

# PVC STEWARDSHIP PROGRAM

# 2014

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



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# 2014 Highlights

2014

## Current Signatory Status

Thirteen of the 33 company signatories to the Program met all relevant commitments in 2014, up from eight in 2013.

## Program milestones

In 2014, no Signatory was compliant with less than 50% of the relevant commitments, achieving a Program milestone. The second milestone was also reached with 82% Signatories compliant with at least 80% of the Program.

## Notable compliance improvement

For the first time, all Signatories secured the required information from their upstream supply chain regarding VCM emissions and residual VCM – a first in the history of the Program.

There was a more than 50% improvement in the number of Signatories complying with the Energy Efficiency and Greenhouse Gas Charter. Additionally, over two-thirds of Signatories have undertaken actions to improve energy efficiencies on site, or have reduction targets in place and measure their carbon emissions, up from just over half the Signatories in 2013.

## PVC recycling

Roll-out of the PVC Recovery in Hospitals Program continued. By end 2014, 35 healthcare facilities were involved covering a total of approximately 70 tonnes potentially available for recovery.

A research project was initiated with Monash University to investigate solutions for reprocessing PVC coated fabrics and developing products to use the recycle.

## New / Updated commitments

The Program's structure was reviewed in 2014, to strengthen focus on five key aspects of the PVC product life cycle.

Progress was made on strengthening commitments related to waste and recycling under the Resource Efficiency aspect in 2014, in preparation for reporting by Signatories under the Program in 2015.

## Life Cycle Inventory

In partnership with Australian Vinyls, VCA updated and published the Life Cycle Inventory (LCI) for Australian PVC resin in AusLCI, the national inventory database.

Figure 1: **Signatory compliance performance: percentage of relevant commitments fully complied with by Signatory company**

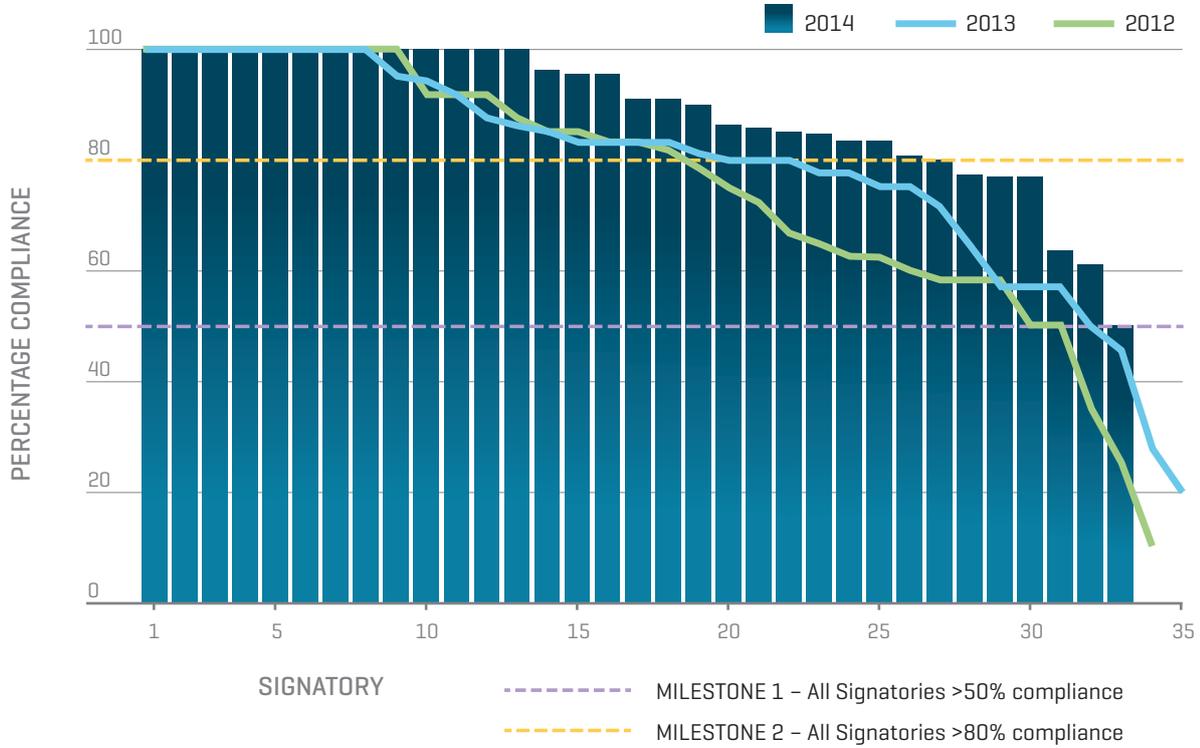
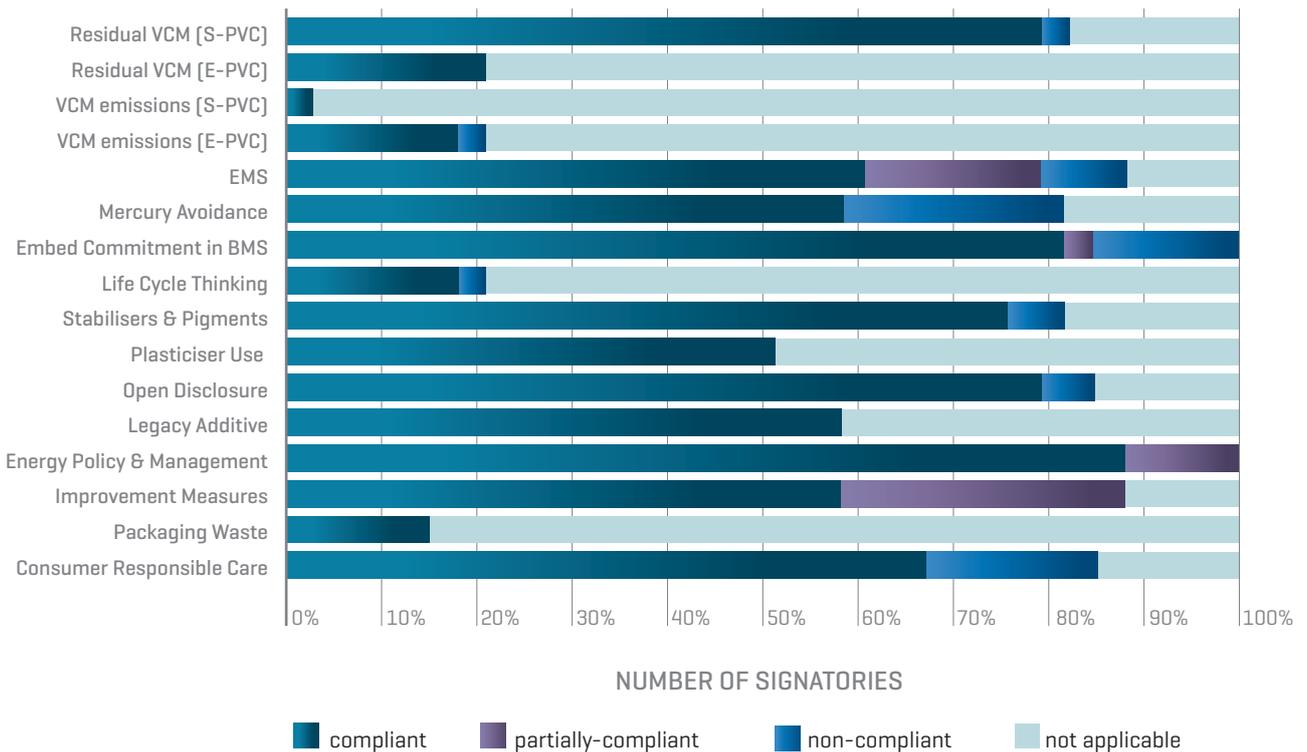


