles	Action	Progress
Develop a more consistent supply of pipe & profile material for reuse/recycling.	Maintenance of Recovery Program in Sydney, Melbourne, Brisbane.	Collections and reprocessing continue. In 2010 three sources provided a total of 442 tonnes pipe waste recovered and recycled into new PVC pipes. Engaged with pipe recyclers to encourage continued reprocessing. Flyer promoting rigid PVC recycling developed and distributed.
	Identify additional sources of waste which can be reprocessed by pipe makers including window off-cuts waste	Window profiles trialled. 7.5 tonnes of rigid foamed sheet collected & recycled in May. Credit card scrap also being investigated with AbNote.

Floor Coverings	Action	Progress
Develop and implement a voluntary scheme(s) or initiative(s) aimed at encouraging higher recovery and recycling rates for vinyl floor covering waste.	Work with Australian Resilient Flooring Association (ARFA) on development of industry-wide offcuts recovery program	VCA presented to ARFA Board seeking commitment from ARFA to develop an industry strategy. ARFA / VCA to investigate further recycling opportunities. New flooring member, Altro, has joined in part to improve recovery of EOL material.
	Continue to support signatories in research and development of End of Life recovery and recycling	Polyflor have established recycling of flooring offcuts into PVC wall coving used in floor installation. Visited UK flooring recycling operations in April 2010 to discuss issues and systems.

Appendix I: Vinyl-2-Life Action Plan - Report of Activities 2010 (continued)

Bottles	Action	Progress
Support the Vinyl Bottle Group in continually enhancing recovery and local recycling of PVC bottles	Actively engage with the Vinyl Bottle Group to support their activities.	Regular steering group meetings held. Collections by a major materials sorting facility commenced. Joined consortium to research feasibility of sorting mixed plastic bales locally. Disseminated trade journal press to raise awareness of bottle recycling.
Management	**Action**	**Progress**
Develop mechanisms for improved data collection and reporting of PVC recycling	Investigate data collection with Hyder Consulting	Additional research proposals on B&CD waste considered and discussed with external stakeholders. Further work needed to develop methodology to generate data on which measures can be based.
Other Recycling	**Action**	**Progress**
Increase awareness of PVC recycling and recyclability	Promote, encourage and support PVC recycling activities	Assisted in the establishment of trials for recycling vinyl wall coverings, credit card scrap, and PVC coated fabrics. Provision of information on PVC recycling and locations of PVC recyclers provided via website. Trade stories published.
Address barriers to increased recycling of PVC	Identify and engage with relevant stakeholders	Engaged with government and other industry associations to share and build knowledge. Attended SPE's Plastics and Waste workshop (Nov 2010)
	Conduct workshop on PVC recycling	Stakeholder preliminary workshop conducted in December 2010 as a precursor to an Industry Summit, which will develop a strategy for viable long term PVC recycling sector.



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