



5 YEAR EVALUATION REPORT

of the PVC Industry's Product
Stewardship Program



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INTRODUCTION

The Australian PVC industry launched its Product Stewardship Program in October 2002. The Program sets out a series of commitments for industry Signatories to meet related to the life cycle of PVC and PVC products.

It was intended that the Program be annually reviewed and progress on its implementation be reported publicly. We recognised that the Program needed to be evolutionary, undergoing constant refinement as commitments are met and new issues are identified for addressing. Continued dialogue with stakeholders is an essential aspect of this process.

Consequently, one of the commitments set in 2002 was to conduct and report on an evaluation of the overall implementation and effectiveness of the program to address product stewardship issues associated with PVC. The purpose of this report is to summarise the findings of that evaluation.

The evaluation has been completed by the Vinyl Council of Australia which oversees the implementation of the Program under the guidance of the Program's Technical Steering Group ('TSG'). The TSG comprises representatives from Signatory companies, the Australian Government Department of Environment, Water, Heritage and Arts, the New South Wales Department of Environment and Climate Change and the CSIRO.

SCOPE OF REVIEW

The following steps were taken to complete the evaluation of the Product Stewardship Program ('the Program'):

- Review of feedback on the Program received from stakeholders;
- Analysis of other product stewardship programs and a comparison of our Program with these;
- Consideration of government policy trends related to product stewardship, waste, extended producer responsibility and voluntary industry programs;
- Evaluation of the Program's commitments in terms of key criteria: appropriateness, commercial feasibility, practicality and impact.

Based on this information, we evaluated the Program and identified key challenges for encouraging and facilitating product stewardship across the industry in future.

Finally, we have prepared some recommendations for consideration by the Program's Technical Steering Group.

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PROGRAM ACHIEVEMENTS

- Introduction of a stringent standard for vinyl chloride emissions from Australian manufactured PVC has seen a significant reduction in emissions to 17.6g vinyl chloride per tonne of PVC produced in 2007.
- The phase out of cadmium-based stabilisers by Signatories by July 2004.
- Establishment of a timetable for phasing out lead-based stabilisers phase. Implementation of the phase out is on track for with targets of 2008 for pipes & fittings and 2010 for other applications.
- Commission of a technical report by the Federal Environment department on the environmental impacts of end-of-life PVC in 2004.
- Completion by independent consultants of an audit of PVC waste generation in Australia in 2005.
- Development of a detailed action plan, **Vinyl-2-Life**, for improving recovery of PVC wastes.
- Along with PIPA, introduction of pipe & profile waste recovery programs in Melbourne, Sydney and Brisbane.
- Completion of a trial project to improve understanding of cable waste recovery and recycling.
- Introduction of the Vinyl Cycle recycling program which has seen 90% of the Australian population able to return PVC bottles for recycling through kerbside collection and a recycling rate of around 50% for bottles.
- Publication of an Issues Review paper in 2003, and annual progress reports and issues reviews in 2005, 2006 and 2007.
- The commencement of independent external verification of the annual Progress Reports in 2007.
- Introduction of several new commitments and ongoing advancement and refinement of existing commitments.

DEVELOPMENT OF COMMITMENTS

Taking into account feedback from Signatories, Government bodies and the public, the Program Commitments have continually been reviewed and developed. Some of the new Commitments introduced in the last 5 years are:

- Open Disclosure Commitment—where Signatories agree to provide general information on the additives used in their PVC products or components upon request.
- Introduction of a minimum standard for Environment Management Systems.
- Review of pigment use and a subsequent commitment for substitution of lead, cadmium and hexavalent chrome pigments by 2010.
- Development of the **Vinyl-2-Life** action plan for waste management of key applications.
- Encouraging Responsible Care —to provide information to end consumers on reuse, recycling and safe disposal options for end-of-life PVC.
- Life cycle thinking — a commitment to consider whole-of-life in the development of new products.

