

The annual progress report for 2008 for the Australian PVC Industry's Product Stewardship Program.

PVC PRODUCT STEWARDSHIP 2008

Summary of Key Commitments and Progress

Issue	2008 Commitment	2008 Progress	2009 Commitment
1: Production and Storage			
VCM in finished resin	Residual VCM in finished resin powder not greater than 1 ppm.	Achieved by 9 out of 11 relevant Signatories.	Ongoing
VCM emissions resulting from manufacturing	VCM emissions no greater than 50g / tonnes PVC.	Achieved. Emissions of less than 21g/ tonnes PVC as at 30 June 2008.	VCM emissions no greater than 30g/ tonnes PVC
Environmental management systems at manufacturing and storage sites	To work towards reaching or exceeding the industry's Minimum Acceptable Standard. 75% of the terms of the Standard to be met by the end of 2008 for Signatories not meeting the Standard as at end 2007.	17 of 23 Signatories met or exceeded 75% of Minimum Acceptable Standard. Six Signatories were non-compliant, but were working towards improving their environmental management systems.	Ongoing 85% of the terms of the Standard to be met by the end of 2009 for Signatories not meeting the Standard as at end 2008. Signatories to show that the Program's Commitments are embedded into their company's Business Management Systems
2: Heavy Metal Additives			
Code of Practice	Adherence to the industry Code of Practice for the 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	To phase out the use of lead stabilisers in 2008 for pipes and fittings and 2010 for other applications.	All PIPA members have phased out the use in pipes by year end 2008. One non-PIPA member, a new Signatory, had not completed the phase out. Remaining Signatories on track to meet target	To complete the phase out in all applications by 2010
Pigments	To substitute lead, cadmium & hexavalent chrome pigments by 2010 where technically feasible and alternatives are available.	Only four Signatories continue to use them and these are working towards phasing them out.	Ongoing
Other additives	To monitor any pertinent overseas developments.	Monitoring maintained	Ongoing
Open Disclosure	To provide information on additives used in PVC products or components to stakeholders upon request.	Most Signatories use existing, relevant internal processes to deal with requests for information.	Ongoing

Issue	2008 Commitment	2008 Progress	2009 Commitment
3: The use of Plasticisers			
Phthalate plasticisers	To implement the industry Policy on Plasticiser Use	All relevant Signatories confirmed adherence	Ongoing
	To share relevant information with NICNAS	Dialogue maintained with NICNAS	Ongoing
4: Waste Management			
National Packaging Covenant (NPC)	All relevant Signatories submit waste management Action Plans under the NPC and maintain compliance with NPC obligations.	All relevant Signatories (four) are signed up and action plans lodged.	Ongoing
Recycling	To implement Commitments contained in **Vinyl-2-Life** action plan.	Most actions completed and new actions have been set (see Appendix).	Ongoing
	To monitor overseas recycling developments.	Information on recycling developments overseas shared with Signatories and TSG.	Ongoing
Consumer responsible care	To provide information to end consumers on management options for end-of-life PVC.	Some Signatories reported compliance using a range of methods to provide information to end consumers. Other Signatories are working towards compliance.	Ongoing
Life cycle thinking	To consider whole-of-life in the development of new products, taking into account end-of-life issues and waste management options.	Signatory initiatives included undertaking life cycle thinking training, recycling programs, material efficiency and life cycle risk assessment approaches.	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 (see page 15).	Ongoing
6: Public Reporting			
Performance against Commitments	Publish 2008 annual performance report by 31 August 2009.	Not achieved. Published in October 2009. Report verified by independent third party. Audit statement provided.	Publish 2009 annual performance report by 31 August 2010.
PVC life cycle impacts	To publish annual product stewardship issues review.	Review for 2008 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

Chairman's Statement

The PVC industry's Product Stewardship Program (PSP or 'the Program'), now in its seventh year, is a voluntary initiative setting out a series of Commitments to address environmental and health issues associated with the life cycle of polyvinyl chloride (PVC, or vinyl).

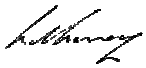
This is an ongoing long term undertaking of the Australian PVC industry to recognise and progressively address all pertinent environmental issues within responsible and deliverable timeframes. Signatories commit to a range of actions in areas including manufacturing emissions, additives and end-of-life management. These Commitments bind the Signatories to deliver specific outcomes.

This annual report provides information on progress in meeting Commitments, assesses the status of issues, and records new or revised Commitments where appropriate.

Progress in 2008 was mixed with some significant milestones met and non-compliance by some signatories in a number of areas. By the end of 2008, all the major PVC pipe Signatories had phased out the use of lead stabilisers in their products, and relevant Australian standards for pipes were being revised to reflect this. Other activities in 2008 include the development of recycling initiatives, such as the trial to recover and recycle PVC medical waste from hospitals.

Areas where we need to work more closely with Signatories to improve compliance are related to development of Signatories' Environmental Management Systems in order to meet the PVC Industry Minimum Acceptable Standard; the Consumer Responsible Care Commitment, in relation to recycling and waste management information; clarifying the residual VCM Commitment, and life cycle thinking.

We continue to welcome the support and input received from the NSW Department of Environment and Climate Change, the Australian Government Department of Environment, Heritage, Water and the Arts and the CSIRO through their participation in the Technical Steering Group. Sustainability Victoria and the Green Building Council of Australia were observers to the Group and Program throughout 2008.



George Macovaz
Chairman, Technical Steering Group

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Significant Program Developments in 2008

- PIPA members phased out use of lead stabilisers in pipes and fittings
- Medical waste recycling trial launched
- VCM emissions from resin manufacturing below the Commitment standard
- Life cycle training undertaken by two Signatories

PVC bottles made in Australia are returned through kerbside collection for reprocessing and the recyclate used in new vinyl flooring. The industry is also exploring recovery and recycling of end of life flooring.

Foreword

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

In 2008, there are 23 Signatories to the Program. All submitted data for the year. The relevance of each Commitment to each Signatory varies depending on whether they are a supplier, compounder, converter or industry association, and the type of product produced or supplied. Refer to Appendix 1 for a summary of Commitment relevance by Signatory.

1: Production and Storage

Issue

Vinyl chloride monomer (VCM) is the key raw material required to manufacture the polymer, PVC resin. VCM is a flammable, carcinogenic substance transported to Australian Vinyls Corporation's plant as a liquefied gas under pressure. It is not manufactured in Australia and is imported by ship, mainly from the Middle East and Asia.

The carcinogenicity of VCM to PVC production workers was first established in the early 1970's. VCM had been used commercially to manufacture PVC since the 1940's before it was discovered that prolonged high exposure (in the order of thousands of parts per million) to the chemical could lead to a rare form of liver cancer, angiosarcoma of the liver (ASL). Subsequently, the industry around the world has implemented measures to modify the production process and reduce exposure of workers to VCM. Today, the PVC production process is a closed system, with activities involving VCM taking place in sealed vessels. This maximises production efficiencies, reduces environmental emissions, and minimises potential worker exposure. No worker first potentially exposed after the mid 1970's has developed ASL. Once polymerised to form polyvinyl chloride, the resin is essentially inert and does not revert back into the monomer. However, minute amounts of unreacted VCM may remain in the resin.

