PVC STEWARDSHIP PROGRAM
Progress Report 2018

Table of Contents

Launched in 2002, the **PVC Stewardship Program** (the Program) has been a continuously evolving voluntary commitment of the Australian vinyl industry to recognise and address progressively environmental, health and safety issues in the value chain.

The aim of the Program is to guide the continuous improvement and sustainable development of the Australian PVC industry. Unlike many product stewardship programs which focus only on the end of life of a product, we define stewardship as a shared responsibility for the life cycle of products from raw material manufacture, end-product manufacture, through product use and ultimately end-of-first-life.

The Program centres on five key themes associated with the life cycle of PVC (Figure 1) under each of which are specific commitments and targets to be met within responsible, deliverable timeframes. Taken together, they reflect the intention of the Program to work towards a circular economy for vinyl whereby value is retained in a constant beneficial cycle.

Figure 1: **The commitment themes of the Program**

Summary of Key Commitments

	COMMITMENT	TARGET
PROGRAM MILESTONES	**All Signatories are to be above 50% compliance** **80% of Signatories achieve above 80% compliance**	**100% of Signatories engaged in the program for >1 year** **80% of Signatories**
PVC STEWARDSHIP **best practice manufacturing** 1	Embed PVC Stewardship commitments in the Signatory company's business management system.	Businesses acknowledges commitment internally and externally.
	Meet or exceed PVC industry's Minimum Acceptable Standard for Environmental Management of manufacturing plants, including measures to minimise the loss of plastic pellets or powder to waterways and the marine environment.	Minimum standard met for plant environmental management system.
	Mercury avoidance.	PVC product sold in Australia is sourced from mercury-free feedstock manufacturing processes.
	Minimise Vinyl Chloride Monomer (VCM) emissions from manufacturing.	S-PVC resin: ≤ 43g/tonne S-PVC produced p.a. E-PVC resin: ≤ 500g/tonne E-PVC produced p.a.
	Minimise Residual Vinyl Chloride Monomer.	Maximum of 1ppm in finished resins.
	Life Cycle Thinking (LCT) considered and addressed in the development or introduction of new PVC products for the Australian market.	Life Cycle Thinking applied.
PVC STEWARDSHIP **safe and sustainable use of additives** 2	Avoid use of lead, cadmium and hexavalent chromium additives.	Zero use. Any use of these additives shall be reported annually and a commitment made to phase out by set date.
	Recycle responsibly end-of-life PVC products that contain legacy additives.	
	Voluntarily phase out use of low molecular weight (LMW) ortho-phthalates in all PVC applications in Australia by the end of 2023 within the constraints of technical and commercial feasibility.	Zero use by end 2023. Report annually any use and type of LMW ortho-phthalates.
	Avoid the use of any ortho-phthalate plasticisers in PVC food contact packaging film supplied to the Australian market.	Zero use in food contact packaging materials.
	Support regulatory authorities in measures that encourage the market to cease the use of LMW phthalate plasticisers in applications where credible scientific authorities show evidence of unacceptable health or environmental impacts.	
	Recommend inclusion of approaches for safe plasticiser use in relevant Australian Standards or revisions as appropriate.	
	Open Disclosure: Disclose information on additives used in PVC products to stakeholders upon request.	Include in product technical data sheets or material safety data sheets.

Summary of Key Commitments (cont.)

PVC STEWARDSHIP **energy and greenhouse gas management** 3	Comply with the PVC industry's Charter on Energy Efficiency and Greenhouse Gas Emissions.	Improved energy and greenhouse gas emission profile of PVC products.
PVC STEWARDSHIP **resource efficiency** 4	Minimise post-industrial PVC waste sent to landfill.	< 2 percent of the total production of saleable PVC product.
	Use recycled PVC in the PVC products supplied to the Australian market.	> 0 kg recoPVC used by each converter/supplier.
	Consumer Responsible Care: Publicly inform consumers on how to and where to reuse, recycle or dispose of the product safely at end-of-life.	
	Packaging waste: Recycle incoming recyclable packaging materials associated with the manufacture or supply of PVC products to the Australian market. Undertake actions to encourage the recycling of packaging materials leaving the Signatory's facility.	Divert ≥ 70 percent of packaging wasteto recycling or reuse options.
PVC STEWARDSHIP **transparency and engagement** 5	Publicly report the industry's progress in meeting commitments. 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. Provide opportunities for stakeholders to offer feedback on the Program.	Publish a performance report by 30 July every year. Publish an evaluation of the Program every five years.

2018 in Review

Number of Signatories
(at 31 Dec 18)

49

Number of New Signatories

6

Number of Signatories Assessed

45

Signatories Failing to Report

4

Reasons for failure to report:

Two signatories recommitted to the Program in 2018 but did not mobilise in time to meet reporting deadlines. One signatory was unable to fulfil reporting requirement and one Signatory underwent a change in local management disrupting reporting intention.

Companies who fail to report are put on notice to demonstrate they are continuing to meet the commitments and make progress; they will be expected to report and may be independently audited next year.

Program Milestones

All but one of reporting Signatories had at least 50% compliance **(98%)**

80% **of reporting Signatories achieved at least 80% compliance.**

NB. the above figures exclude Signatories who did not report.

Signatories achieving Excellence in PVC Stewardship Status

20

COMPARED TO 17 IN 2017

Elimination of Lead Stabiliser Use

1 Signatory reported use in 2018. This company has committed to phase out by the end of 2020.

99.06% less lead stabiliser used today by Signatories than in 2002.

recoPVC used in Local Products

719 **tonnes –** up by 14% on 2017

Independent Verifications

9 **site visits conducted in New South Wales, and Victoria and**

1 **telephone interview conducted with an overseas Signatory.**

Message from the Chairman

Welcome to the latest Annual Report of the PVC Stewardship Program of Australia.

We are pleased to report that the PVC Stewardship Program (The Program) continues to grow and evolve. 2018 saw a record number of Signatories participate in the program with 49 companies committing to the program. In 2018 there were 49 Signatories, up from 47 in 2017. We were pleased to welcome six new Signatories who have joined the Program (three of which reported for the first time) and we are committed to supporting them on the journey towards excellence in stewardship.

Overall the industry continued to maintain high levels of performance and to strive for excellence. 2018 saw 20 Signatories achieving Excellence which is the highest number since the Program's inception. That said, challenges remain in a number of commitment areas, namely Emulsion PVC Emissions and Residual VCM in Emulsion PVC, Life Cycle Thinking, Stabilisers and Pigments, Open Disclosure, Consumer Responsible Care and Packaging Waste.

Underlying this, were the first time reporters, challenges in obtaining information from upstream suppliers, a decline in performance from some existing Signatories and a change to some reporting evidence requirements.

New Signatories accounted for seven percent of the total Signatories; however, their incidences of non and partial compliance accounted for seventeen percent of the overall total. The Council looks forward to working collaboratively with these new Signatories to help them on the pathway to continual improvement.

The industry, through the assistance provided by the Council, also continues to make headway in reducing the sector's environmental impact. In 2018, we introduced a commitment to voluntarily phase out the use of the low molecular weight ortho-phthalate plasticiser Diethylhexyl phthalate (DEHP) by the end of 2023. The PVC industry in Australia closely monitors international developments and scientific research and takes a risk-based approach to local operations and practices. With growing concern in the community about exposure to DEHP from a range of sources and the increasing availability of safe alternatives with similar technical performance, the PVC industry here has elected to act. Of the 22 Signatories whose products contain plasticisers, only six reported use of DEHP in 2018. This included one of the new Signatories. They will continue to report annually until they complete their phase out.