FEEDBACK ON PROGRAM

Details of the Program and reports of progress against commitments are publicly available via the Vinyl Council's website and distributed regularly to key stakeholders. We continually invite feedback to be given on the scope and content of the Program. From 2005, feedback has been received from a few stakeholders, and reported on the Council's website. This feedback has included suggestions for new commitments, identified new areas of concerns, and challenged the Technical Steering Group to develop better monitoring and measurement under certain commitments.

As a result of such feedback,

- a Minimum Acceptable Standard for EMS was developed.
- the additives Code of Practice has been reviewed and re-issued. Written confirmation of adherence is now obtained from Signatories as part of annual data collection process.
- Signatories are encouraged to attend training sessions on life cycle thinking and are requested to report on their progress to this commitment as part of annual data collection process.
- a commitment on consumer responsible care was added in 2006.
- a new commitment on open disclosure of product ingredients was added in 2007.

Feedback has been received regarding the following potential issues that were perceived not to be addressed by Program:

- leaching of phthalates from end-of-life product
- emission of Volatile Organic Compounds (VOCs) from products
- the use of solvent cement joints in PVC piping.

Information on phthalate migration has been provided in a number of reports published by the Council and on the Council website. Under the Product Stewardship Program and the Policy for the Use of Phthalates in PVC Products, we monitor the science on phthalates closely and report new information as we learn of it.

We have not covered VOCs in the Program or previous reports. However, where relevant, Signatories report VOC emissions to the National Pollutant Inventory and have products tested to meet stringent VOC emission standards.

Comments on the safe use on solvent cements in piping has since been published on the VCA website.

Research conducted by the Vinyl Council in 2007 found that a broad range of stakeholders valued the Product Stewardship Program and engagement with the industry through the Technical Steering Group. The recommendations arising from the research specific to the Program include:

- conducting information seminars to report annual progress and to present the annual report to stakeholders;
- continuing to invest resources in the Technical Steering Group, where possible, extending membership to a wider range of stakeholders;
- identifying and responding to future gaps in research by engaging an objective, third party to undertake research and using stakeholders to determine the research's terms of reference.

In response to the feedback, invitations were extended to Sustainability Victoria and the Green Building Council to join the Technical Steering Group. Representatives from these bodies are now "observers" to the Program and receive agendas, minutes and meeting papers. They are welcome to attend any meetings.

Information seminars as recommended are planned for Sydney and Melbourne in 2008.

Program Verification

In December 2006, Russ Martin, [President](#) of the Product Stewardship Council gave some feedback on the vinyl Product Stewardship Program. He found that overall the Program was in line with the Product Stewardship Council's principals for such programs.

He suggested exploring external verification of the program as it has a role to play in validation and credibility. The question of verification was made by other stakeholders such as the Green Building Council.

Consequently, in 2007, the Technical Steering Group considered verification of the Program. The decision was taken to have the vinyl Program's annual Progress Report verified by an independent third party for the first time.

Recommendations

- 1. Consider formal channels and processes for receiving and responding to feedback on the Program.**
- 2. Conduct Program information seminars annually to report on progress to stakeholders.**



COMPARISON WITH OTHER PROGRAMS

A number of other product stewardship programs exist in Australia and also overseas. Local schemes include

- Mobil Muster for mobile telephones & accessories
- Drum Muster for empty chemical containers
- ChemClear for rural chemicals waste
- Battery Back for rechargeable and other batteries
- Detox Your Home, for a range of household chemicals, paints etc
- ByteBack for computers and related accessories
- Paint Back for unwanted paint and paint containers

Overseas programs exist for PVC including:

- Vinyl 2010 in Europe for PVC and PVC products
- Recovinyl, an initiative of Vinyl 2010, to recover end-of-life PVC applications
- Responsible Care

The local schemes differ from the PVC Product Stewardship Program (PSP) as they are typically focused on a single product and end-of-life. The progress of these programs can be measured quantitatively by amounts collected, recycled and disposed. However, reporting of results has been hard to find of many of the stewardship programs.

The various programs are similar in the way they are funded either by industry associations or by specific manufacturers.