Residual VCM

PSP 2008 Commitment

VCM retained in manufactured resin shipped to, or imported direct by converters and compounders will not exceed 1 part per million, consistent with best published international standards.

2009 Action
Clarify the Commitment and specify a compliance requirement in percentage terms.

International voluntary industry standards require PVC resin to have no more than five parts per million (ppm) VCM in final resin to be used in general products and less than one ppm in resin to be used in food contact and medical device applications. Such standards protect the health of workers from exposure to VCM during conversion of the resin into finished goods, as well as consumers of these products.

Under the Product Stewardship Program, the Australian industry has set a standard of no more than one part per million (ppm) for all PVC resin.

With two exceptions, all reporting Signatories who import PVC from overseas confirmed that the residual VCM in such resin was at, or below, 1ppm. One Signatory reported 15% of its PVC contained between 1 and 10 ppm residual VCM. They are investigating this issue with their supplier.

During the year, Australian Vinyls Corporation imported a significant amount of PVC which it specified to have less than 1ppm residual VCM. However, on testing product from a new supplier, one batch of imported resin was found to have a residual VCM of 1.8ppm.

Manufacturing VCM emissions

PSP 2008 Commitment

VCM emissions resulting from Australian manufactured PVC resin will not exceed 50 grams per tonnes of PVC produced.

2009 Action
Consider reducing the VCM emission standard in 2009.

Australian Vinyls is committed to ensuring the VCM emissions arising from its manufacture of PVC resin locally do not exceed the Program standard of less than 50g per tonnes of PVC produced. For the financial year of 2007-2008, the company's reported VCM emissions were 20.9g per tonnes of PVC produced, which is well below the standard.

Environmental management systems

In 2005, Signatories agreed to work towards a PVC Industry Minimum Acceptable Standard for Environmental Management. All Signatories involved in production and storage activities are expected to confirm annually that their company meets this Standard, or is working towards it. The twelve individual elements in the Minimum Standard are broadly based on major aspects contained in the international Environmental Management Standard.

There are three broad phases of development and implementation of an EMS based on international standards:

1. whether the company has a policy and procedures in place to support environmental management, that is, if appropriate systems and management practices have been developed and are reviewed;
2. whether the company is implementing the systems and has processes for controlling environmental risks and management and improving performance; and;
3. whether the company is reporting on its environmental performance, and reviewing and refining its EMS.

Previous annual reviews have found that a small number of Signatories were experiencing difficulties in implementing an EMS. In order to bring all Signatories up to the Minimum Acceptable Standard, the Commitment was revised in early 2008 to incorporate a stepped approach to help focus these Signatories on a few key elements of EMS in the short term to facilitate measurement of progress. This is intended to improve the improve practicality and measurability of the Commitment.

For 2008, Signatories who were not yet in compliance with the Minimum Standard were required to achieve 75% of the PVC Industry Minimum Acceptable Standard requirements by the end of the year.

2008 Performance

For the reporting year 2008, out of 23 Signatories, 17 met or exceeded 75% of the Minimum Acceptable Standard, with 6 being ISO14001 certified and 4 being Responsible Care Signatories. The remaining 6 were non-compliant with the Commitment, but were working towards improving their environmental management.

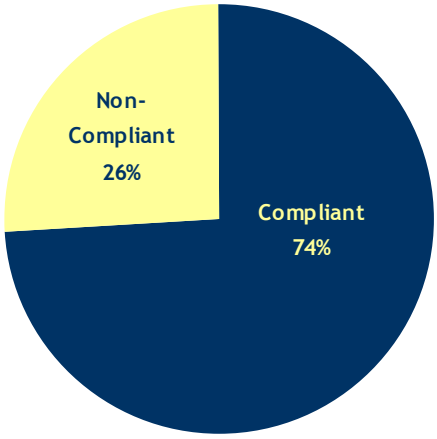
PSP 2008 Commitment:

Encourage and support advances in environmental management of Signatory operations.

75% of the terms of the Minimum Acceptable Standard to be met by the end of 2008 for Signatories not meeting the Standard as at end 2007.

2009 Action
Meet or exceed 85% of the Minimum Acceptable Standard by end 2009.

2008 EMS Standard Compliance



2: Heavy Metal Additives

Issue

Metal-based stabilisers are added to PVC compounds to provide UV and heat resistance effects. Such stabilisers have traditionally included compounds based on lead, cadmium, zinc, barium and tin.

Lead

Lead-based stabilisers have been commonly used in a range of applications; for example, pipe, electrical cable, footwear and profiles. They are not used in children's toys, potable water pipe, medical devices or food contact products in Australia, to our knowledge.

Exposure to lead may damage the nervous system, kidneys and reproductive system. Children are more sensitive than adults to lead poisoning, and for this reason, there is heightened community concern about lead in the environment.

In PVC compounds, the lead is tightly bound into the polymer matrix and not readily removed. The CSIRO found that PVC products account for very little lead in the environment relative to other sources[#].

Signatories to the Product Stewardship Commitment have nevertheless made a Commitment to phase out the use of lead-based stabilisers in all applications by 2010.

Cadmium

As at 31 December 2008, all Signatories reported no use of cadmium-based stabilisers.

Tin

The PVC industry also uses organo-tin heat stabilisers. They have been used safely for over 50 years in PVC applications, and certain organo-tin stabilisers are approved for use with food contact applications or potable water pipe. In the community, there has been some confusion between the use of tributyl-tin biocides in marine anti-fouling paints and the types of tin stabilisers found in PVC products. Tributyl-tin, which has been linked to environmental effects, is not used in PVC applications.

Zinc

Calcium-zinc (Ca-Zn) stabilisers are being used increasingly and are an alternative to lead-based stabilisers in some applications. Ca-Zn stabilisers can be used in most applications to replace lead-based stabilisers, including cable. Zinc stearate is approved for use in food contact applications in Australia.

Barium

Barium-zinc stabilisers are used for flexible film and sheet profiles.

Implementing the Code of Practice

PSP 2008 Commitment

Implement the Code of Practice for the use of lead and cadmium in PVC products in Australia, including the phase out of the use of lead stabilisers in pipes and fittings by the end of 2008.

By the end of 2008, all except one of the relevant reporting Signatories using lead and/or cadmium in PVC products in Australia confirmed their implementation of the Code of Practice. Tech Plas was a new Signatory in 2008, and is still improving its understanding of the Program Commitments.

Under the Code of Practice, Signatories committed to phase out the use of lead stabilisers by the end of 2008 for pipe and fittings and 2010 for all other applications.

CSIRO 1998 The environmental aspects of PVC in building products.

All PIPA Members Complete Lead Phase Out in 2008

Four of the Signatories are Members of the Plastics Industry Pipe Association of Australia (PIPA) and were committed to phase out the use of lead stabilisers from pipes and fittings by the end of 2008. One Signatory, Iplex, completed the phase out of the use of lead stabilisers at the end of 2007. The remaining three completed the phase out by the due date, end 2008.