In 2018 we reviewed our program against the 17 UN Sustainable Development Goals (SDG) and the ISO 20400 Sustainable Procurement Guidelines and identified any gaps to improve and drive change in the future. This analysis also highlighted the positive contribution made by the industry and its associated products towards sustainability. We have indicated later in the report how each commitment theme is working towards specific SDGs.

Without the active participation from our Signatories, we would not have the long-term credibility of the Program that we have today. Each Signatory puts in considerable work to source data from their supply chain and own operations for the annual reporting process. For this reason, I would like to thank our Signatories for their support to this program. I would also like to acknowledge the following Signatories who made significant improvements to their performance over the past twelve months – Plustec, Gerflor Australasia, Baerlocher, Brenntag Australia, Polymer Direct, Cryo Grind, Plastral and Polyflor.

I would also like to thank members of the Technical Steering Group, drawn from industry, who provide valued input and guidance. Additionally, we would like to thank our stakeholders from the scientific community and government including Sustainability Victoria, the Federal Department of Environment and Energy and CSIRO who provide valuable insights and feedback throughout the year.

We look forward to your continued and ongoing support and to delivering continued improvement in 2019 and beyond.

Peter Byron
Chairman, Technical Steering Group, PVC Stewardship Program
Technical Manager, Armstrong Flooring

How the Program Works

Photo: ASF-Goulburn

The Australian vinyl industry's PVC Stewardship Program is one of the longest standing product stewardship schemes in Australia, with an emphasis on a whole-of-lifecycle approach. From its outset, it was deliberately designed to be a dynamic, evolving Program to drive best practice and continual improvement in the manufacture and supply of PVC products in Australia.

The Signatories consist of companies in the vinyl value chain conducting business in Australia. Some are resin suppliers and traders; some supply or manufacture intermediates and additives; some manufacture end products; some import products for local fabricators or end markets and some are recyclers. Figures 1 and 2 below provide a summary of where our Signatories sit in terms of supply chain activity and with respect to the products and materials they produce.

Given the varied nature of Signatory businesses, the list of commitments applicable to each company varies depending on its activity and position in the supply chain. As the Program evolves year to year with new or revised commitments, benchmarks or reporting requirements, the Program encourages constant improvement to reduce the environmental footprint of vinyl products in the market here. As a consequence this can make it difficult to compare the year on year results.

Each year, Signatories self-assess their performance and file a report with the Vinyl Council. A number of companies are selected for independent auditing to verify their self-assessments. Signatories' compliance performance is measured and benchmarked and the information collated to provide a measure of the industry's overall progress. This report details the 2018 performance of the industry and has been independently verified by Ernst and Young.

To measure whether the PVC Stewardship Program is driving improvement in the industry, key milestones have been set, as follows:

- All Signatories who have been in the Program at least 1 year are to be above 50% compliance
- Eighty percent of Signatories achieve at least 80% compliance.

Companies achieving full compliance (100%) with all commitments relevant to their business are recognised with an Excellence in PVC Stewardship award.

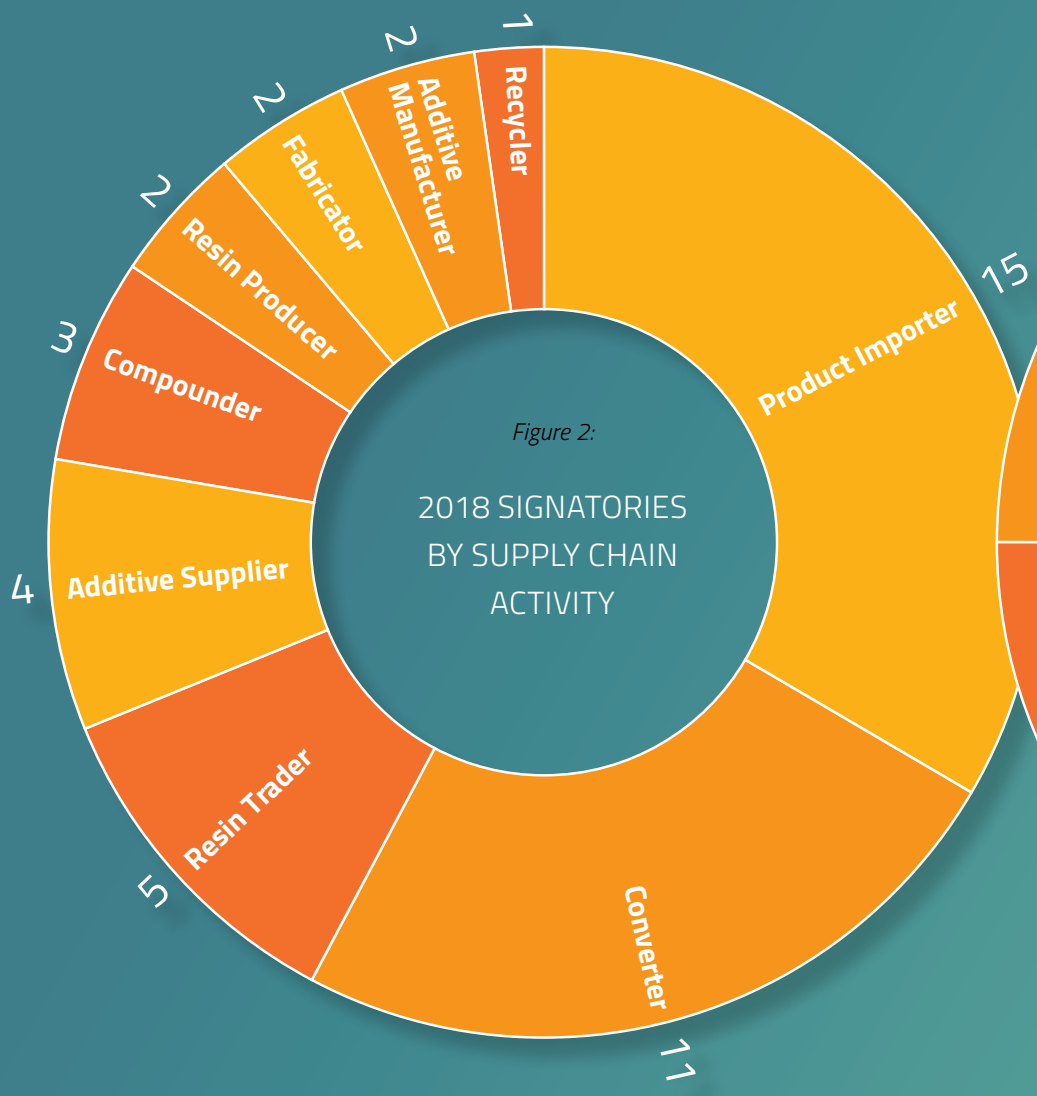


Figure 2:

2018 SIGNATORIES BY SUPPLY CHAIN ACTIVITY

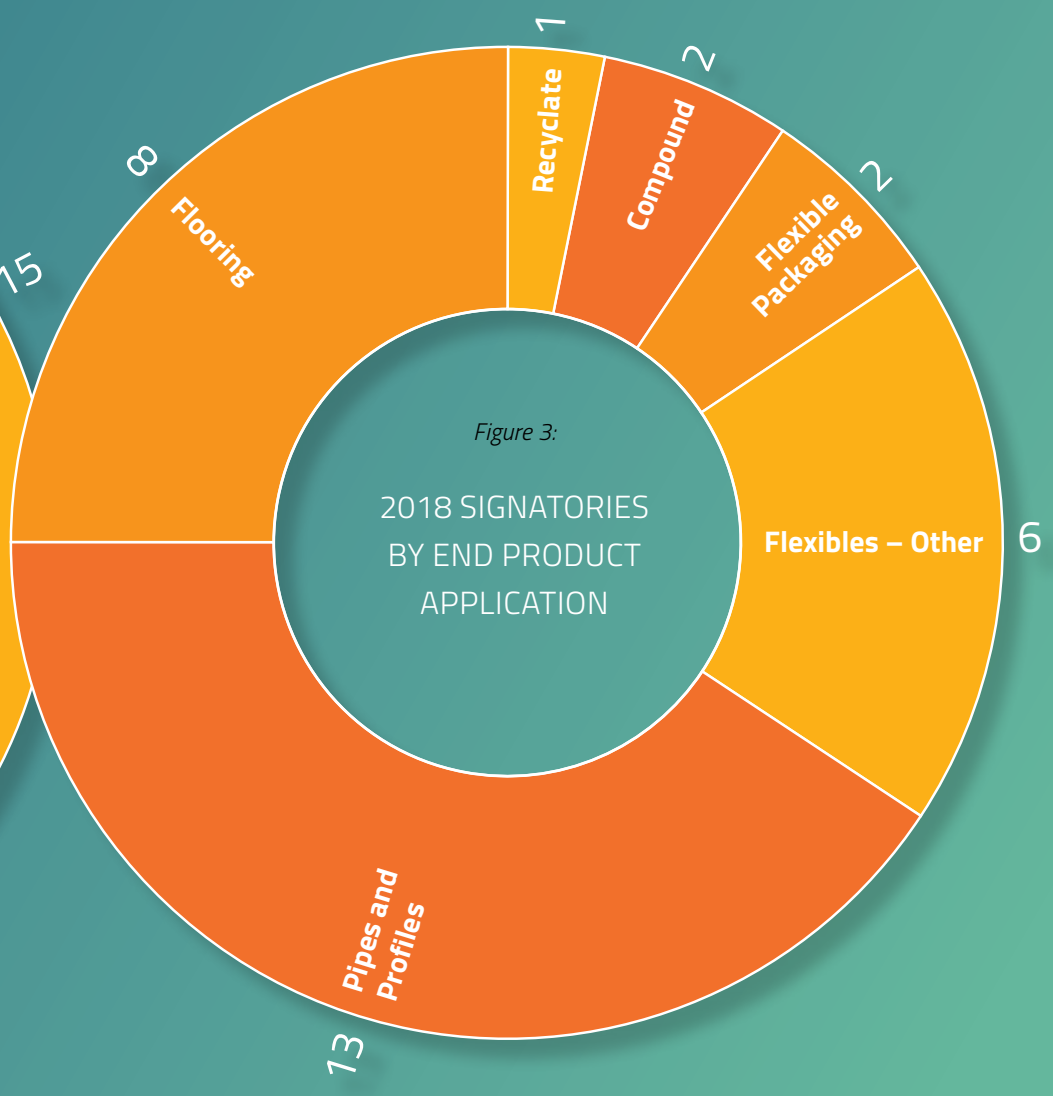


Figure 3:

2018 SIGNATORIES BY END PRODUCT APPLICATION

Best Practice PVC

Best Practice PVC is an independent verification and accreditation of product compliance with specific criteria identified by the Green Building Council of Australia (GBCA). Developed in 2010, the criteria were largely based on the PVC Stewardship Program at the time, and a literature review of the life cycle of PVC products. It is primarily focused on meeting global best practice standards for the manufacturing of feedstocks and PVC resin. Best practice manufacturing is defined by specific, measurable criteria set out in the 'Best Practice Guidelines for PVC in the Built Environment' published by the GBCA. It also sets criteria in respect of additives in end products and for the management of those products at end of life.

Best Practice PVC ('BEP PVC') and the PVC Stewardship Program are mostly aligned; however the PVC Stewardship Program has many additional commitments – such as reducing energy and greenhouse gas emissions, avoidance of marine pollution, open disclosure and encouraging consumer responsible care – as well as some differences in evidence requirements.

The Stewardship Program is a journey; it can be the starting point for companies to begin improving transparency in their supply chains and to start addressing PVC product sustainability. BEP PVC is an accreditation for a specific product that confirms full compliance with core manufacturing criteria at a point in time.

The table below (Figure 4) summarises the differences in approach and intent between Best Practice PVC and the PVC Stewardship Program

A growing number of local and global companies supplying products to the Australian market seek BEP PVC accreditation, driven by its recognition in Green Star, the GBCA's rating tool for buildings. Products have to be independently audited against the Guidelines.

How can PVC Stewardship and BEP PVC help your procurement decisions?

Both of these initiatives can help specifiers choose sustainable products manufactured to the most stringent environmental criteria. BEP PVC certificates from independent auditors relate to specific products whereas the PVC Stewardship logo refers to a company's commitment to the PVC Stewardship Program as a signatory. Signatories who achieve full compliance with the Stewardship Program in any one year, are awarded a license to use the *'Excellence in PVC Stewardship'* logo in recognition of the company's performance.

If you are considering specification of a PVC product, we strongly encourage consideration of products that either carry the BEP PVCmark or are sourced from companies that are current signatories to the PVC Stewardship Program.

PVC STEWARDSHIP	PVC MADE USING BEST ENVIRONMENTAL PRACTICE
Company performance	**Product accreditation**
Life cycle / supply chain assessment	**Life cycle / supply chain assessment**
Continual improvement – a journey	**Full product compliance at a point in time**
Industry developed with stakeholder input	**Stakeholder developed with industry input**
Industry driven recognition	**Market driven – Green Star**
Annual self-assessment and reporting with periodic external audit	**Third party verification (2–3 years)**

Figure 4: **Table showing similarities and differences between BEP and The PVC Stewardship Program**

Program Achievements and 2018 Updates

The performance of the Australian vinyl industry has been continually assessed, measured and reported for 16 years. The number of companies signed up to the Program has grown from 33 at its launch in 2002, to 49 in 2018.

Australian industry achievements to date:

- Limiting the residual vinyl chloride content of resins used to less than 1 ppm so that VCM is non-detectable in end products.
- Sourcing resins from plants with very low VCM manufacturing emissions.
- Sourcing resins that avoid the use of mercury in upstream manufacturing processes.
- Encouraging adoption of environmental management systems that enable Signatories to identify environmental impacts resulting from activities and improve environmental performance across sites.
- Voluntarily phasing out the use of cadmium stabilisers and pigments by Signatories by the end 2004.
- Voluntarily reducing the use of lead stabilisers and pigments by Signatories by 99.06% since 2002.
- Commitment to voluntarily phasing out low molecular weight ortho-phthalates DEHP (DOP), BBP and DBP in all PVC applications in Australia by the end of 2023, within the constraints of technical and commercial feasibility.
- Phasing out the use of ortho-phthalate plasticisers in food contact packaging.
- Adopting a charter to improve energy efficiency and reduce greenhouse gas emissions associated with PVC supply chains.
- Developing and implementing an industry strategy to advance PVC recycling practice in Australia.
- Encouraging minimisation and recycling of PVC manufacturing waste and packaging wastes.
- Encouraging the use of pre- and post-consumer PVC recyclate in new products.
- Fostering transparency through public reporting of annual progress reports with independent third-party verification.

2018 Program Updates:

Throughout the year, the Technical Steering Group considers new information and industry developments related to the manufacture of PVC and expectations of stakeholders. Revisions to the Program may be proposed, developed and consultation with industry participants and external stakeholders sought. Once the Technical Steering Group has approved a draft new commitment or revision to an existing commitment, the Council's Board is advised and consensus approval from current Signatories obtained. A new commitment is not included in the Program until all Signatories have consented.