Figure 2: **Number of Signatories compliant with key commitments**



The PVC industry's Product Stewardship Program is one of the longest standing stewardship schemes in Australia, with the specificity to have a broad, whole-of-lifecycle, focus. From its outset, it was deliberately designed to be a dynamic, evolving program to drive best practice and continual improvement in the manufacture of PVC products.

In 2014, the Program's structure was reviewed. All commitments were reorganised into one of five sections which now define the Program. Each section focuses on a specific aspect of the life cycle of PVC products as follows:

- 1. BEST PRACTICE MANUFACTURING**
- 2. SAFE AND SUSTAINABLE USE OF ADDITIVES**
- 3. ENERGY AND GREENHOUSE GAS MANAGEMENT**
- 4. RESOURCE EFFICIENCY**
- 5. TRANSPARENCY AND ENGAGEMENT**

Additionally, an updated version of the 'Resource Efficiency' section with mandatory waste and recycling commitments was greatly progressed during the year. These new commitments will become part of the Program in 2015.

To better represent and help communicate the five significant elements of the PVC life cycle, a new logo has been created and launched with the release of this report.



## PVC STEWARDSHIP

Each tick of the cycle represents a section of our Program. Taken together it reflects the coherent and robust intention of our Program as industry strives towards closed loop management.

Is your business part of the PVC supply chain in Australia? Interested in becoming a Signatory of the PVC industry's Stewardship Program? Please contact us at [info@vinyl.org.au](mailto:info@vinyl.org.au) for more information.



## Best Practice Manufacturing

VCM <sup>1</sup> emissions from manufacturing	< 30 g/t for Australian made S-PVC resin < 1000g/t for E-PVC resin
Residual VCM	Residual VCM in S-PVC <sup>2</sup> resin < 1 ppm in 99% of batches tested Residual VCM in E-PVC <sup>3</sup> resin < 1 ppm in 99% of batches tested
Environmental management systems [EMS]	Comply with or exceed the PVC Industry Minimum Acceptable Standard for Environmental Management
Mercury avoidance	Verify via suppliers that imported VCM, PVC resin or PVC products are sourced from mercury-free processes
Embed Product Stewardship Commitments in BMS	Program commitments embedded into Business Management Systems
Life cycle thinking	Consider whole-of-life environmental impacts in the development of new products

## Safe and Sustainable Use of Additives

Stabilisers and pigments	Avoid use of lead, cadmium and hexavalent chromium additives
	New Signatories still using these additives agree on specific phase out dates upon joining the Program
	Any use is reported annually
Plasticisers	Monitor international trends in plasticiser use and regulation
	Cooperate with regulatory authorities and agencies regarding any issues associated with the use of plasticisers
	Report the use of low molecular weight phthalates
Open disclosure	Disclose information on additives used in PVC products to stakeholders upon request
Recycling PVC containing legacy additives	Recycle responsibly end-of-life PVC products that contain legacy additives

## Energy and Greenhouse Gas Management

Energy efficiency and greenhouse gas [GHG] emissions	Comply with PVC Industry Charter on Energy and Greenhouse Gas Emissions
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## Resource Efficiency

Australian Packaging Covenant [APC]	Relevant Signatories to have submitted waste management Action Plans under the APC and to maintain compliance with APC obligations
Recycling strategy	Implement the Vinyl Industry Recycling Strategy
	Monitor overseas developments
Consumer responsible care	Publicly inform consumers on how to and where to reuse, recycle or dispose of PVC products at end-of-life safely
Waste management reporting [optional]	Reporting waste management and recycling information is encouraged

## Transparency and Engagement

Public reporting	Publish a performance report by 30 June every year
	Publish an evaluation of the Program every five years (next: 2017)
Research monitoring	Monitor national and international scientific research and share pertinent information with Signatories and stakeholders, including updates on pertinent issues and developments related to aspects of the PVC life cycle
Stakeholder engagement	Ensure engagement of the Technical Steering Group to monitor and report on the implementation of the Program

<sup>1</sup> VCM: Vinyl chloride monomer    <sup>2</sup> S-PVC: Suspension resin    <sup>3</sup> E-PVC: Emulsion, or paste, resin

# Commitment 1: Best Practice Manufacturing

*Addressing environmental, health and safety issues from the manufacture and storage of PVC products, including emissions management; implementing Environmental Management Systems; and responsibly sourcing in the upstream supply chain.*

## VCM Manufacturing Emissions

Emissions of vinyl chloride monomer (VCM) from the Australian S-PVC resin producer were reported as 20.1 g per tonne of PVC for the period covering financial year 2014–15, complying with the target of 30 g/t PVC. The minimising of emissions to this extent is considered world's best practice.