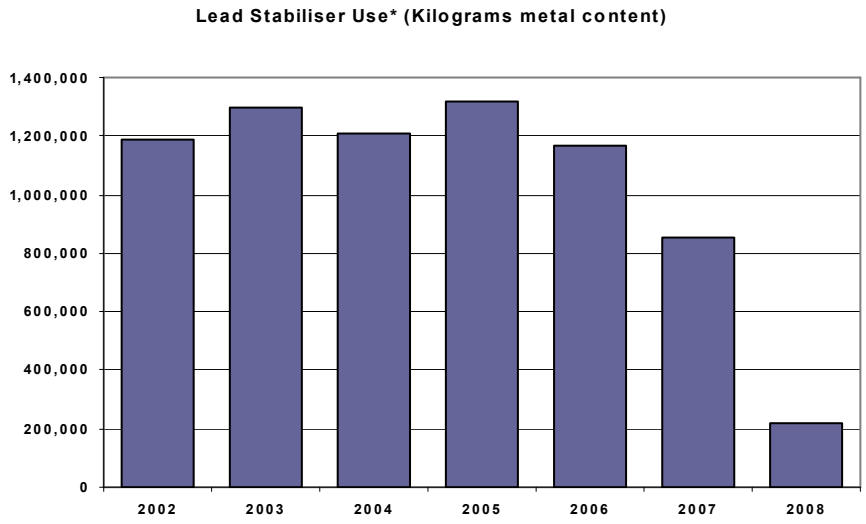
Whereas last year, Pipe, Conduits & Fittings constituted 86% of Signatory lead use, 2008 saw this sector's proportion fall to 62%.

The data below represents the annual total usage of lead metal content of stabilisers used by reporting Signatories in 2008 compared to previous years.

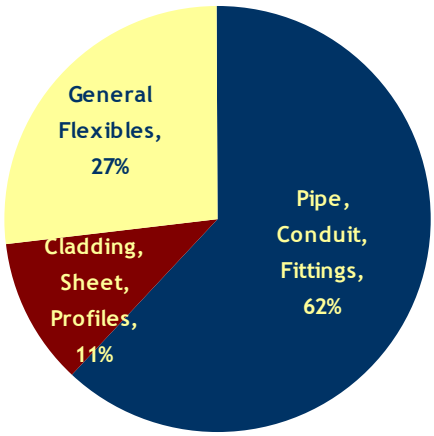
PSP 2008 Commitment

Complete the phase out of the use of lead stabilisers by 2008 for pipes and fittings and 2010 for all other applications.

2009 Action
Ensure all remaining lead-using Signatories complete the phase out by end 2010.



Signatory Lead Stabiliser Use by Sector, 2008



*To avoid double counting, the figures are derived from data reported by converters for products sold on the local and export markets, and stabilisers reported sold by Signatory compounders to non-Signatory converters.

One new Signatory, which manufactures a range of custom extruded PVC products including some pipe products, has not yet fully phased out the use of lead from those pipe products. The company has confirmed it will meet the lead phase out in all its products by end 2010.

Pigments

A number of Australian PVC manufacturers and suppliers have ceased the use of lead, cadmium and hexavalent chrome pigments, or are committed to phasing them out within a specified timeframe. Only four Signatories are currently using them because of the specific colour and technical properties these metals offer as pigments.

Under the new Commitment on Pigments, Signatories agree to substitute by 2010 the use of lead, cadmium and hexavalent chromium pigments where technically feasible and suitable alternative exist.

The data below represents the annual total usage of lead, cadmium and hexavalent chromium pigments combined by reporting Signatories in 2008 compared with the previous year.

Two Signatories are using lead-based pigments only. One of these plans to phase out lead pigments by March 2009. Another Signatory is using chrome-based

PSP 2008 Commitment

Substitute the use of cadmium, lead and hexavalent chrome pigments by Signatories, subject to availability of suitable alternatives, by 2010.

2009 Action
Monitor use of heavy metal pigments by Signatories.

Combined Lead/Cadmium/ Chromium-based Pigments Used (Kilogram of metal content)

	2007	2008
Use (kg)	9251	3659

pigments only, and the fourth, a new Signatory, is using all three metal pigments in its products.

All four Signatories have agreed to cease the use of lead, cadmium and hexavalent chrome pigments in the development of new products if suitable alternatives for the application exists.

Open Disclosure

PSP 2008 Commitment

Provide general information on the additives used in PVC products or components to stakeholders upon request.

2009 Action
Clarify Commitment with Signatories and improve compliance.

Under this Commitment, Signatories agree to provide general information on the additives used in their PVC products or components to stakeholders upon request. Disclosure of exact amounts of each additive used is not required under this Commitment as it is proprietary, commercially sensitive information.

Most Signatories have used their existing, relevant internal processes to deal with any requests for information with a number having formal record keeping systems in place. Suppliers of raw materials and additives continue to provide Material Safety Data Sheets (MSDS's) with their products. One Signatory plans to incorporate advice regarding open disclosure into its company website.

Nylex Industrial Products reported that all requests for MSDS's are met. All prepared documents are filed and are readily available to sales staff to provide to customers on request.

3: Plasticiser Use

Issue

Extruded PVC is a rigid material but the addition of plasticisers to impart flexibility makes PVC an extremely versatile material. Plasticisers are added to PVC resin for applications such as electric cable insulation, packaging films, flooring tiles, footwear and blood bags.

The choice of plasticiser is usually based on particular performance characteristics required for the product. The most commonly used plasticisers come from the phthalate ester family; these have been in use in flexible or soft PVC products since the 1930s.

One of the most widely used phthalate plasticisers has been DEHP (di(2-ethylhexyl) phthalate), sometimes known as DOP (di-octyl phthalate). Other common phthalate plasticisers are DIDP (di-isodecyl phthalate), DINP (di-isononyl phthalate), DBP (di-n-butyl phthalate) and BBP (butyl benzyl phthalate). A non-phthalate plasticiser, diethylhexyl adipate (DEHA, sometimes also called DOA), is normally used in food contact applications.

In recent years, phthalates have received attention in the context of the scientific debate on endocrine (or hormone) disruption. Phthalates have been extensively studied over the past 40 years and it has been know for many years that small amounts of plasticisers may migrate out of products under certain circumstances.

The areas of greatest concern are:

- Children's toys that are extensively sucked or chewed because phthalates may migrate from the toys into saliva and then be taken into the body, and

- Medical devices such as tubing, blood and other intravenous (IV) fluid bags, where phthalate plasticiser that may have migrated into the fluid during storage can enter the patient.

There is no evidence that anyone has been harmed by exposure to phthalate plasticisers in these ways. Nevertheless, scientific uncertainty about the potential for phthalates to disrupt the human endocrine system has led to considerable debate about their safety.

The Australian PVC industry's Product Stewardship Program developed and included a *Policy for the Use of Phthalate Plasticisers in Flexible PVC Products in Australia*.

PSP 2008 Commitment

Implement the industry Policy on Plasticiser Use.

2009 Action
Ensure all relevant Signatories understand their Commitment to adhere to the Policy for the Use of Phthalates.