In 2018, the Program was updated in the following areas:

- Under Best Practice Manufacturing, the commitment to Environment Management Systems (EMS) at plants was clarified to make it explicit that the EMS shall include measures to minimise the risk of marine pollution from loss of containment of plastics pellets and powder.
- A new commitment was introduced to the Program to phase out low molecular weight phthalate plasticisers (eg. DEHP) in all PVC applications by the end 2023.
- Clarification was developed and incorporated into the Program regarding the Open Disclosure commitment. Signatories are now expected to demonstrate compliance with this commitment through Product Declarations, Technical Data Sheets or Safety Data Sheets which clearly list product ingredients.

In March 2018, the Council established a PVC Circularity Taskforce to provide leadership and guidance on enhancing recycling and recovery of PVC in Australia.

Members include representatives from industry and government. More detail on PVC recycling initiatives is given in section 4.

Program revisions still under development include the setting of a specific improvement target for the use of recycled PVC in products. A target will be established for 2019 reporting based on data collected in the 2018 reporting process.

2018 achievements:

Outcomes from 2018 are depicted in Figures 5, 6 and 7 below. In summary:

- Signatories were largely successful in maintaining their 2017 performance levels and the industry's performance overall mirrored 2017 outcomes.
- All three non-reporters from 2017 (Integrated Packaging, Profine International Profile Group, and Rehau) submitted reports in 2018.
- An increased number of Signatories were successful in embedding the product stewardship commitments into their respective business management systems.
- Compliance with mercury avoidance undertakings increased to 88% – which was the highest overall compliance rate to date.
- The take up of reco PVC increased for a second successive year.

OPPORTUNITIES AND AREAS OF IMPROVEMENT:

- The Council and our Signatories are committed to phasing out harmful additives, including stabilisers and pigments and substituting these with more sustainable alternatives. Signatories are obligated to report if *'lead stabilisers are, or have been used in PVC products, or supplied to the local PVC industry, in the past three years.'* Overall there has been a considerable reduction in the use of lead stabilisers to the point that today only one Signatory still has a reliance on this form of stabiliser and this participant is committed to its phase out by 2020. In 2017 five Signatories reported against this Commitment however two of these have now successfully phased out the use of lead stabilisers and progressed beyond the 'sunset period' and hence are no longer required to report. This decrease in the numbers reporting accounts for the lower compliance rate – 67% in 2018 versus 80% in 2017. It should be noted in that in absolute terms there has been no decline in performance. The phase out of lead stabilisers is further evidenced by the dramatic decline in its overall consumption. The amount of lead reported used in 2018 fell by 16 tonnes (or 59% of 2017 levels).
- In 2018, we recorded a decline in the percentage of Signatories complying with the Consumer Responsible Care commitment. This was partly on account of revising the evidence requirement to improve verification. Two new Signatories did not manage to comply with this commitment. One Signatory who was compliant in 2017 did not meet the revised evidence requirement. Additional effort and resources will be needed in the future to support and address this performance gap.
- There was a marginal increase in the number of Signatories who were non-compliant (up from 2 in to 2017 to 3 in 2018) with the Packaging commitment. Underlying this result was the fact that two Signatories who achieved either full or partial compliance in 2017 failed to reach their previous performance levels. One Signatory who was non-compliant in 2017 was also not successful in improving their performance. This commitment will be mandatory from 2019.
- To support our overall circular economy objectives the Council encourages Signatories to utilise recovered PVC in products supplied to the Australian market. As noted above we have witnessed an increase in the total tonnages consumed over recent years as well as an increasing number of Signatories complying with this objective. Compliance grew from 46 percent in 2017 to 61% percent in 2018. Whilst pleasing we believe there is considerable scope for improvement once those Signatories that are either non or partially compliant take positive action to support this measure. To this end the Council will develop targets for increased consumption and work closely with the Program participants to support their implementation

Planned Program Updates:

MODERN SLAVERY

During 2018, the Technical Steering Group heard from stakeholders on Social Sustainability issues and agreed to explore a new commitment related to addressing Modern Slavery.

The Modern Slavery Act 2018 (NSW Act) was introduced on 21 June 2018 followed by a Commonwealth Modern Slavery Act which came into effect on 1st January 2019. These Acts aim to ensure accurate information is provided in the market that enables consumers and contractual counterparties to assess the ethicality of supply chains. Companies that meet threshold reporting requirements will need to produce annual, publicly-available modern slavery statements that indicate the due-diligence steps taken to insure that their goods and services are not a product of supply chains in which modern slavery is taking place; or where there is a risk of modern slavery taking place, steps are being taken to assess and manage that risk.

It is recognised that a number of Stewardship Signatory companies may be asked by their customers to provide statements in relation to these Acts even though they do not meet reporting thresholds under the Acts themselves.

The Australian vinyl industry aspires to be a leader in environmental sustainability as evidenced by the introduction of our product stewardship scheme in 2002 – long before the emergence of many other product stewardship schemes. We have been on a journey of continuous improvement since this time which has been achieved by Signatories demonstrating sustainability in their operations and supply chain. To date, the focus has been on recognising and progressively addressing environmental, health and safety issues associated with the life cycle of PVC. Given emerging global trends in supply chain transparency and recognition of the hidden problem of modern slavery the Council and its members have elected to take a proactive position to identify, and if required, address this concern.

It is anticipated that a commitment will be adopted and approved for inclusion in the 2019 signatory data survey.