Securing relevant information of emissions during manufacture of E-PVC has been a key challenge for Signatories importing finished products over the years<sup>4</sup>. This year is the first time all members were able to collect the required information. Only one member reported VCM emissions related to the E-PVC used in the products it imported above the 1000g/t target. All other relevant Signatories confirmed compliance.

## REGULATORY DEVELOPMENTS

- In 2014, NICNAS released its Tier II assessment of the environmental risks associated with the use of Vinyl Chloride in Australia. The assessment concluded that VCM is not expected to be of concern to the environment when used as a monomer feedstock in closed system polymer manufacturing facilities, such as what is used in Australia [1].
- In December 2014, the Japanese Ministry of Economy, Trade and Industry removed VCM from the list of priority chemicals regulated under the country's Chemical Substances Control Law because of the level of control over the use of the chemical demonstrated by the Japanese industry. It will be treated as a general chemical. Approximately 140 chemicals products are part of the list, selected based on their hazardous properties and level of exposure. VCM is the first chemical to be removed from the list [2].

## Residual VCM

All members were able to collect the relevant data from their suppliers and parent companies. The only non-compliant Signatory reported a residual VCM content of 1.5ppm in the resin used in its product, against a target of 1ppm.

Over the past years, the Vinyl Council has been providing significant support to its member in the collection of this information. In 2014 a 'Life Cycle Mapping' tool was created and made available to all members, allowing them to map their supply chain and collect relevant contact details.

## Environmental Management Systems

Signatories who manufacture or operate storage or distribution facilities are expected to implement environmental management systems. In 2014, 69% of relevant Signatories reported having an EMS in place. A further 21% reported their overseas suppliers – the actual manufacturers of the products they supply to Australia – to be ISO 14001 certified. These Signatories were reported as partially compliant. Implementing an EMS is difficult to achieve for these businesses, as they often are small storage and distribution operations in Australia with no dedicated resource to design and manage an EMS.

Two Signatories reported either being in the process of completing an EMS or will consider it in 2015. The Vinyl Council will keep working with its members to help them successfully introduce these systems.

The EMS risk matrix tool developed in 2013 is known to have been of assistance. Relevant resources and tools are promoted to our members when identified. This year for instance, ISO's handbook on implementing ISO 14001, targeted at small businesses, was recommended to our Signatories as a useful resource [3].

<sup>4</sup> Emulsion, or paste, PVC resin manufacturing is a very different process from S-PVC production and operates at much smaller scale. It is not made locally.



## Mercury Avoidance

Signatories are committed to freeing their supply chain from the use of mercury. To this end they are required to ensure that the chlorine and VCM derivatives used in their PVC resin supply chain are produced from mercury free processes.

All but two Signatories were able to collect the required information. However, six companies (out of 27) who import product from Europe were non-compliant. Their suppliers or parent companies are now focused on the new regulation requiring all mercury cell technology to be phased out by December 2017 for chlorine production [4]. Nevertheless they reported between 60% and 97% of the PVC products they market here as having mercury free derivatives – our threshold for compliance is 98%.

Technologies using mercury are currently being phased out of the PVC supply chain at the global level and the industry as a whole is investing significantly in this process. The compliance of some of our Signatories is therefore closely interlinked with the progress of the European industry.

## INTERNATIONAL DEVELOPMENTS

- In the European Union, mercury cell technology in chlorine production must be phased out by December 2017. Based on the recent reports, approximately 26% of European Chlorine production capacity still uses mercury cells [4].
- The Minamata Convention is an international agreement aiming to protect human health and the environment from anthropogenic emissions and release of mercury and mercury compounds. The control of processes using mercury, such as at some older chlorine plants or in acetylene-derived VCM production, is one aspect of the Convention. The convention aims for a global phase out of mercury in chlor-alkali production by 2025, and a 50%

reduction of the use of mercury per unit of VCM produced via the carbide acetylene route by 2020 against 2010 use. Globally, 128 countries are Signatories of the Convention including Australia and China, and 10 countries have now ratified it. The Convention will become a legally binding instrument once it has been ratified by at least 50 nations [5]. A study prepared for the European Commission on the implementation of the Minamata Convention in the EU reported that VCM manufacture via the acetylene carbide process is only found in one European facility, in Slovakia [6]. The process is, however, very common in China, accounting for about 80% of Chinese PVC capacity. Acetylene carbide production plants are also found in a handful of other facilities in India, Russia and North Korea [7].

## Embedding Product Stewardship in Business Management System

Embedding the relevant product stewardship commitments into each Signatory business management system is the next step in ensuring that a Signatory's compliance is not linked to the hard work of one employee but rather part of the way the company functions. In 2014, five Signatories out of 33 reported that commitments were not yet embedded in their business management systems. For three of these companies this issue is a work in progress they are hoping to address in 2015.

VCA will explore ways in which it can further support its Signatories ensure that product stewardship is integrated throughout their business operations in 2015.



### Life Cycle Thinking

In 2014, 86% of relevant Signatories reported having applied life cycle thinking during the development of new products. Aspects taken into account included amongst other things, improving product durability, raw material sustainability, energy use in manufacturing, energy efficiency in use, toxicity of additives, recycled content and manufacturing waste management.

Although not a requirement of the Program, a number of Signatories have gone through a formalised review of their existing products via eco-labelling organisations such as Global GreenTag, which evaluates building products based on life cycle considerations.

The Vinyl Council supported Australian Vinyls, the local manufacturer of PVC resin, in the completion and publication of a Life Cycle Inventory for Australian PVC resin. The data is now available on AusLCI, the national LCI database [8], and can be used by LCA practitioners in the assessment of products or services and for the development of Environmental Product Declarations (EPDs).

An EPD is a standardised and verified way of quantifying the environmental impacts of a product based on a consistent set of rules. EPDs provide a clear and transparent basis for communication of the environmental performances of products [9]. There is growing interest both in Australia and overseas, in using EPDs to consider the impacts of products, particularly in the built environment. An Australian EPD Program was launched in September 2014 and the Green Building Council of Australia’s Green Star building rating tool is now giving recognition to EPDs for products.