The Policy includes monitoring developments regarding the health and environmental safety of plasticisers here and overseas and promotes sharing of information among Signatories and state and federal regulatory authorities. It includes a Commitment to cease the use of a phthalate plasticiser in any application where available scientific evidence shows it to have unacceptable health or environmental impacts.

Eight of the 11 relevant Signatories reported adherence to this Policy in 2008. Two suppliers and one converter reported were unable to confirm adherence. These will be followed up to identify any issues.

The Vinyl Council continued to monitor international scientific and regulatory developments in relation to phthalate use.

Improving our understanding

In September 2008, the Council and Technical Steering Group organised for a comprehensive overview of the most recent scientific findings on phthalate plasticisers by leading Australian toxicologist, Dr Roger Drew.

The session, which was well attended by industry representatives, outlined potential implications for industry and regulators of commonly used phthalates.

Dr Drew reported that:

- There is concern from animal experiments regarding reproductive or development toxicity with foetal and neonatal exposure.
- This is not observed in all species of animals and not all phthalates are implicated in these studies. It is only the phthalates with a carbon back-bone of C4-C6 which are relevant.
- International estimates of exposures to DEHP are considered to be below No Observable Adverse Effects Level. However the population receiving certain medical treatments has 100-1000 times greater exposure than the general population.

Dr Drew noted that

- for rats, there is sufficient evidence that DEHP gestational exposure causes development toxicity in males and reproductive toxicity;
- for humans, there is insufficient evidence that DEHP causes developmental toxicity, or male or female reproductive toxicity.

An article on phthalates appeared in the Victorian press in May, regarding phthalates. The Vinyl Council was quoted and it was recorded that "the industry was committed to stopping the use of phthalates "where available scientific evidence shows it to have unacceptable health or environmental impacts"." (The Sunday Age, 24 May 2008).

PSP 2008 Commitment

To share relevant information with NICNAS.

Australian Regulatory Developments

In June 2008, the Australian Government's National Industrial Chemical Notification and Assessment Scheme (NICNAS), the regulatory authority for industrial chemicals, released the Hazard Compendium on 25 phthalate chemicals, plus individual hazard assessments. A phased release of risk assessments of individual phthalates was planned with the first two (DEHP and DINP) due in the second half of 2008. Prior to the time of release of this annual report, NICNAS had rescheduled the release of these assessments to the second half of 2009.

Overseas Plasticiser Developments

The Council has been monitoring international regulatory developments and scientific results. In 2008, the US Consumer Products Safety Commission backed a Bill through the US Congress phasing out phthalates in toys. Canada also proposed to prohibit, under the Hazardous Products Act (HPA), DEHP in toys for young children.

There are no regulations that we know of restricting the use of phthalates in building products. The EU risk assessments found DINP, DIDP and DEHP all safe in these applications. Furthermore, the European Scientific Committee for Health and Environmental Risks (SCHER) in its 2007 report on Indoor Air states "the SCHER does not find consistent scientific evidence which indicate that phthalates should be high concern chemicals in indoor air".

There has been a significant amount of research published over the last few years investigating the effect of phthalates on foetal male development. One such study suggests that testosterone changes might occur at lower doses than those by which DEHP, DBP, BBP etc are currently regulated.

4: Waste Management

Issue

In order to reduce resource use, our industry as with most other material-related industries, needs to develop strategies to reduce waste generated in the life cycle of the material, improve recovery and recycling of end-of-life PVC products and thereby divert PVC from landfill. We have adopted a number of approaches in the Program to work towards addressing waste generation, management and recovery.

Packaging Waste

PSP 2008 Commitment

All relevant Signatories to have submitted waste management Action Plans and to maintain compliance with National Packaging Covenant obligations.

The National Packaging Covenant (NPC) is a voluntary initiative by government and industry, to reduce the environmental effects of packaging. It aims to minimise the environmental impacts arising from the disposal of used packaging, conserve resources through better design and production processes to facilitate the re-use and recycling of used packaging materials. The NPC is an agreement based on the principles of shared responsibility through product stewardship, between key stakeholders in the packaging supply chain and all spheres of government — Australian, State, Territory and Local.

All the relevant Signatories in relation to PVC packaging have re-signed to the National Packaging Covenant. These are Aperio Group, Plaspak Peteron and Pliant Corporation – who are all packaging manufacturers - and Australian Vinyls, as a resin supplier to the industry.

Packaging and recycling initiatives include:
Aperio's NPC Action Plan includes items such as waste reduction programs, energy saving programs, staff familiarization and customer partnering.

Australian Vinyls encourages their customers to take product delivered in bulk. In the short term it expects to see a decrease in paper sacks and bulk bags as a result of two major customers converting to bulk.

Pliant has introduced a new stretch wrap machine – saving around 5000 Kg of waste stretch wrap from landfill. They have modified their cooling towers to reduce evaporation – hence saving water and energy. Additional energy savings also resulted from the addition of new piping on their plasticiser feed line to improve flowrate.

Plaspak Peteron have light-weighted some of their products, and have increased the use of external recyclers for their plastic and cardboard waste. Vinyl Council and Plaspak Peteron continued to participate in the Vinyl Cycle post-consumer bottle program.

Welvic send bulk bag packaging to a recycler who is also now collecting bulk bags from Welvic's customers as well. All non-prescribed paper waste is also collected for recycling.

Armstrong World Industries recycled 7.8 tonnes of post-consumer HDPE supermarket shopping bags in-house into new flooring product. The company also reused 8.2 tonnes of PVC pallets and used 145.1 tonnes of recycled-content wrapping paper and cartons.

Post Industrial Recycling and Use of Recyclate

A number of Signatories reported achievements in post-industrial waste recycling:
Armstrong World Industries reported recycling around 1820 tonnes of post industrial waste, including 1692 tonnes of their own factory rework waste which was recycled in-house. Additional materials sent off-site for recycling included paper (66.7 tonnes), wood (38.7 tonnes) and metal (18.7 tonnes).

Australian Plastic Profiles rework all internal PVC recyclate into either the same finished product or it is micronized for usage in foamcore pipe products. Their

also collect, separate and recycle all cardboard/paper and metal waste generated on their manufacturing site.

Chemson Pacific reported that factory waste is their only form of waste and is recycled for use in non-critical products.

Dincel Construction System reported that all their in-house PVC manufacturing waste, including extrusion rejects, off-cuts or cored web holes are currently recycled internally. Any Dincel PVC product construction offcuts can also be recycled by Dincel or the pipe industry, as it is too valuable a material to discard to landfill.

Innua has a relationship with a PVC recycling company Cryogrind, who reclaim and recycle waste PVC.

Iplex Pipelines reported that it is a normal part of their operation to rework start-up and shut-down scrap and other waste back into pipe product. The introduction of sandwich construction non-pressure pipes has meant even purge material can be put into new pipe.

Nylex Industrial Products recycles all in-house PVC waste into like products. The only waste not recovered is that which becomes contaminated during processing, and is estimated at less than 1% of all converted product.

Pacific Plastics reported that 95% of all waste material generated in production is reused as regrind in-house.