The PVC Program is related to a material used in a wide range of applications and the whole-of-life environmental aspects are considered — waste management is only one aspect.

It should also be noted that due to the long period of time between the sale of many PVC products and their disposal (for example installed pipe, flooring and cable), education and raising awareness of collection and recovery opportunities may be complex matters.

Responsible Care is an initiative of the international chemical industry to improve its occupational health, safety and environmental performance. In Australia, the program is

overseen and uptake encouraged by the Plastics and Chemicals Industries Association (PACIA). A number of Australian firms — some from within the PVC supply chain — are signatories to Responsible Care.

Responsible Care requires a systems approach to aid improvement, differing from the PVC Program which has very specific targets, for example, the phase out of lead stabilisers. Implementation of the Responsible Care program is measured by self-assessment whereas Signatories to the PVC Program must today demonstrate their adherence to commitments via external verification of the annual progress report.

The PVC Program is similar to — and was to some extent based on — the European Vinyl 2010 program. Vinyl 2010 is funded by members of the PVC supply chain. Due to the size of the European PVC market, it has a much larger expenditure than the Australian Program. In terms of waste, there are a number of collection centres throughout Europe, some specialised in certain PVC products. All material collected at sites is taken to various dedicated recycling facilities throughout Europe.

Our program has not yet seen the need to develop a collective PVC recycling program. There are dedicated PVC reproprocessors and recovery programs in place still based on different market sectors (pipe, cable etc). Nevertheless, under the PVC Program, industry in Australia can learn from overseas experience or that of other sectors and products within Australia.

To the best of our knowledge, the PVC Product Stewardship Program in Australia is somewhat unique for its whole-of-life and supply chain-based approach. Sharing information and experience with the global PVC industry and understanding how alternative domestic stewardship programs work will assist the local industry advance the Program.



Recommendations

- 1. Continue to share information and experience with overseas PVC industry sectors**
- 2. Monitor domestic stewardship programs/models and trends.**

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POLICY TRENDS

According to a 2005 paper released by the Environment Protection and Heritage Council (EPHC) on Co-Regulatory Frameworks for Product Stewardship, there is broad support from all levels of government for a co-regulated approach to product stewardship programs. The Local Government Association of NSW was the only Government organisation to prefer fully regulated approaches based on their own experiences in trying to encourage self/co-regulatory schemes for Industry Waste Reduction Plans and with the National Packaging Covenant.

There is general support across the community of co-regulated Product Stewardship programs where industry takes responsibility for managing products they have manufactured with government underpinning industry programs; however, there were issues raised in respect of co-regulation that needed more clarification, such as

- more detailed description of how co-regulation would work in practice;
- a thorough impact analysis and further public consultation;
- a nationally consistent approach;
- a clear competitive disadvantage to justify co-regulation;
- clear requirements for approved schemes;
- non participants or potential 'free riders' being adequately identified; and/or
- strong enforcement from government.

Local governments are also realising the influence they can have on industry by encouraging Product Stewardship Programs. Product Stewardship Programs encourage networking among government, business and industry and encourage businesses to take responsibility for their products, therefore lessening the burden on council waste management.

Friends of the Earth UK have reported that voluntary agreements on business standards fail to deliver sustainability. It argues that co-regulation is needed for schemes to be successful.

NSW Policy

NSW Department of Environment launched its Extended Producer Responsibility (EPR) Strategy in 2004.

The Strategy listed 16 significant 'wastes of concern' of which PVC was one.

The EPR Strategy aims to ensure that producers of these wastes take physical or financial responsibility for the environmental impacts of their products throughout the products' life cycles. Specific actions have been identified for each of the sectors responsible for the products listed.

The NSW Minister for Environment is able to call for specific requirements to be met by the waste sectors based on advice from the Strategy's Expert Reference Group and the Department.

Under its EPR Strategy, the Department has been monitoring the effectiveness of the PVC industry Program since 2004. It has reported its opinion publicly on the Program:

*"The industry's Product Stewardship Commitment and actions are positive moves toward taking greater responsibility for PVC products. However, a number of questions still remain regarding some of the additives."*¹

These questions related to the presence of cadmium in PVC products and the recycling of cadmium and lead containing PVC products.