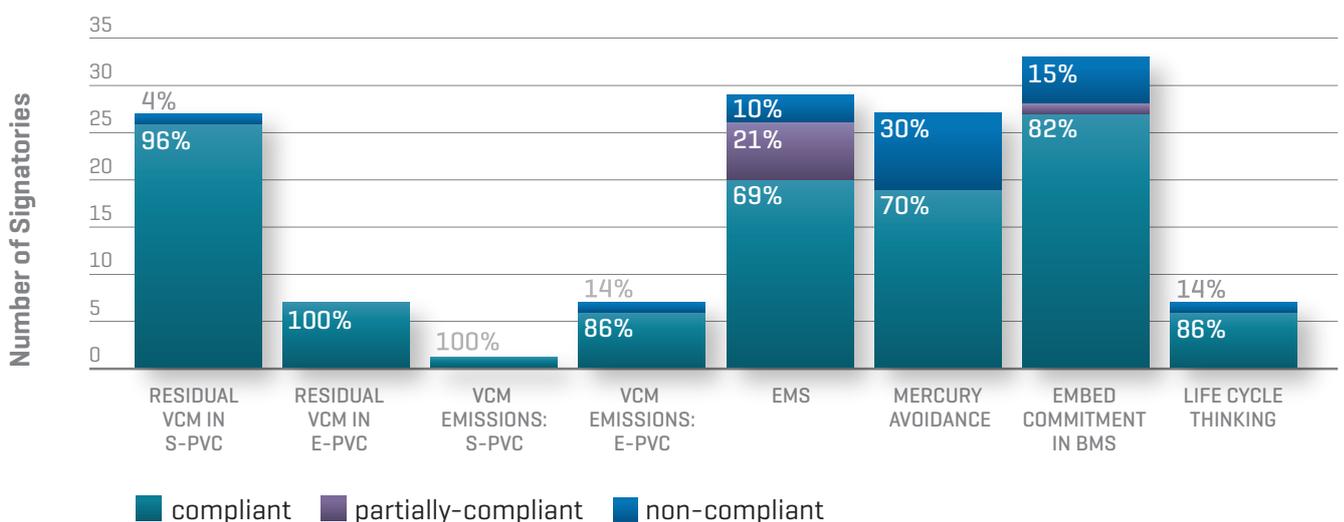
In 2015, the Council will explore how to best support Signatories in development of product EPDs.

### ACTION 2015

Promote and support the completion of EPDs by Signatories.

Provide support in embedding commitments in BMS and on the implementation of Environmental Management Systems.

Figure 3: Signatory Compliance for Commitment One



## Commitment 2: Safe and Sustainable Use of Additives

*Maintaining the avoidance of lead and cadmium metal and hexavalent chrome pigment used as additives during PVC manufacturing, openly disclosing additives used for products manufactured or marketed in Australia upon stakeholder request, ensuring safe use of plasticisers in flexible PVC products in Australia, monitoring scientific and regulatory developments locally and overseas, and responsibly recycling PVC products containing legacy additives.*

### Stabilisers & Pigment

Avoidance of cadmium and hexavalent chromium in PVC additives has been maintained in 2014.

Three Signatories reported having used lead additives in 2014:

- One company used minimal quantities of lead pigment in specific applications, and is in the process of phasing it out with an expected date of completion of 31/12/2016.
- The other two companies reported having used lead stabilised products in 2014. Both have now stopped receiving product containing lead stabilisers. One reported having finished working through its stockpile of historical product in 2014, and the other is expecting to do so by mid-2015.

The total quantity of lead stabilisers and pigments (metal content) used in 2014 was 1.9 tonnes. Based on quantities used in 2002, when the Product Stewardship Program was launched, the use of lead additives in PVC products covered by the Program has decreased by 99.8%.



An error was identified in last year's reporting, as a newly joined member misinterpreted the question on lead additives. The corrected value for the year 2013 is 3.2 tonnes of lead metal. Total use of lead in 2014 was approximately 41% less than in 2013.

### OVERSEAS INITIATIVES AND TRENDS

- Under VinylPlus, the European PVC industry is targeting lead replacement in EU-28 by end of 2015. In the 2007–2014 periods, lead stabiliser consumption in EU-27 has decreased by 86% [10].
- The South African Vinyl Association's Product Stewardship Program is still focusing on phasing out the use of lead stabiliser by July 2015, as per the requirements of the South African Vinyls Industry Best Practice, published in 2014 [11].
- In 2014, the Southern African Bureau of Standards (SABS) ruled that all locally manufactured PVC piping be free of lead based stabilisers by July 1st 2015. The Southern African Plastics Pipe Manufacturers Association (SAPPMA), which represents more than 80% of the country's pipe manufacturers, has been involved in phasing out lead based stabilisers from pipes since 2006 [12].

## Plasticisers

Plasticisers are additives used to provide flexibility to PVC products. They are used in products such as flooring, cables, PVC-coated fabric, or flexible packaging.

All Signatories reported their compliance with current regulatory requirements on the use of plasticisers in flexible PVC as required by the Program. Additionally, the usage of low molecular weight phthalate was reported as required.

Similar to last year, the use of low molecular weight phthalate was reported by seven Signatories, out of the 17 reporting the use of plasticisers in their products.

Plasticisers used in the PVC industry are either phthalate or non-phthalates. Phthalates are a series of chemicals that can be grouped in terms of toxicity profiles according to molecular weight, based on the number of carbon atoms in their molecular chains. Some low molecular weight phthalates have been classified as substances of very high concern (SVHC) under European chemical regulation, REACH, while high molecular weight phthalates are most often reported as safe.

## REGULATORY DEVELOPMENTS IN AUSTRALIA

As part of its Inventory Multi-Tiered Assessment and Prioritisation (IMAP) process, NICNAS<sup>5</sup> completed a Tier II Human Health assessment of diisononyl phthalate (DINP). The Vinyl Council and international industry colleagues provided comments on the assessment as part of the public comment process. NICNAS concluded that the available data on DINP “do not conclusively demonstrate the presence of adverse effects”. However, NICNAS reported that indications of reversible anti-androgenic effects warranted more detailed exploration, specifically in relation to occupational health and safety risks. Should new information become available, a Tier III assessment of the hazard properties of DINP will be conducted to determine whether the hazard classification of the chemical is adequate. [13]

NICNAS also finalised its Priority Existing Chemical Assessment Reports on dimethyl phthalate (DMP) and di(methoxyethyl) phthalate (DMEP) [14, 15]. Neither of these phthalates is used by the Signatories to the Australian PVC industry Product Stewardship Program.