Pipemakers Australia recycled 796 tonnes of factory waste scrap in 2008. Action plans have been put into place to reduce scrap during manufacture. Pipemakers have also been in discussions with waste merchants in regard to the possible purchase of scrap externally.

Sun Ace Australia reported that waste minimisation objectives (mainly around lead products) form part of clauses in their ISO 14001 Environmental Management System. In 2008, Sun Ace reduced waste by 78% compared to 2007.

Tech Plas Extrusions recycles as much of its in-house PVC waste as technically possible. In 2008, 8% of all PVC used at Tech Plas was recycled material sourced from external parties.

Welvic reported that 100% of plant scrap/returned material is either recycled internally or sold to a specialist recycler. All bulk chemical bag packaging is sent to a recycler. All non-prescribed paper waste is also recycled.

PSP 2008 Commitment

*Implement Commitments contained in **Vinyl-2-Life** action plan.*

Vinyl-2-Life waste action plan

The **Vinyl-2-Life** waste action plan was developed in 2005-06, based on the key findings of the 2005 PVC Waste Audit completed by Nolan ITU, as well as information and recommendations from the 2004 *End-of-Life Environmental Issues Report*[#] and industry's ability to influence the recovery of material.

The document sets out the actions agreed upon by Signatories to enhance the recovery, reuse and recycling of PVC products at the end of their initial useful life. The plan targets those PVC waste streams of significant volume or having a particular sensitivity from the community's perspective Progress against the plan has been reported on a quarterly basis to the Technical Steering Group and actions have been revised or new actions developed as the plan has progressed.

Under the NSW Government's Extended Producer Responsibility Strategy, the plan is reported to the NSW Department of Environment and Climate Change via the Technical Steering Group.

[#] End of Life Environmental Issues With PVC in Australia, 2004, Scheirs J., commissioned by Environment Australia.

Key achievements and developments under the Plan in 2008 include:

PVC Medical Recycling Trial Commenced

Following requests for assistance from the Western Hospital in Melbourne, the VCA has helped coordinate a trial of non-contaminated PVC medical waste from the hospital.

Working with PVC reprocessor, CryoGrind, special waste bins have been provided to the hospital to collect the PVC devices – mainly IV bags, tubing and oxygen masks. The bins are collected by CryoGrind and the material will be reprocessed at its plant in Geelong.

The three month trial began in late 2008. If successful, the project may be rolled out to the Western's other group hospitals.

Pipe Recovery Program

The Plastics Industry Pipe Association oversees PVC pipes and profiles recycling in Sydney, Brisbane and Melbourne. The waste pipes and profiles are obtained from different sources, but mainly from construction and demolition waste. In 2008, Iplex and Vinidex converted 380 tonnes of recyclate into new foam core pipes.

A summary of the progress as at the end of 2008 against the Vinyl-2-Life action plan is given in Appendix 2.

Life cycle thinking

PSP 2008 Commitment

Consider whole-of-life in development of new products, taking into account end-of-life issues and waste management options.

A number of Signatories now recognize the importance of life cycle management of their products. Examples of initiatives undertaken by Signatories in 2008 include:

Australian Vinyls had two employees attend Life Cycle training provided by RMIT Centre for Design, in conjunction with the Victorian EPA. This led them to progressing a Life Cycle Inventory of their product produced at the Laverton plant.

Armstrong World Industries continued their End of Life (EOL) commercial tile take back pilot program in 2008, and held discussions with a key customer. Upon successful completion of the pilot program, they plan to use their website to inform customers of the option(s).

Armstrong also completed a life cycle assessment (LCA) on a commercial tile. One of their products containing a high recycled content was further investigated for other specific projects during 2008. Their "job site offcuts" program continued with 13.4 tonnes of material recovered in 2008.

Chemson Pacific discusses whole of life aspects of their products with customers. Their companies in Europe have also been in sustainability programs (The Natural Step life cycle assessment program) with their suppliers, customers and associated companies.

Dincel Construction System has developed its wall profile taking a life cycle approach in terms of additives, durability, material use and end of life. At end of life, the recycling of the polymer with its concrete infill can be facilitated by simply crushing and screening the polymer encased concrete using currently available technology, and recovering the materials.

Iplex has continued to promote the use of material efficient products such as PVC-O, PVC-M and foam core (sandwich construction) pipes and conduits. These

products mean less material is required to make an equivalent product compared to old technology.

Iplex has also actively promoted the changing of Australian Standards for PVC pipe and fittings to explicitly exclude the use of stabiliser or pigments based on lead, cadmium or mercury compounds. In order to boost recycling, recycled PVC containing such elements will only be permitted in the inner layer of sandwich construction pipes.

Orica Chemnet who sell raw materials (primarily plasticisers) to PVC compounders/ converters reported that they use a Life Cycle Risk Assessment database to manage critical chemicals.

PSP 2008 Commitment

Provide information to end consumers on management option for end-of-life PVC.

Consumer Responsible Care

In order to assist end-consumers of PVC products with how to manage the product at the end of its life, Signatories have agreed to provide information on how to safely reuse, recycle or dispose of the product.

The following examples outline some initiatives undertaken by Signatories in 2008:

Aperio provide post-consumer waste options on their corporate website.

Australian Vinyls provides information on its website on recycling and disposal options for PVC resin.

Innua, a supplier of imported resin, encourages all their customers (manufacturers) to recycle product where possible and further encourages their customers (end users of the product) to return the product at the end of its life cycle for recycling. They hold open dialogue with all their customers and the major PVC product manufacturers about their Commitment to reclaiming and regrinding scrap PVC material.

Iplex is currently updating its website, which will include advice on waste management options for its products.

Pipemakers Australia has provided information on its website in relation to whole-of-life covering end-of-life and waste management issues related to PVC pipes and conduits.

Pliant, a packaging manufacturer, reported that their products clearly indicate recyclability.

Sun Ace Australia includes clauses in their MSDS's recommending appropriate disposal and safe handling methods.

Tarkett provides MSDS information for all products and also details End of Life recycling options for PVC carpet products.

5: Research

Information sharing in 2008

PSP 2008 Commitment

Monitor national and international developments in scientific research relevant to the potential health and environmental impacts of the PVC product life cycle. Share information with other Signatories and responsible Authorities and Agencies.

At each Technical Steering Group (TSG) meeting, the opportunity to share news of research and industry developments was included on the agenda. The following are examples of research and development discussed:

- PVC Derived from Sugar Cane and Salt
- Plastics Europe publication: Compelling Facts on Plastics
- Update on NICNAS Priority Existing Chemicals "Assessment of Phthalates"
- "Guiding Principles for Chemicals Policy" -- Business-NGO Working Group for Safer Chemicals and Sustainable Materials.
- FDA draft risk assessment of Bisphenol A
- Overview of Phthalates by US Toxicologist M. Kamrin
- New Business Model for Standards Australia

In addition, the following speakers presented at TSG meetings during 2008:

- NSW Department of Environment and Climate Change's Alex Young summarized progress on the "NSW Extended Producer Responsibility Strategy" report due out in 2008.
- Rod Clare of the NSW Department of Environment and Climate Change presented information on the "Sustainability Advantage Program", which aims to assist businesses in NSW achieve good environmental performance that will reduce risk, lower costs, improve productivity and enhance reputations.
- Rebecca Robson and Trish Kerin (Australian Vinyls) and Peter Byron (Armstrong) presented the benefits and limitations experienced in conducting life cycle inventory and assessment work.
- Toxicologist Dr Roger Drew (Toxicos) provided an update on recent scientific findings on phthalates.
- Peter Allan (Hyder Consulting) outlined the draft findings of the PVC Recycling Study 2008.