Figure 5: PERFORMANCE BY COMMITMENT 2017–2018

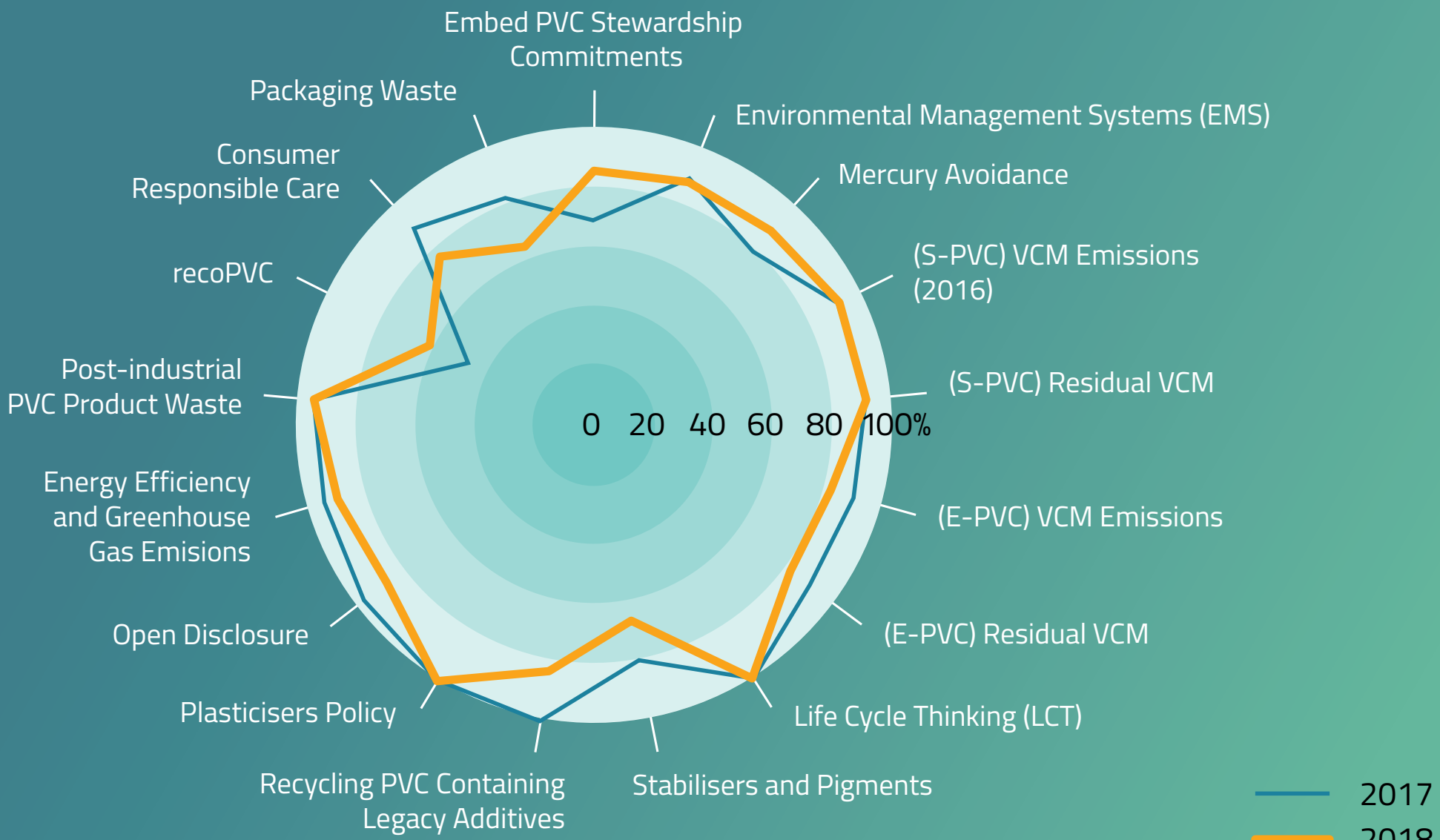
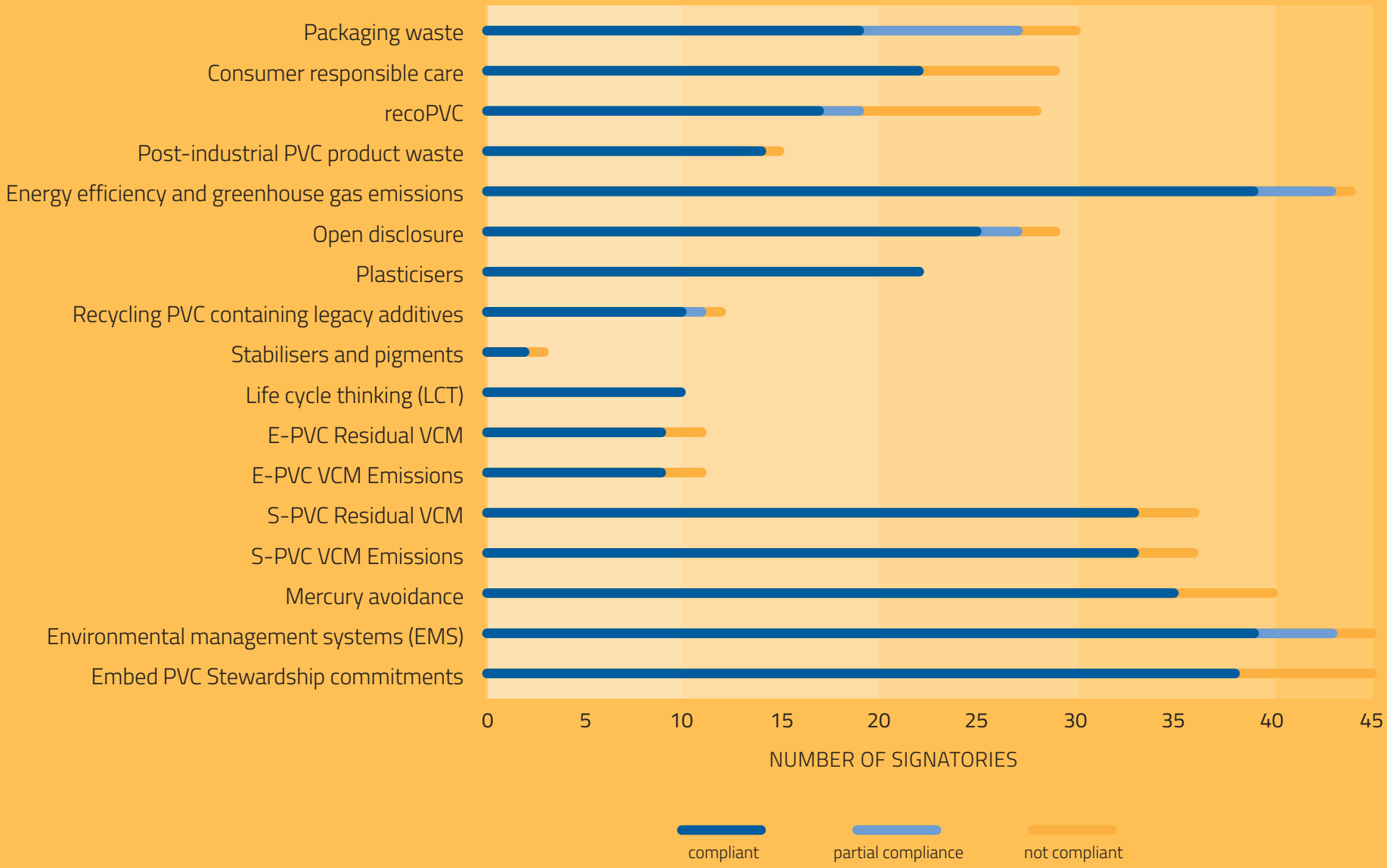


Figure 6: 2018 COMPLIANCE SCORE ACHIEVED BY SIGNATORY (benchmarked against program milestones).

Figure 7: NUMBER OF SIGNATORIES COMPLIANT WITH EACH PVC STEWARDSHIP PROGRAM COMMITMENT



PVC Life Cycle Review

During 2018, the Vinyl Council and the Technical Steering Group reviewed and discussed global and local regulatory developments that might impact the vinyl value chain.

The following were of particular relevance:

- Titanium Dioxide (TiO^2) is used as a pigment in production of plastics, including PVC, and numerous other products to provide resistance to discoloration under ultraviolet light in exposed applications. The European Chemicals Agency (ECHA) determined that there was scientific evidence to classify TiO^2 under the Classification, Labelling and Packaging Regulation as a substance suspected of causing cancer through inhalation. The Australian Government, however, has questioned whether the classification is an appropriate measure to address concerns around its inhalation. A recent Australian human health assessment on the risks of TiO^2 found that there is not enough evidence to conclude that TiO^2 is hazardous to human health, even in the nano form. In line with EU protocols, all submissions will be considered by the European Commission prior to a final decision post April 2019.
- Azodicarbonamide (or ADCA) is a key blowing agent used in a number of PVC products utilised across a range of sectors including construction (flooring, wall covering, pipes, foamed profiles, tarpaulins), automotive (trims, coated fabrics, sealing gaskets, shock adsorption aerospace (thermal insulation) and consumer products (sports & leisure, household & packaging, cushioning and sound insulation elements). The European Commission classifies ADCA as a 'substance of very high concern' (SVHC) as it *'May cause allergy or asthma symptoms or breathing difficulties if inhaled'.* A range of peak industry bodies in Europe are calling on the European Commission to set an occupational exposure limit value for ADCA rather than adding it to the REACH authorisation list as the exposure risk is limited to industrial sites (and therefore workers) rather than users of end products who are not likely to be exposed. The proposed date for adoption is October 2019.
- Phthalate plasticisers –
  - ECHA's Risk Assessment Committee (Rac) rejected a Member State proposal to classify DINP as a category 1B reproductive toxicant. Instead, Rac agreed on "no classification" for the reproductive hazard endpoint. DINP, a high molecular weight phthalate, does not share the toxicity mode of action of the low molecular weight phthalates already classified as category 1B reproductive toxicants.
  - The US Senate is reviewing a bill introduced in June 2018 calling for the use of all ortho-phthalates to be banned in food contact materials. The Bill includes provisions for a two-year period to allow the plasticisers to be phased out and so that alternative materials can be put forward. In Australia, Signatories to this Program have already committed to, and are, avoiding these plasticisers in food contact packaging materials.
  - The European Commission on 17 December adopted a decision to restrict the use of DEHP, BBP, DBP and DIBP in consumer products on the EU market, particularly those where there may be exposure through skin or by inhalation. The restriction follows the scientific and technical recommendations by ECHA, and will come into effect as of June 2020. The EU has notified the World Trade Organisation of its intention to restrict the four low molecular weight phthalates and to expand the scope of restriction beyond toys and childcare articles to plasticised materials in articles.
  - Two University of Melbourne scientists are conducting a metadata analysis of different studies showing the effects of plastic and associated chemicals including BPA and phthalates, on animal and human reproductive health.
- Australian chemical regulations – in May 2018 the Australian industrial chemical regulator, NICNAS, met with the Council and its members to brief the industry on planned reforms to the Scheme. NICNAS has recognised that a number of problems exist in the way the current Scheme is administered. To address these the following new features are proposed:
  - All introducers of industrial chemicals will be registered under the Australian Industrial Chemicals Introduction Scheme (AICIS);
  - Listed chemicals (on Inventory) will be allowed to be introduced if in accordance with terms of listing
  - Introducers self-categorise based on indicative risk – regulatory treatment varies with category
  - The Executive Director can initiate assessment of any industrial chemical, tailored to address the issues of concern.

New Drivers for Sustainable Development

In 2015/16, the United Nations General Assembly agreed a set of **Sustainable Development Goals** (SDGs) to be addressed by the year 2030 (https://www.un.org/sustainabledevelopment/development-agenda/). The SDGs – 17 priority areas with a total 169 associated targets – aim to address social, economic and environmental development issues including poverty, hunger, health, education, gender equality, clean water, sanitation, affordable energy, decent work, inequality, urbanisation, global warming, environment, social justice and peace.

In 2018, the Vinyl Council assessed the PVC Stewardship Program against the 17 global priority areas to demonstrate how the Program commitments align with the SDGs. The intent was to identify gaps to shape the future direction of the Program and to consider which current Program commitments align with the SDGs. The exercise identified that the Program commitments are addressing many of the commitments underlying the SDGs.

For example, SDG 3 Good Health includes the goal of "substantially reducing the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination. The Program supports this aim by reducing exposures from manufacturing; encouraging implementation of environment management systems; driving more sustainable use of additives; phasing out lead, cadmium, mercury and some plasticisers; and reducing greenhouse gas emissions.

PVC products contribute to SDGs through delivering benefits to society such as clean drinking water and better sanitation (pipes) and affordable healthcare solutions (medical products) amongst others.

Reviewing the SDGs has identified areas in which the Stewardship Program could drive change. Until now the Program has not addressed social sustainability factors such as human rights and Modern Slavery. The Technical Steering Group has been considering how the Program might further encourage transparency in the supply chain by examining these aspects.

In this report, we indicate to which SDGs the various commitments relate.

A review was also conducted of ISO 20400 Sustainable Procurement to identify any initiatives that will improve the ability for Signatories to work effectively with suppliers. ISO 20400 defines the principles of sustainable procurement, including accountability, transparency, respect for human rights and ethical behaviour and highlights key considerations such as risk management and priority settings. Of interest to the Program is the approach to examining buying practices, getting an improved understanding of the supply chain, considering risks and implementing changes for improvement.

Signatory Case Study

THE ANDREWS GROUP

Bolon Rugs from off cuts

The Andrews Group are suppliers of Bolon woven vinyl throughout Australia, New Zealand and Southeast Asia.

The Andrews Group takes its environmental responsibilities very seriously, and as part of this, is a signatory to the PVC Stewardship Program (PSP), and is audited under the Best Practice PVC guidelines.

Wastage is an issue for suppliers of roll vinyl products, and The Andrews Group seeks to minimise in several ways. As part of these initiatives, The Andrews Group offers a service for the design and assembly of customised rugs to the commercial and residential markets, which utilises offcuts as part of the offer.

Offcuts from roll material supplied to the market from our distributor partner warehouse are relocated to our own warehouse where we have a state of the art cutting machine, which is used to create patterned shapes from the offcuts. These shapes are integrated into rug designs to provide unique and colourful finished rugs.

The environmental outcomes are reduced waste, and beautiful but durable end products – which are of course, recyclable at end of life.

This is particularly appropriate for Bolon, which started its life in the period after the second world war as a supplier of 'rag rugs' made from leftovers from production – Bolon has come full circle.

2018 Industry Performance

1

PVC STEWARDSHIP

best practice manufacturing

Target 3.9 | Target 6.3 | Target 8.8 | Target 9.4 | Target 12.4 | Target 14.1 | Target 16.6 Target 16.10

Best Practice Manufacturing encompasses a range of measures including embedding the PVC Stewardship commitments in business management systems, meeting or exceeding the Minimum Acceptable Standard for Environmental Management of manufacturing plants, avoiding the use of mercury in products and processes, minimising VCM emissions, complying with usage standards for VCM in manufactured products and applying life cycle thinking for all new products for the Australian market.

Signatories are provided with a Supplier Questionnaire template to assist them in obtaining information from upstream suppliers regarding activities relating to the Program commitments. The questionnaire enabled the Signatories to understand their suppliers' operations and assess potential risks in terms of compliance.

2018 progress

- Overall improvements were recorded in the areas of embedding product stewardship commitments into formal business management systems and efforts to avoid mercury in PVC resin used in products or production processes.
- The adoption and maintenance of environmental management systems and the compliance with directives to manage VCM emissions resulting from manufacturing and in products remained on par with 2017 achievements.
- One Signatory who did had not manage to attain compliance with respect to Residual VCM in Emulsion resin in 2017 was successful in addressing this over the past twelve months and reaching full compliance in 2018.
- All Signatories continued to apply life cycle thinking when introducing new products into the domestic market.

AREAS FOR IMPROVEMENT

- Overall performance with regards Emulsion PVC Emissions and Residual VCM in Emulsion PVC declined from a compliance rate of 90% for both these Commitments to 82% in 2018. In absolute terms there were two non-complying Signatories for both these areas in 2018 as compared to one in 2017. The non-compliance issues all arose as a result of Signatories not being able to get definitive confirmation from suppliers. In all cases Signatories have sought confirmation but suppliers were either not able to confirm compliance with standards or they had not responded by the required timelines.