In late 2014, NICNAS announced that it was planning to commence a Priority Existing Chemical (PEC) assessment of butyl benzyl phthalate (BBP) for public health risks from its use in cosmetics, children’s toys and childcare articles [16].

## OVERSEAS REGULATORY DEVELOPMENT

- In 2014, the US Consumer Product Safety Commission (CPSC) announced a proposal to make more stringent an existing federal prohibition on phthalates in some children’s products, including a permanent ban on the use of DINP in these applications. The proposed rule is based on the recommendations of a Chronic Hazard Advisory Panel (CHAP) report published in July 2014, and would implement a permanent ban on DINP, plus diisobutyl phthalate (plus DIBP), di-n-pentyl phthalate (DPENP), di-n-hexyl phthalate (DHEXP) and dicyclohexyl phthalate (DCHP) in children’s toys and child care product at concentrations greater than 0.1%. If accepted, the rule would also lift a temporary ban on diisodecyl phthalate (DIDP) and di-n-octyl phthalate (DnOP) [17]. In Australia, NICNAS’ 2012 PEC assessment of DINP, and the recently released draft PEC report for DnOP did not highlight any particular concerns for these phthalates when used for children’s toys and childcare articles [18, 19].
- Bis(2-ethylhexyl) phthalate (DEHP), a low molecular weight phthalate, was added to the Substances of Very High Concern Candidate List by the EU Member State Committee in December 2014 on the basis of suspected endocrine-disrupting properties of the chemical in the environment. DEHP is already on the candidate list because of its classification as a category 1B substance toxic to reproduction [20]. The use of DEHP in Europe will not be permitted from February 21st 2015, unless an application has been granted specific authorisation under REACH.
- Revisions to the European Commission’s Directive on the Restriction of Hazardous Substances (RoHS2) in electrical and electronic equipment includes restrictions on the use of dibutyl phthalate (DBP), DEHP, BBP and DiBP in all electric and electronic equipment, including cable, to a maximum of 0.1% weight per homogeneous material. The proposed entry into force is 22 July 2019 for the majority of electric and electronic equipment, and 22 July 2021 for medical devices. A final decision on the revisions is expected in the first quarter of 2015 [21].

<sup>5</sup> National Industrial Chemical Notification and Assessment Scheme

### Open Disclosure

In 2014, The Vinyl Council created a standardised spread sheet to facilitate the recording by Signatories of disclosure requests from stakeholders.

In 2014, all but two Signatories reported having a disclosure system in place, and both reported not having received disclosure requests from stakeholders during the year. There was a significant improvement in compliance with this commitment from last year when the compliance rate was 71%.

### Recycling PVC Containing Legacy Additives

Legacy additives are substances whose use in PVC products has been discontinued, such as lead stabilisers, use of which did not render the product unsafe but posed potential health risks in manufacturing and environmental risks depending on disposal route. Safe recycling of these older end-of-life materials can be achieved, reducing the life cycle impact.

The Program requires avoiding the use of end of life PVC product in sensitive applications (toys, medical devices, etc), as well as meeting performance and health and safety requirements. All relevant Signatories reported compliance with this requirement.



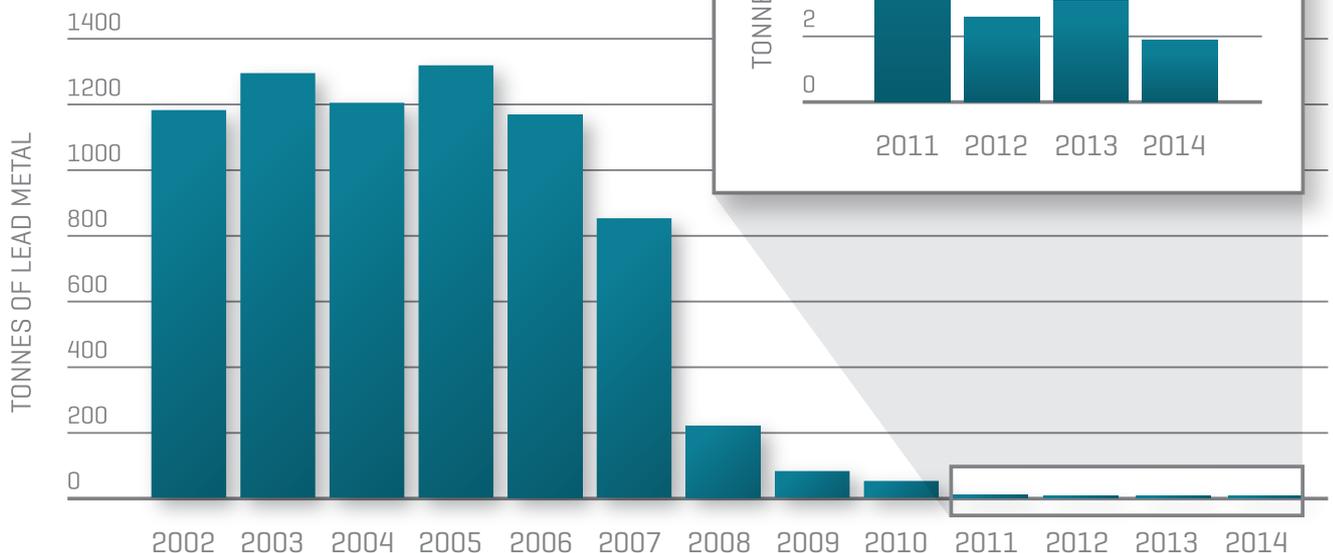
#### ACTION 2015

Continue liaison with NICNAS and scientific monitoring.

Ensure the complete phase out of lead additives by VCA members.

Close the gap to reach 100% compliance with open disclosure.

Figure 4: **Lead stabiliser and pigment use by Program Signatories** (tonnes lead metal content)



## Commitment 3: Energy & Greenhouse Gas Management

*Improving energy efficiency and greenhouse gas emissions from all activities directly operated by Signatories to the Program.*

### Energy Efficiency and Greenhouse Gas Charter

The goal of the Charter is to demonstrate the Australian PVC industry's commitment to improving the energy and greenhouse gas emission profile of PVC products. To achieve compliance, all Signatories are expected to at least have a formal policy in place that covers energy efficiency and greenhouse gas emissions, and to be measuring their energy consumption.