6: Public Reporting

PSP 2008 Commitment

Publish the 2008 progress report by 31 August 2009, together with an updated review of product stewardship issues

Despite our best efforts, we were again unable to complete and publish this annual report by 31 August 2009. Data collection commenced in late January 2009 but we faced a number of issues with the on-line data collection process. These delays caused a delay in completion of the two phases of verification — Signatory verification and report verification.

The Vinyl Council will consider strategies to improve the process for 2009.

The Vinyl Council again conducted a series of presentations to stakeholders in Canberra, Sydney and Melbourne on progress and developments under the Program.

Feedback

Feedback on the Product Stewardship Program and this report by members of the community is welcome. If you would like to comment, please contact us at P.O. Box 11, Laverton, VIC 3028 or email info@vinyl.org.au or call 03 9368 6171.

7: Technical Steering Group

Apart from new representatives from Armstrong and Polyflor joining the Group in 2008, membership of the TSG has remained fairly stable.

Year	No of TSG Meetings Held
2003	4
2004	4
2005	4
2006	4
2007	4
2008	4

Members of Technical Steering Group 2008

Member	Organisation
Peter Byron	Armstrong World Industries (Aust) Pty Ltd
Nigel Jones/Andrew Ferguson	Australian Vinyls Corporation Pty Ltd
Alex Hruza	Chemson Pacific Pty Ltd
Mike O'Shea	CSIRO
Angela Gillman	Dept of Environment, Water, Heritage and the Arts
Alan Whittle	Iplex Pipelines (Aust) Pty Ltd
Alex Young	NSW Dept of Environment and Climate Change
David Williamson	Nylex Industrial Products
Paul Martonhelyi	Plastral Pty Ltd
Kevin Doidge	Polyflor (Aust) Pty Ltd
Tom Elovaris	Pliant Corporation Pty Ltd
Ian Lilja	Sun Ace Australia Pty Ltd
Colin Bray	Tarkett Australia Pty Ltd
George Macovaz	Vinidex Pty Ltd
Lia Anna Maiorino	Vinyl Council of Australia
Sophi MacMillan	Vinyl Council of Australia
Stephen Dowling/Matthew Hoyne	Welvic Australia

Observers:
Stephen Loffler, Sustainability Victoria
Shlomi Bonet, Green Building Council of Australia



Signatories

As at the end of 2008, the Product Stewardship Program Signatories are:

Aperio Group (Australia) Pty Ltd

Armstrong World Industries (Australia) Pty Ltd

Australian Plastic Profiles Pty Ltd

Australian Vinyls Corporation Pty Ltd

Chemson Pacific Pty Ltd

Dincel Construction System Pty Ltd

Innua AustralasiaPty Ltd

Iplex Pipelines Australia Pty Ltd

Nylex Industrial Products

Orica Chemnet

Pacific Plastics (QLD)

Pipemakers Pty Ltd

Plaspak Peteron Pty Ltd

Plastral Pty Ltd

Plastics Industry Pipe Association

Pliant Corporation Pty Ltd

Polyflor Australia Pty Ltd

Sun Ace Australia Pty Ltd

Tarkett Australia PTY ltd

Tech Plas Extrusions Australia Pty Ltd

Terminals Pty Ltd

Tyco Water Pty Ltd

Vinidex Pty Ltd

Vinyl Council of Australia

Welvic Australia

During 2008, Dincel Construction System and Tech Plas Extrusions became new Signatories to the Program. Two Signatories, Olex Australia and FPI Compounds left the Program in 2008.

Note: Prior to publishing this report in 2009, Innua, Nylex and Orica-Chemnet left the Program.

Glossary

Australian PVC industry (the industry): 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.

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

NPC: National Packaging Covenant

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.

PVC (Vinyl): Polyvinyl chloride

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.

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Verification

As in previous years, this year's 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 made a number of recommendations including

- that internal processes for the measuring and reporting of progress be further developed by the Vinyl Council and each of the Signatories to the program;
- continuing to engage and consult with internal and external stakeholders, including obtaining stakeholders' opinion on reporting performance, in particular their requirements of the report;
- continuing to use the sampling approach applied in future verifications.

The Vinyl Council and Technical Steering Group refined and clarified Commitments such as the EMS Commitment during 2008. Compliance reports were provided to each Signatory in early 2009 identifying the Commitments relevant to their business and their compliance status based on the 2007 report, to help improve their progress. This reporting to Signatories will be repeated annually.

In addition, the Council developed interpretation notes for compliance with the Commitments and identified appropriate evidence. Engagement with key stakeholders has continued and feedback sought on the program, in particular through the presentation series.

The verification process for this year's report involved four Signatory site visits to examine data sources and verify data/statements and four Signatory desktop data audits, verified by 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.

Verification of this complex program involves examining the data reported to the Vinyl Council by Signatories and its sources, as well as whether the Signatory is compliant with the intention of the Commitment.

Of the eight Signatories audited, three had made errors reporting against the EMS Commitment, one with recycling, one with consumer responsible care and two with life cycle thinking.

A copy of Net Balance's Verification Statement for this report follows overpage.

Independent Verification Statement

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

The Vinyl Council of Australia (VCA) commissioned Net Balance Foundation (Net Balance) to provide independent verification of the information presented within the VCA Product Stewardship Program Progress Report 2008 (the 'Report'). The Report presents the performance of Product Stewardship Program Signatories against the commitments of the VCA Product Stewardship Program over the period 1 January 2008 to 31 December 2008. VCA was responsible for the preparation of the Report and the verification statement represents Net Balance's independent opinion on the reliability of information presented within the Report. 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 objective of the verification process is to provide VCA and its stakeholders with an independent opinion on the accuracy of the information presented within the 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 performance disclosures presented.

Verification Level and Limitations

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

Sampling methodology was used to select eight Signatories for verification to provide an appropriate representation of the Signatory group. 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 Product Stewardship Program going forward.

The scope of work was limited to verification of data and statement accuracy and did not extend to an AA1000 assurance process.

Verification Methodology

The verification process comprised two stages and was undertaken between May and August 2009. This involved:

Review of the Signatory data

A review of the accuracy and source of data and statements submitted to the VCA by the Signatories to the Product Stewardship Program through examination of 55 selected data points. This included the following:

Conducting a series of interviews with key Signatory personnel responsible for collating and submitting data to the Product Stewardship Program database in order to verify the veracity of the submitted data. This took place through site visits and examining site-based data for four selected Signatories.

Reviewing data from an additional four Signatory sites by desk-top assessment, and by telephone and e-mail dialogue.