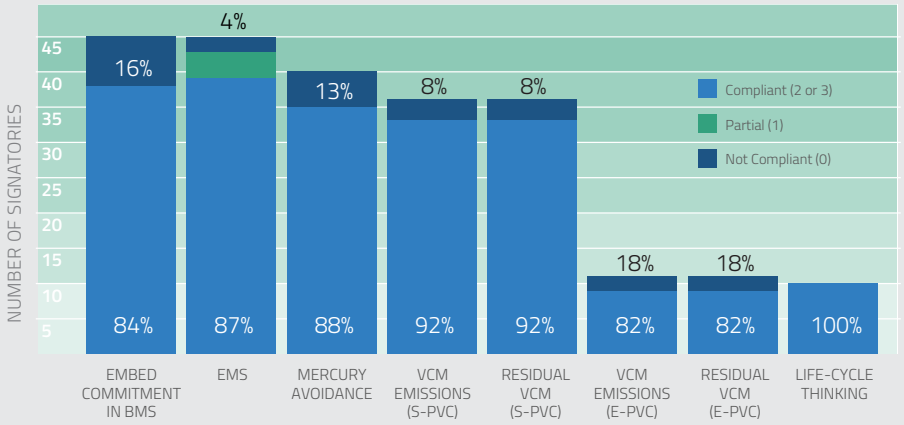


Figure 8: **Best Practice Manufacturing Compliance achieved by commitment in 2018**

CLICK TO ENLARGE

2 PVC STEWARDSHIP safe and sustainable use of additives

Target 3.9 Target 6.3 Target 12.4

Signatories are committed to the safe and transparent use of additives in PVC products such as avoiding the use of lead, cadmium and hexavalent chrome; responsible recycling of any PVC products that may contain legacy additives; avoiding the use of ortho-phthalates in food contact packaging materials; reducing the use of low molecular weight ortho-phthalates in all applications and to openly disclosing to interested stakeholders details of additives used.

2018 Progress

- Overall most signatories comply with the four commitment areas that comprise this Theme.
- Lead stabiliser use was virtually eliminated by 2011. Nevertheless, as new Signatories have joined the Program in the last few years, a small number have reported use of lead-based stabilisers or pigments. There are no regulatory restrictions on such use in Australia other than for toys and food contact applications, however industry is committed to minimise and eliminate its use.
  The amount of lead reported used in 2018 fell by 16 tonnes (or 59% of 2017 levels) as only one Signatory is now reporting use, down from two in 2017.
- All signatories were compliant with the commitment to the phase out targeted plasticisers and avoid phthalates in food contact materials.

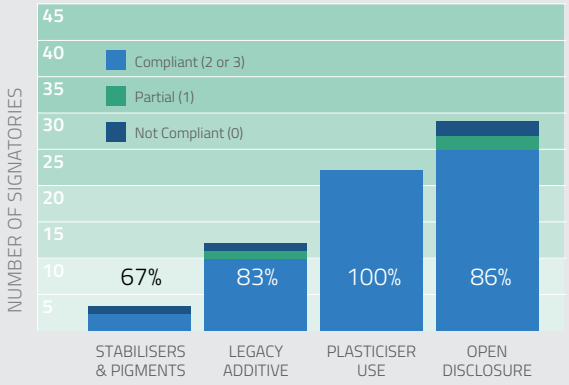


Figure 9: **Safe and Sustainable Additives Compliance achieved by commitment in 2018**

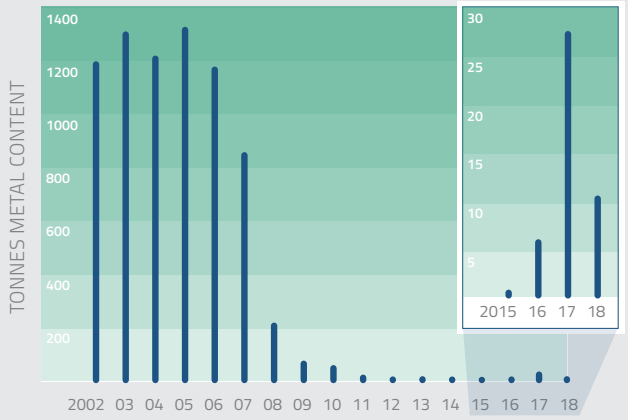


Figure 10: **Lead stabiliser use by the Program Signatories 2002–2018 (tonnes lead metal content)**

AREAS FOR IMPROVEMENT

- The one Signatory that used lead stabilisers in 2018 expects to be fully compliant by the end of 2020.
  The Vinyl Council will discuss with them the feasibility of achieving an earlier phase out.
- The number of Signatories that were not fully compliant with the open disclosure commitment increased from one to four. They reported that internal organisational policies and directives do not permit them to divulge the additives in their products as it is considered proprietary information. This position contradicts the open disclosure requirements and suggests that these Signatories have not fully understood the intent of this Commitment and verification requirements. It is not a requirement that formulations must be fully disclosed - rather Signatories can comply by confirming the use of major additives without disclosing amounts or concentrations.
  The Council will provide specific guidance and training to assist these Signatories with the reporting for this Commitment in 2019.

3

PVC STEWARDSHIP

energy and greenhouse gas management

Photo: Tarkett

Signatories commit to improving their performance with regards to energy consumption and greenhouse gas emissions including working with their respective supply chains and considering the potential for available recycled post-consumer PVC to reduce their overall footprint.

2018 Progress

- Overall 43 out of 44 signatories achieved full compliance (39) or partial compliance (4).

AREAS FOR IMPROVEMENT

- The Council and Signatories will review and consider the development of better documentation measures and processes that can be used to evidence the actions taken by Signatories or their upstream suppliers.

Target 7.1 Target 9.4 Target 12.2 Target 13.1

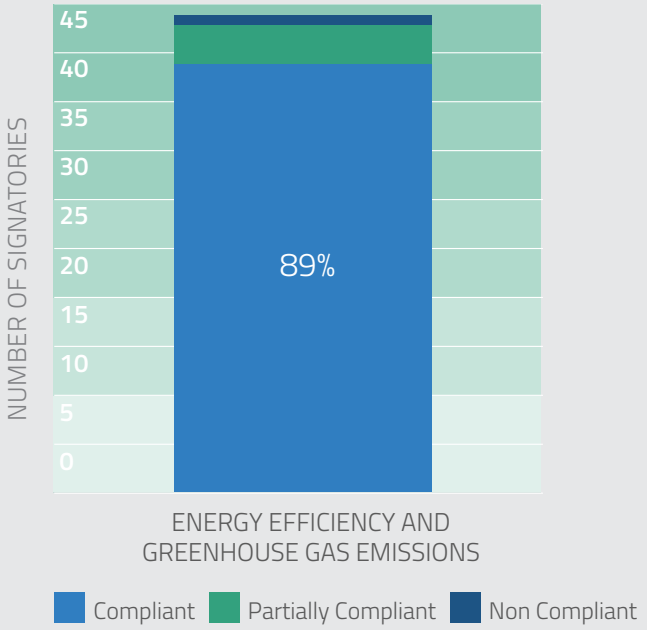


Figure 11: **Energy and Greenhouse Gas Management Compliance achieved by commitment 2018**

4 resource efficiency

Target 9.5 Target 11.6 Target 12.3 Target 12.5 Target 13.2

This commitment has a predominant focus on specific waste streams common to the sector which can be managed in accordance with the waste hierarchy as well as seeking to encourage the downstream consumer base to manage packaging in a responsible manner.

2018 Progress

- Efforts to minimise the quantity of post-industrial PVC requiring landfill disposal have held firm (at 93%) during 2018.
- A significant improvement in adherence with the recoPVC commitments was observed during 2018 although non-compliance remains quite high. This commitment is an initiative with circular economy objectives and compliance has grown from 46% in 2017 to 61% in 2018. As noted in the summary of 2018 achievements above there are an increasing number of Signatories fulfilling this Commitment and increased volumes of recovered PVC being recycled into new applications and products.