The PVC sector responded to these questions in a submission to the EPR² as well as raising its views with the Department regarding the term 'waste of concern', the absence of criteria for delisting a 'waste of concern' and whether the Extended Producer Responsibility Strategy is an appropriate policy response for a material, like PVC, used in a range of applications, as opposed to a defined product group. This feedback was discussed by the Expert Reference Group. The Vinyl Council understands that all criteria of the program is being reviewed including criteria for removal from the 'Wastes for Concern' list.

¹. Key Issues and observations from the NSW Extended Producer Responsibility Expert Reference Group September 2005

². Submission by the Vinyl Council of Australia, 30 June 2006 Response to EPR Priority Statement 2005-06

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ASSESSMENT OF COMMITMENTS

To critically assess whether the Program commitments are sufficiently robust, Signatories to the PSP were asked to rate each commitment according to Appropriateness, Feasibility, Practicality and Impact. These terms were defined as follows:

Appropriateness — how appropriate the commitment is in terms of addressing the issue including proportionality to risk.

Commercial Feasibility — the degree to which the commitment can be carried out and achieved, whilst maintaining the viability of the business.

Practicality — the ability to track, monitor, measure and report on the commitment.

Impact — the degree to which meeting the commitment will make a significant difference to the environmental performance and/or life cycle impact of the industry.

Assessment:

All commitments were rated high by respondents for appropriateness and impact. The commitments to “Monitor overseas developments” under Recycling and Waste Management, and “Encourage and support advances in Environmental Management Systems” under Production and Storage, were found to rate lower for practicality as measuring compliance with the commitments is difficult. The phase out of lead stabilisers rated the lowest for commercial feasibility. Signatories subject to significant competition from imported PVC compounds and products face commercial disadvantage in replacing lead and cadmium based stabilisers with more expensive alternatives. Despite this assessment of the commitment, the commitment is on track to be met.

Recommendations

1. **Review and rework the commitments which scored lower for Practicality to provide better measurement of progress.**
2. **Ensure all new commitments are assessed at the time of drafting to meet criteria.**



RETENTION OF SIGNATORIES

At the time of its launch, the Program had 33 Signatories from across the PVC supply chain in Australia. As at 31 December 2007, there were 27 companies signed up. In the intervening period, the change in the number of Signatories in the Program was due to

- the introduction of a modest fee to contribute to the cost of implementing the Program in 2006
- cessation of PVC-related business
- mergers with other Signatory businesses
- entry into the Program.

No companies have been de-listed for non-compliance although in some years some companies have not been fully compliant with the Program (eg. Data not submitted on certain commitments). Under the terms of the Program, companies that are not compliant in submitting data are given the opportunity to demonstrate their progress on meeting commitments to the satisfaction of the TSG.

Signatory survey

In 2006, the Vinyl Council conducted a survey of Signatories regarding the Program. The survey results showed:

- 89% of respondents believed it was important to be involved in a scheme which has Government recognition and support;
- 83% felt an industry Product Stewardship program has more credibility than programs run by individual companies;
- 78% saw it as important for their company to be incorporating whole-of-life management thinking; and
- 78% see the program as a responsible industry response to PVC life-cycle issues.

The Program facilitates development of partnerships and networking to encourage taking responsibility of products.