Completing a logic test on the data submitted by the remaining Signatories. This was to ensure data submitted to VCA by the organisations, but not formally verified by Net Balance, is compatible and consistent with data submitted by organisations subject to verification.

Review of Product Stewardship Program Report

A review of the accuracy and source of data and statements within the Report through examination of 58 selected data points and statements. Selected data points particularly relate to significant claims as well as trends in data.

Signatories that were subject to the site-based review included:
Plastral Pty Ltd, 370 Darebin Road, Thornbury, VIC.
Tyco Water Pty Ltd, 125-175 Patullos Lane, Somerton, VIC.
Pliant Corporation Pty Ltd, 22 Reserve Street, Preston, VIC.
Tech Plas Extrusions Pty Ltd, 321 Wentworth Avenue, Pendle Hill, NSW.

Signatories that were subject to the desktop review included:
Armstrong World Industries Australia Pty Ltd, 29 - 39 Mills Road Braeside, VIC.
Dincel Construction System Pty Ltd, 3/7K Parkes Street, Parramatta NSW.
Sunace Australia Pty Ltd, 32-38 Remington Drive, Dandenong, VIC.
Vinidex Pty Ltd, 19-21 Loyalty Road, North Rocks, NSW.

Independence and Credentials

Net Balance was not responsible for preparation of any part of the Report. Net Balance has not undertaken any commissions for VCA in the reporting period concerning reporting or data collection. The verification team was comprised of individuals with expertise in environmental performance measurement. The verification team has collectively undertaken over 100 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).

Findings and Recommendations

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

On data submitted by Signatories:

The quality of the Signatories' systems and processes to track performance against the commitments of the Product Stewardship Program was mixed. A number of Signatories would benefit from further explanation of commitments and the evidence required to meet these, particularly the *Minimum Standards for Environmental Management Systems*. Support from VCA would ensure these processes can be further developed and formalised.

Data trails selected were in general identifiable and traceable, and the personnel responsible were able to demonstrate the origin(s) and interpretation of data. Implementation of data management protocols are recommended to help improve the documentation of evidence.

The level of accuracy for the information submitted by the Signatories to the VCA Product Stewardship database was found to be within acceptable limits. Additional improvements to the database are recommended to reduce the potential for data entry error.

On the Report:

The findings of the 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. Additional improvements to data management, particularly to the design of the database used to collate Signatories performance against the commitments, are recommended to reduce potential for Signatory data error and thus resulting in minor anomalies in the Report.

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 Product Stewardship Program commitments during the reporting period.

The Way Forward

The VCA's Product Stewardship Program is a leading and credible initiative that is assisting the Australian vinyl industry to move towards enhanced sustainability performance. In order to continue the development of this program and its Signatories' sustainability performance, it is recommended that further support be provided to Signatories to improve their understanding of the requirements of the Product Stewardship Program commitments, particularly in relation to the minimum standards for Environmental Management Systems.

Net Balance has provided additional suggestions for reporting improvement in some areas outlined in a more detailed report presented to the VCA.

On behalf of the verification team
15 September 2009
Melbourne, Australia

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

Appendix 1: Applicability of commitments to Signatories

		Manufacturing and Storage			Heavy Metal Additivies						Plasticisers				Waste Management					Research	Public Reporting			TSG
Product Stewardship Program Signatory	**Product/ Sector**	Residual VCM	VCM Emissions	EMS Minimum Standard	Lead and Cadmium Code of Practice	Lead Stabiliser Phase out	Cadmim Stabiliser Phase out	Pigment Phase out	Monitor O/S Developments in Additives	Open Disclosure	Phthalate Policy Adherence	Monitor Overseas Developments	Share phthalates info	Plasticiser Use	National Packaging Covenant	Recycling	Encouraging Consumer Responsible Care	Life Cycle Thinking	Monitor OS Recycling	Research	Performance against Commitments	PVC life cycle impacts	Product Stewardship Program Review	Technical Steering Group
Australian Vinyls	Resin	●●●	●●●	●●●	N/A	N/A	N/A	N/A	N/A	●●●	●●●	N/A	●	●●●	●●●	●	●●●	●●●	N/A	N/A	N/A	N/A	N/A	●●●
Aperio Group	Packaging	●	N/A	●●●	N/A	N/A	N/A	N/A	N/A	●●●	●●●	N/A	N/A	●●●	●●●	●●	●●●	●●●	N/A	N/A	N/A	N/A	N/A	N/A
Armstrong World Industries	Flooring	●	N/A	●●●	N/A	N/A	N/A	N/A	N/A	●●●	●●●	N/A	N/A	●●●	N/A	●●	●●●	●●●	N/A	N/A	N/A	N/A	N/A	●●●
Australian Plastic Profiles	Rigid Profiles/Pipe	●	N/A	●●●	●●●	●●●	N/A	●	N/A	●●●	N/A	N/A	N/A	N/A	N/A	●●	●●●	●●●	N/A	N/A	N/A	N/A	N/A	N/A
Chemson Pacific	Stabilisers	N/A	N/A	●●●	●●●	●●●	N/A	N/A	●	●●●	N/A	N/A	N/A	N/A	N/A	N/A	N/A	●●●	N/A	N/A	N/A	N/A	N/A	N/A
Dincel Construction System	Rigid Profiles	●	N/A	●●●	●	●	●	●	N/A	●●●	N/A	N/A	N/A	N/A	N/A	●	●●●	●●●	N/A	N/A	N/A	N/A	N/A	N/A
Innua Australiasia	Resin, Phthalates	●●●	N/A	●●●	N/A	N/A	N/A	N/A	N/A	●●●	●●●	N/A	●	●●●	N/A	N/A	N/A	●●●	N/A	N/A	N/A	N/A	N/A	N/A
Iplex Pipelines Australia	Rigid Pipes	●●	N/A	●●●	●●●	●●●	N/A	●●●	N/A	●●●	N/A	N/A	N/A	N/A	N/A	●●	●●●	●●●	N/A	N/A	N/A	N/A	N/A	N/A
Nylex Industrial Products	Flexible	●	N/A	●●●	N/A	N/A	●	●●●	N/A	●●●	●●●	N/A	N/A	●●●	N/A	●	●●●	●●●	N/A	N/A	N/A	N/A	N/A	●●●
Orica Chemnet	Resin, Phthalates	●●●	N/A	●●●	N/A	N/A	N/A	N/A	N/A	●●●	●●●	N/A	●	●●●	N/A	N/A	N/A	●●●	N/A	N/A	N/A	N/A	N/A	N/A
Pacific Plastics	Flexible	●	N/A	●●●	●●●	●●●	●	●	N/A	●●●	●●●	N/A	N/A	●●●	N/A	●	●●●	●●●	N/A	N/A	N/A	N/A	N/A	N/A
PIPA	Association	N/A	N/A	N/A	●	N/A	N/A	N/A	●	N/A	N/A	N/A	N/A	N/A	N/A	●●●	N/A	N/A	●	N/A	N/A	N/A	N/A	N/A
Pipemakers	Rigid Pipes	●	N/A	●●●	●●●	●●●	●	●	N/A	●●●	N/A	N/A	N/A	N/A	N/A	●●	●●●	●●●	N/A	N/A	N/A	N/A	N/A	N/A
Plaspak Peteron	Packaging	●	N/A	●●●	N/A	N/A	N/A	N/A	N/A	●●●	N/A	N/A	N/A	N/A	●●●	●●●	●●●	●●●	N/A	N/A	N/A	N/A	N/A	N/A
Plastral	Additives	N/A	N/A	●●●	N/A	N/A	N/A	N/A	N/A	●●●	N/A	N/A	N/A	N/A	N/A	N/A	N/A	●●●	N/A	N/A	N/A	N/A	N/A	●●●
Pliant Corporation	Packaging	●	N/A	●●●	N/A	N/A	N/A	N/A	N/A	●●●	●●●	N/A	N/A	●●●	●●●	●●	●●●	●●●	N/A	N/A	N/A	N/A	N/A	●●●
Polyflor Australia	Flooring	●	N/A	●●●	N/A	N/A	N/A	N/A	N/A	●●●	●●●	N/A	N/A	●●●	N/A	●●	●●●	●●●	N/A	N/A	N/A	N/A	N/A	●●●
Sun Ace Australia	Stabilisers	N/A	N/A	●●●	●●●	●●●	N/A	N/A	●	●●●	N/A	N/A	N/A	N/A	N/A	N/A	N/A	●●●	N/A	N/A	N/A	N/A	N/A	●●●
Tarkett Australia	Flooring	●	N/A	●●●	N/A	N/A	N/A	N/A	N/A	●●●	●●●	N/A	N/A	●●●	N/A	●●	●●●	●●●	N/A	N/A	N/A	N/A	N/A	●●●
Tech Plas Extrusions	Rigid Profiles	●	N/A	●●●	●●●	●●●	●	●●●	N/A	●●●	N/A	N/A	N/A	N/A	N/A	●	●●●	●●●	N/A	N/A	N/A	N/A	N/A	N/A
Terminals	Storage	N/A	N/A	●●●	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tyco Water	Rigid Pipes	●	N/A	●●●	N/A	N/A	N/A	N/A	N/A	●●●	N/A	N/A	N/A	N/A	N/A	●●	●●●	●●●	N/A	N/A	N/A	N/A	N/A	N/A
Vinidex	Rigid Pipes	●●	N/A	●●●	●●●	●●●	N/A	●●●	N/A	●●●	N/A	N/A	N/A	N/A	N/A	●●	●●●	●●●	N/A	N/A	N/A	N/A	N/A	●●●
Vinyl Council of Australia	Association	N/A	N/A	N/A	N/A	N/A	N/A	N/A	●●●	N/A	N/A	●●●	●●●	N/A	N/A	●●●	N/A	N/A	●●●	●●●	●●●	●●●	●●●	●●●
Welvic Australia	Compounder	●	N/A	●●●	●●●	●●●	●●●	●●●	N/A	●●●	●●●	N/A	N/A	●●●	●	●	N/A	●●●	N/A	N/A	N/A	N/A	N/A	●●●