In 2014, 88% were fully compliant and 12% partially compliant with the requirements of the Charter to have a policy covering energy efficiency and greenhouse gas emissions and to track energy consumption.

Signatories that directly operate storage, distribution and manufacturing operations are expected to have implemented actions to improve energy efficiency on their site; to have plans in place to improve energy efficiency and reduce greenhouse gas emissions; and to be measuring their carbon footprint (Scope 1 and 2 only). In 2014, 66% of relevant companies were compliant, and a further 34% were partially compliant.

To support Signatories, the Vinyl Council prepared an automated tool to calculate carbon emissions based on annual energy consumption. This helped a number of SME Signatories to estimate their carbon footprint.

Additionally, the Vinyl Council updated a document aimed at supporting Signatories in the preparation of a policy compliant with the Product Stewardship Program.

Late in 2014, a Memorandum of Understanding was signed with the NSW Office of Environment and Heritage with regards to promotion of their Energy Saver Program to VCA Signatories. The Program allows participating companies to attend free training on energy efficiency, as well as the completion of a subsidised energy audit on their site, with additional support available [22].

One Signatory reported having gone through a Level 2 Energy Audit thanks to the Energy Saver Program, and is reviewing actions to be put in place in 2015.

Some of the actions reported by members in improving their energy efficiency in 2014 included upgrades on the following systems:

- lighting (presence sensors and LED technology);
- air compression;
- air conditioning (new systems, tinting windows);
- boilers;
- manufacturing equipment; and
- car fleet.

Additionally, one Signatory reported having installed solar panels for electricity and hot water production

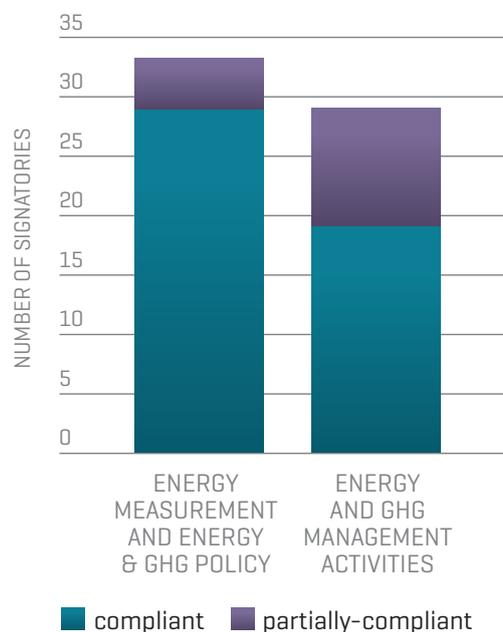
### ACTION 2015

**Close the gap on full compliance.**

**Identify and promote government programs that support energy efficiency in industry.**

**Develop case-studies to educate Signatories on energy efficiency opportunities based on other Signatories' experiences.**

Figure 5: Signatories compliance for Commitment Three



## Commitment 4: Resource Efficiency

*Addressing potential issues arising at the end-of-life of PVC products; managing waste responsibly at the Signatories' facility level; implementing the Vinyl Industry Recycling strategy*

### Packaging

All Signatories involved in the PVC packaging supply chain as bottle or film producers are signatories to the Australian Packaging Covenant (APC) and have current action plans lodged, as required by the Program.

### Waste Management

As the industry transitions to more specific waste management and resource efficiency commitments for 2015, Signatories were asked to voluntarily provide information on their 2014 uptake of recovered PVC waste, or 'recoPVC' – that is, PVC waste sourced externally to the company. Additional information was also sought on their post-industrial waste management performance and on their on-site management of incoming packaging waste.

Although no formal commitment is yet in place, over three-quarters of Signatories responded to all or some of the questions.

Thirteen Signatories reported using recoPVC in their products, while 19 Signatories reported on their post-industrial waste performance. In addition, 25 Signatories provided information on the incoming packaging used at their site and the way in which it is managed, recycled or disposed.



### Consumer Responsible Care

In 2014, 79% of relevant Signatories reported providing information to end consumers on the safe management of their products at the end-of-life. The type of information expected to be provided to users and consumers includes – but is not limited to – the recyclability of the product and where it can be recycled; whether the company has a take-back scheme in place; or whether the product can safely be disposed of at landfill.

In 2014, six relevant Signatories had not yet shared this information with end consumers.

### The Vinyl Industry Recycling Strategy

The aim of the strategy is to develop a viable and sustainable PVC recycling practice in Australia.

To achieve this, some key objectives are:

- Identify key PVC waste streams with potential for commercially and technically feasible recycling.
- Developing self-sustaining, cost-neutral PVC recycling models that improve productivity and competitiveness
- Identify marketable, recycle-tolerant products

The implementation of the strategy progressed throughout the year and a number of projects are underway.

### PVC RECOVERY IN HOSPITALS

This innovative program grew in strength in 2014 with the aim to become a standard part of hospital recycling practice in Australia. This is largely due to the involvement in 2014 of Baxter Healthcare and Welvic – two Signatories to the PVC Stewardship Program. Baxter has negotiated and arranged logistics contractors to collect PVC from hospitals in New South Wales and Tasmania, and have since appointed contractors for Victoria, South Australian and Western Australia early in 2015. This helps streamline the logistics part of the supply chain to get products to reprocessors in Victoria. Baxter also commenced a back-haul system from home dialysis patients. Through continued collaboration with the Vinyl Council, 35 hospitals



were involved by the start of 2015, covering a total of 70 tonnes potentially available for recovery. A further 39 being either pending or expressing interest in starting the program. Additionally, almost 290 home-dialysis patients had signed up to the take-back scheme proposed by Baxter by January 2015, covering approximately 26 tonnes of PVC material available for recovery. The Vinyl Council set a target to collect 15% of IV bags by end of 2015 (equivalent to ~300 tonnes). Although it will be a challenge to achieve it at this stage, VCA intends to continue working with all companies in the supply chain in 2015 to consolidate this program for its long term viability. Visit [www.vinyl.org.au/PVCRecovery](http://www.vinyl.org.au/PVCRecovery) for more information.