Recommendations

Develop strategies to

1. **maintain and expand number of Signatories to the Program**
2. **continue to build relationships across the supply chain**
3. **improve compliance with data collection for measuring Signatory progress**



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SUMMARY OF KEY COMMITMENTS

Issue	Current Commitment as at 31 December 2007
one: production and storage	
VCM in finished resin	Residual VCM in finished resin powder (including imported by traders and converters) not greater than 1 part per million.
VCM emissions resulting from manufacturing	VCM emissions no greater than 50g / tonne PVC.
Environmental management systems at manufacturing and storage sites	To encourage and support advances in environmental management of Signatory operations. All Signatories to work towards reaching or exceeding the Minimum Acceptable Industry EMS Standard.
two: the use of lead and cadmium	
Code of Practice	Adherence to the industry Code of Practice for safe use of additives.
Cadmium use	New Signatories to the Program who are using cadmium stabilisers to agree to a specific phase out date upon signing. Maintain commitment to avoid the use of cadmium stabilisers
Lead use	To phase out the use of lead stabilisers with target phase out dates of 2008 for pipes and fittings and 2010 for other applications.
Pigments	Substitution of lead, cadmium and hexavalent chrome pigments by 2010 where technically feasible and alternatives are available
Other additives	To monitor any pertinent overseas developments.
three: the use of phthalate plasticisers	
Phthalate plasticisers	To implement the industry Policy on phthalate use. To share relevant information with NICNAS.
four: waste management	
National Packaging Covenant	All relevant Signatories to have submitted waste management Action Plans under the NPC and to maintain compliance with NPC obligations.
Recycling	Ongoing implementation of Vinyl-2-Life Action Plan for improving recovery and recycling of PVC waste. To monitor overseas developments.
Encouraging consumer responsible care	To provide information to end consumers on reuse, recycling and safe disposal options for end-of-life PVC.
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.
five: research	
Research	To monitor national and international scientific research and share pertinent information with signatories and stakeholders.
six: public reporting	
Performance against commitments	Publish independently verified annual performance report by 30 June 2008
PVC life cycle impacts	To publish annual product stewardship issues review
Review implementation and effectiveness of the product stewardship program	Publish a review and recommendations by December 2007

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FUTURE CHALLENGES

- Ensuring future commitments are measurable and practical to monitor.
- Retaining critical mass of Signatories, which requires the value of the Program to remain evident to PVC companies.
- Ensuring the Program and its underlying activities are sufficiently funded, particularly recycling initiatives.
- Obtaining robust data for measurement of waste recovery and recycling.
- Maintaining external stakeholder engagement.

EVALUATION

The program has been in place for five years and has continued over that time, to evolve with new, refined and expanded commitments. It is, we believe, somewhat unique in Australia because of its whole-of-life cycle focus and supply chain support.

The industry has achieved some milestones, particularly in terms of phasing out lead and cadmium stabilisers, manufacturing emissions and recycling, but an increasing focus will be required on life cycle thinking, recovering end-of-life product and recycling.

The Signatories to the Program have identified value in participating in an industry scheme and in this Program, in particular to support life cycle thinking within their companies.

Future commitments need to be practical, measurable and verifiable. This requirement increases demands on Signatories which will need to have robust systems in place and supporting resources to ensure they can meet the commitments and, most importantly, demonstrate compliance. While larger businesses generally have these systems in place, small to medium companies may struggle with compliance and ultimately leave the Program.

Overall, taking into account feedback from stakeholders and information contained in this report, the Technical Steering Group believes the PVC industry Product Stewardship Program has been effective in facilitating improvement across the PVC life cycle and supports continuation and evolution of the Program and its approach.

RECOMMENDATIONS

1. Continue Program with existing framework.
2. Consider formal channels and processes for receiving and responding to feedback on the Program.
3. Conduct Program information seminars annually to report on progress to stakeholders.
4. Continue to share information and experience with overseas PVC industry sectors.
5. Monitor domestic stewardship programs/ models and trends.
6. Consider Co-Regulatory approaches to underpin the Program.
7. Review and rework the commitments which scored lower for Practicality to provide better measurement of progress.
8. Ensure all new commitments are assessed at the time of drafting to meet criteria.
9. Develop strategies to maintain and expand number of Signatories to the Program.
10. Continue to build relationships across the supply chain to facilitate companies take responsibility for their products.
11. Develop strategies to improve compliance with data collection for measuring Signatory progress.
12. Maintain public reporting and encourage continuing transparency.
13. Encourage market recognition for Program members and their products.
14. Conduct another five year review of the Program in 2012.