Appendix 2: Vinyl-2-Life Action Plan Status, as at 31 December 2008

Objective 1 Cable scrap	Actions	Timeline	Progress to Date
Increase PVC cable scrap recovery in Australia and diversion from landfill.	Work with AMRIA to educate metal recyclers on plastics cable scrap recovery and reprocessing opportunities in Australia.		VCA has actively promoted the opportunity to reprocess cable scrap domestically to the Australian Metal Recyclers Industry Association through flyers and a presentation to its members.
		Q1 09	VCA has requested DECC to include measurement of cable scrap in landfill in 2008 landfilll audit.
		Dec 08	VCA has commissioned Hyder Consulting to improve data on cable reprocessing.
		Q1 09	Discussions with AI Group Electrical Forum Manager to be followed up.
Objective 2 Pipes & Profiles	**Action**	**Time Line**	**Progress to date**
Develop a more consistent supply of pipe & profile material for reuse/recycling	1. Maintenance of Recovery Program in Sydney, Melbourne, Brisbane.	Dec 08	Collection continues. Awaiting estimates for 2008. Hyder research also to provide data.
	2. Identify additional sources of waste which can be reprocessed by pipe makers:	Q1 09	VCA had discussions with NWC. Meeting to be arranged.
	- investigate sources of window off-cuts waste	Q1 09	Discuss formal arrangements for diverting windows off-cuts with sector
		Q1 09	PIPA Board subcommittee to discuss future development of program.
Objective 3 Floor Coverings	**Action**	**Time Line**	**Progress to date**
Develop and implement a voluntary scheme(s) or initiative(s) aimed at encouraging higher recovery and recycling rates for vinyl floorcovering waste.	1. Work with ARFA on development of industry-wide offcuts recovery program	Q1 09	The Australian Resilient Floor Association has been re-invigorated and it is their intention to establish an industry-wide off-cuts recycling program. ARFA have approached VCA to join PSP. VCA have sent ARFA a proposal.
	2. Continue to support signatories in research and development of End of Life recovery and recycling	Q2 09	
	3. Establish appropriate data measures and monitoring	Q1 09	VCA has requested DECC to include measurement of flooring waste in landfill in 2008 landfilll audit. Waiting for DECC to confirm inclusion of flooring and cable in land fill waster audit.

Objective 4 Bottles	Action	Time Line	Progress to date
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.	Ongoing	Meetings held March, August, December 2008 ONGOING

Objective 5 Blister Packaging	Action	Time Line	Progress to date
Investigate the feasibility of recovering PVC blister and thermoformed packaging	Identify any opportunities to work with stakeholders in recovery of this waste.	Ongoing	Met with Amcor June 08, and discussed potential for recovery at Amcor MRFs. No further action planned at this stage.

Objective 6 Management	Action	Time Line	Progress to date
Establish Waste Sub Committee.	Report Waste Sub-Committee progress quarterly.	Ongoing	Two e-meetings held. Meeting outcomes reported through TSG meetings. Further meetings planned for 09.
Develop mechanisms for improved data collection and reporting of PVC recycling	Investigate data collection with Hyder Consulting	Aug 08	VCA PVC Recycling Study commissioned with Hyder Consulting. Findings presented to TSG Dec 08.

Objective 7 Other Recycling	Action	Time Line	Progress to date
Increase awareness of PVC recycling and recyclability	Promote, encourage and support PVC recycling activities	Ongoing	Possible recycling trial with vinyl gift cards. Waiting for sample.
Medical Waste	Engage with stakeholders on extension of the medical waste trial	Q1 09	Medical general plastic waste trial conducted in conjunction with Western Hospital, Melbourne and PVC reprocessor. VCA provided five collection bins to site. Three collections of waste as at 1 December. Estimate 95% of the material recovered is PVC, about 200kg per collection. Yields about 120 kg after washing and removal of other plastics & material contamination. First processing trial completed. Used floatation for separation and then extruded material into pellets. Produced tubing/hose as end product. Further discussions held regarding extending the trial to other sites.