### **BUILDING THE NETWORK**

The Vinyl Council has commenced a survey of its Signatories, manufacturers and various reproprocessors around Australia to collect information on their capacity to recycle PVC. Suitable information will be included in the recycling section of the Council's website to facilitate development of the PVC recycling network.

The update of the current Resource Efficiency commitment is now in its final stage before implementation. The new commitment will focus on improving recycling of incoming (non-PVC) packaging waste at Signatories' operations; post-industrial PVC waste minimisation and recycling; and encouraging the use of recovered PVC waste by Signatories in new products.



### **PVC COATED POLYESTER FABRIC**

With the backing of the Victorian Government's "Future Designers Program", the Vinyl Council and Monash University initiated a 12 week project to explore viable solutions to reprocess advertising banners, truck tarpaulins and grain covers. In November 2014 four students – two chemical engineers and two industrial design students – experimented with various processes and treatments to identify possible methods of turning large quantities of banner waste into a valuable product. Working with PSP Signatories Welvic – a compounder and recycler – and Rojo Pacific – a supplier of banner and signage material – as well as others in the industry, the students will present initial product concepts and potential recycling processes in early 2015.

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### **ACTION 2015**

**Finalise and implement the new 'Resource Efficiency' commitment.**

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## Commitment 5: Transparency and Engagement

*Monitoring and sharing with relevant stakeholders the latest scientific development on potential health and environmental impacts of the PVC product life cycle; and engaging with internal and external stakeholders on the progress of the Australian PVC industry.*

### Annual Progress Report

Last year's report was published in June 2014 following verification audits conducted by an independent third party. The report was significantly streamlined, and the data survey automated in an effort to better support our members in providing relevant information, and to simplify the reporting process as a whole.

Feedback from our Signatories shows that this solution eased the reporting process. For this reporting period, we aimed at refining this approach, providing more information on each section of the data survey.

### Program and Report Verification

This 2014 report has been independently verified by Ernst & Young. The purpose of the verification process is to provide an independent opinion on the accuracy of the data and statements made in the report. The verification of this report involved the audit of eight Signatories to examine data sources and confirm data and statements. A copy of Ernst & Young's Limited Assurance Statement is shown in Appendix A.



### Research Monitoring

There are a number of forums of communication for industry providing 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, including TSG meetings, VCA member meetings and events, conferences and seminars, regular emailed news briefings, website etc. These were used to advise members of scientific developments, particularly on the subject of phthalate plasticisers, REACH and other regulatory developments, NICNAS assessment of chemicals, and the phase out of mercury.

### Technical Steering Group

The technical steering group consisted of representatives from the Australian PVC industry. Representatives of the Green Building Council of Australia, Sustainability Victoria, and the Department of the Environment are invited to participate in each meeting and are provided with minutes and papers of meetings. Four meetings were organised in 2014, attended by an average of 13 participants. Two of the four meetings were attended by a representative of the Department of the Environment, and NICNAS presented its IMAP Program at one of the meetings.

### Stakeholder engagement

VCA aims to hold stakeholder engagement meetings every two to three years following the publication of its Progress Report to discuss the progress of the PVC industry via the Product Stewardship Program. Roundtables will be held in Melbourne and Sydney in 2015 to improve industry understanding of stakeholder concerns and expectations.

As part of launching the new PVC Stewardship logo, there will be a significant update of the information reported on the Vinyl Council's website with regards to the Program. New case-studies will also be released related to the life cycle elements.

[Keep an eye on our website for updates.](#)

# Appendix A: Limited Assurance Statement



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## Independent Limited Assurance Statement

To the Board of Directors of the Vinyl Council of Australia

The Vinyl Council of Australia (the 'VCA') has commissioned Ernst and Young ('EY') to provide independent limited assurance in order to state whether anything has come to our attention to suggest the subject matter detailed below as presented in the 2014 Product Stewardship Program Progress Report (the 'PSP Report'), has not been reported, in all material respects, in accordance with the criteria below.

### Subject Matter

The Subject Matter for our assurance engagement for the year ending 31 December 2014 is the extraction of 52 selected statements and their inclusion in the PSP Report. The statements present data and activities which indicate performance of the VCA – please refer to the full independent assurance statement at [www.vinyl.org.au](http://www.vinyl.org.au) for a list of the 52 statements.

### Criteria

The VCA has set out the Criteria for reporting against the Subject Matter for each commitment as part of the Australian PVC industry's Product Stewardship Program in the form of a 'Commitment Guide' and 'Reporting and Verification Guide'.

### The Responsibility of Management

The management of the VCA is responsible for the preparation and presentation of the Subject Matter in the PSP Report in accordance with the above Criteria, and is also responsible for the selection of methods included in the Criteria. No conclusion is expressed as to whether the selected methods used are appropriate for the purpose described above. Further, the VCA's management is responsible for establishing and maintaining internal controls relevant to the preparation and presentation of the Subject Matter that is free from material misstatement, whether due to fraud or error; selecting and applying appropriate criteria; maintaining adequate records and making estimates that are reasonable in the circumstances.

### Assurance Practitioner's Responsibility

Our responsibility is to express a limited assurance conclusion on the extraction of data presented in the PSP Report based on our assurance engagement, in accordance with ASAE3000 'Assurance Engagements other than Audits or Reviews of Historical Financial Information' and in accordance with the terms of reference for this engagement as agreed with the VCA.

The assurance engagement was undertaken in March-May 2015, and involved the following:

- ▶ A review of the factual accuracy of the information presented in the PSP Report by examining the data and information contributing to the 52 statements (covering all commitments presented in the Criteria) and confirming that it has been extracted correctly from the VCA's internal systems
- ▶ A review of the PSP Report for any significant anomalies, particularly in relation to VCA activities and trends in data
- ▶ A review of the VCA's key systems and processes used for managing, analysing and reporting Signatory performance information

- ▶ Interviews with key personnel responsible for collating and writing sections of the PSP Report to understand the reporting process.

In addition, as part of our engagement we conducted site visits and reviewed information submitted by the following eight Signatories:

- ▶ Armstrong World Industries (Aust) Pty Ltd
- ▶ Australian Vinyls Corp Pty Ltd
- ▶ Integrated Packaging Kirrawee
- ▶ Iplex Pipelines Australia Pty Ltd
- ▶ Karndean Designflooring
- ▶ Stormtech Pty Ltd
- ▶ Welvic Australia Pty Ltd
- ▶ Deceuninck Pty Ltd

### Use of our Report

Our limited assurance report has been prepared for distribution to the management and directors of the VCA. We disclaim any assumption of responsibility for any reliance on this assurance statement or on the Subject Matter to which it relates, to any person other than management and directors of the VCA, or for any purpose other than that for which it was prepared.

### Independence, Competence and Experience

In conducting this assurance engagement, EY has met the requirements of our Independence Policy. EY confirms that we are not aware of any issues that could impair our objectivity in relation to this assurance engagement. EY has not had any part in collecting and calculating data, or in preparing any part of the Report.

### Limitations

The scope of work covered the Subject Matter referred to above as included in the Report. EY did not provide assurance over the data. Specifically excluded from our scope was source data presented to the VCA from their signatories.

### Matters Relating to Electronic Presentation of Information

Our limited assurance engagement included web-based information that was available via web links as of the date of this statement. We provide no assurance over changes to the content of this web-based information after the date of this assurance statement.

### Conclusion

Based on our limited assurance procedures, nothing has come to our attention to indicate that the Subject Matter (as described above), as presented in the PSP Report, is not prepared fairly, in all material respects, in accordance with the above mentioned criteria.

Recommendations resulting from the audit are detailed in the full independent assurance statement at [www.vinyl.org.au](http://www.vinyl.org.au).

Ernst & Young  
Melbourne, Australia  
29<sup>th</sup> May 2015

One Signatory joined the Program in 2014:

> **Baxter Healthcare Pty Ltd**

Innova International Pty Ltd, Envorinex and Ubique left the Program during 2014. At the end of 2014 the following companies were Product Stewardship Program Signatories:

Armstrong World Industries Pty Ltd  
 Australian Resilient Flooring Association  
 Altro APAC Pty Ltd  
 Karndean International Pty Ltd  
 Kenbrock Flooring (Aust) Pty Ltd  
 Pegulan Floor Coverings Pty Ltd  
 Polyflor Australia Pty Ltd  
 Signature Floorcoverings Pty Ltd  
 Tarkett Australia Pty Ltd  
 Australian Vinyls Corporation Pty Ltd  
 Baxter Healthcare Pty Ltd  
 Berry Plastics (Australia) Pty Ltd  
 Chemson Pacific Pty Ltd  
 CMS Electracom  
 Deceuninck Pty Ltd  
 Envorinex  
 Gerflor Australasia Pty Ltd  
 Integrated Packaging Pty Ltd  
 Pentair Water Solutions Pty Ltd  
 Plaspak Peteron Pty Ltd  
 Plastics Industry Pipe Association of Australia Ltd  
 Australian Plastic Profiles Pty Ltd  
 Iplex Pipelines Australia Pty Ltd  
 Pipemakers Pty Ltd  
 Vinindex Pty Ltd  
 Plastral Pty Ltd  
 Plustec Pty Ltd  
 Primaplas Pty Ltd  
 Profine International Profile Group GmbH  
 Rehau Pty Ltd  
 Rojo Pacific Pty Ltd  
 Stormtech Pty Ltd  
 Sun Ace Australia Pty Ltd  
 TechPlas Extrusions Pty Ltd  
 Terminals Pty Ltd  
 Viadux Water Network Solutions Pty Ltd  
 Welvic Australia Pty Ltd

#### NOTES:

Viadux Water Network Solutions previously reported as Pentair Water Solutions.

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ALCAS	Australian Life Cycle Assessment Society, the Australian peak body for LCA practitioner
APC	Australian Packaging Covenant
AusLCI	The official Australian Life Cycle Inventory database
CHAP	Chronic Hazard Advisory Panel
CPSC	Consumer Product Safety Commission
ECHA	European Chemical Agency
ECVM	European Council of Vinyl Manufacturers
EMS	Environmental Management System
EPD	Environmental Product Declaration
GBCA	Green Building Council of Australia
GHG emissions	Greenhouse Gas emissions
IMAP	Inventory Multi-tiered Assessment and Prioritisation, a framework used by NICNAS to assess over 3000 chemicals
LCI / LCA	Life Cycle Inventory / Life Cycle Assessment
LCANZ	The New Zealand peak body for LCA practitioner
Phthalates: High molecular weight (HMW)	A group of chemicals used as plasticisers with more than 6 carbon atoms in their backbones. They include DINP (diisononyl phthalate), DIDP (diisodecyl phthalate), DMP (dimethyl phthalate), DnOP (Di(n-octyl) phthalate, etc.
Phthalates: Low molecular weight (LMW)	A group of chemicals used as plasticisers with 3 to 6 carbon atoms in their backbones. They include DBP (di-n-butyl phthalate), DEHP (Diethylhexyl phthalate), DIBP (diisobutyl phthalate), etc. (epoxidised soybean oil), etc.
Plasticisers	Chemical substances used to soften PVC, and provide flexibility to end products.
MSDS	Material Safety Data Sheet
NICNAS	National Industrial Chemicals Notification and Assessment Scheme. The Australian Government regulator of industrial chemicals.
The Program	The Product Stewardship Program, signed by members of the Australian PVC industry
PEC	Priority Existing Chemical reports are risk assessments completed by NICNAS
PSP	Product Stewardship Program
PVC (vinyl)	Polyvinyl chloride
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
ROHS	Restriction of Hazardous Substance Directive
SABS	South African Bureau of Standards
SAPPMA	South African Plastic Pipe Manufacturers Association
SAVA	South African Vinyl Association
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 wider communities, consumers, government and regulators, and any other groups significantly impacted by the industry.
TSG	Technical Steering Group
UN	United Nations
VCA	Vinyl Council of Australia
VCM	Vinyl Chloride Monomer
VinylPlus	The VinylPlus Program represents the voluntary commitment of the European PVC industry. It establishes a long-term framework for the sustainable development of the industry by tackling a number of critical challenges in the industry in the EU-28, Norway and Switzerland.
VIRS	Vinyl Industry Recycling Strategy