AREAS FOR IMPROVEMENT

- A considerable number of Signatories (seven) did not comply with the Consumer Responsible Care commitment. Largely this was due to the participants not having this information and making it available to downstream customers however several had given consideration to this area but had not documented the information or made it readily and publicly available. This suggests that that overall there is a willingness to fulfil this commitment but tools and examples may need to be provided to facilitate improvement.
- Compliance with the packaging commitment fell from 81% to 63%. Despite this decline all Signatories could demonstrate positive action on diverting packaging waste from landfill. However many Signatories were assessed as either partially compliant (8) or non-compliant (3) on account of the fact that they were either unsure if overall 70% or more was diverted or did not have processes and/or systems to measure and substantiate waste volumes. In 2019 greater clarity will be provided in the Commitment and Verification Guide which will alleviate the uncertainty around the required standard. This should address this performance decline.

RecoPVC

The purpose of this commitment is to encourage the take-up of recoPVC in order to support PVC recycling markets. Signatories are encouraged to use recoPVC in the PVC products they supply to the Australian market unless Australian Standards or regulations prohibit the use of recycled material, or it is not technically feasible to integrate recoPVC into their products. The objective is to facilitate growth in sustainable PVC recycling practices in Australia and to develop a market pull for recoPVC by growing end user demand.

Where Australian Standards, codes or regulations restrict the use of recycled material in products for reasons of safety and fitness for purpose, Signatories are encouraged to offer contractual agreements to customers to take back products at the end of use for third party reprocessing, or to have contractual agreements with third party recycling/ waste transport service providers in at least two capital cities to facilitate recovery and reprocessing of their product at end of use.

RESOURCE EFFICIENCY % COMPLIANCE

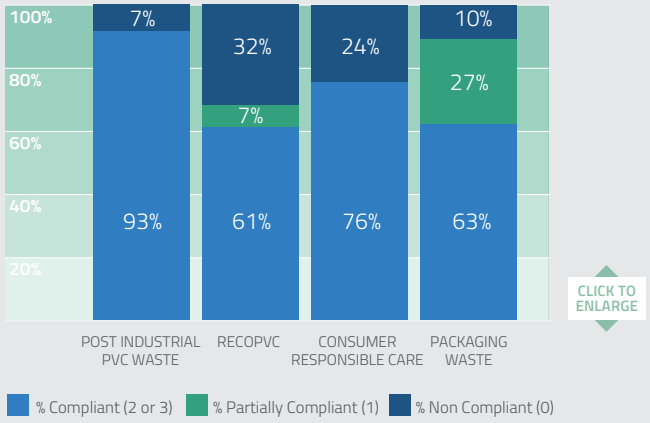
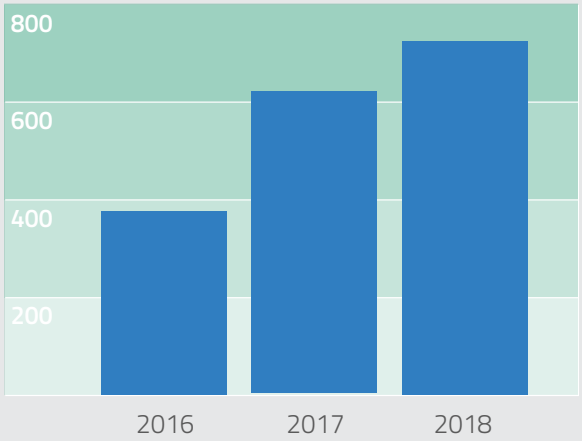


Figure 12: **Resource Efficiency Compliance achieved by commitment 2018**

LOCAL PVC RECYCLING (IN 000 KGS)



Signatories are also encouraged to apply the concept of design for recyclability in new product design.

The recoPVC commitment is relevant to more than half (28) of the Signatories. In 2018, 719,336 kilograms of recoPVC were recycled by local Signatories in Australia, up from 633,392 kilograms in 2017 and 365,609 kilograms in 2016. Overall this represents a 14% increase on 2017 levels. When including the volume of recycled content contained in imported products the total of recoPVC consumed was 2,500 tonnes – up from 1,795, tonnes in 2017 which represent a 39% improvement. This suggests a significant commitment from the industry to pursue circular economy objectives. The flooring sector in particular has proven to be a leader in consuming recoPVC in new product applications.

As alluded to previously we believe there is significant scope for further improvement in the area as at present 39% of Signatories have yet to commence taking action to include PVC recyclate in new product applications for the Australian market. In 2019, the Council will work closely with the industry to development appropriate improvement targets for the inclusion of recycled content in products and materials.

Packaging Waste Management

An additional voluntary commitment within the Program aims at diverting packaging waste generated in Signatory operations from landfill. Signatories can opt to sign up to this commitment and a growing number of them have done so since it was introduced in 2015. Compliance with the commitment requires the company to divert at least 70 percent of their incoming packaging materials from landfill.

In 2018, 63% of reporting Signatories were compliant, with fifteen of them reporting 'beyond compliant' practices which means they are diverting 70 percent of their incoming packaging waste and have procedures and processes in place to record, measure and manage waste streams on site. These Signatories are also undertaking one or more of the following actions to facilitate recovery and recycling of packaging:

- Design change to packaging to improve recyclability
- Labelling of packaging materials e.g. with polymer codes
- Offering a packaging take back program.

In 2019, this commitment will be mandatory to all Signatories.

Vinyl Industry Recycling Strategy

In 2018 the Council in consultation with its Members resolved to establish a PVC Circular Economy Taskforce to guide the implementation of the industry's strategy. Importantly, the Vinyl Council is active in addressing both the recovery of end-of-life vinyl and the end-market for the recyclate – aiming for a more circular economy within the vinyl industry.

The purpose of establishing the Taskforce is to support the Council's implementation of the industry Recycling Strategy and advise on ways to facilitate growth in sustainable PVC recycling practices in Australia. The strategic objectives of the strategy are to facilitate growth in sustainable PVC recycling practices in Australia. This will be achieved by:

- Measuring PVC recycling more accurately
- Developing the market pull for recoPVC by growing end user demand
- Facilitating the work of those keen to recycle and establishing systemic change, particularly with members and associates
- Increasing the number of reprocessors while improving the viability of PVC recycling in Australia
- Encouraging Design for Recycling and promoting recyclate quality.

Members of the Taskforce include representatives from Armstrong Flooring, Baxter Healthcare, APN Compounding, Welvic Australia, The Andrews Group, Iplex Pipelines, Cryo Grind and Sustainability Victoria. The Taskforce met three times in 2018.

PVC RECYCLING PROJECTS

In 2009 the Council launched a PVC recycling program for the health care sector. The Program continues to gain strong interest and it now operates nationally in all States except the Northern Territory. Over 170 hospitals have joined the program and collectively between ten to fifteen tonnes of PVC waste is collected for recycling per month.

In 2018, the Council secured a $20,000 grant to part fund an investigation into the feasibility of recycling vinyl coated fabrics into roof tiles. The initiative, dubbed as The VersrTile project, enabled an expert multidisciplinary team led by the Vinyl Council to design and test reprocessing techniques and form prototype roof tiles made from waste billboard skins. The project outcomes included testing the manufactured sample tiles, which found the tiles could resist weathering as required under applicable standards; however, further development is required on the tile prototypes to meet mechanical strength tests required for roof tiles. A preliminary business case has been developed to understand the financial and production factors that will be required to manufacture these roof tiles economically and to assess their commercially feasibility. The significance of this project is that it identifies a potential reuse of a composite material into a durable, high volume product without the need to separate the polyester fibre from the vinyl.

5

PVC STEWARDSHIP

transparency and engagement

Target 12.2
Target 12.3
Target 16.6

Transparency and engagement are key elements of the Program in terms of Signatories seeking to better understand supply chains and industry being willing to share information and disclose performance against specific metrics. Signatories agree to report annually, implement recommendations from the periodic evaluation program, monitor national and international developments and share information with other Signatories and relevant government stakeholders.

Photo: Chemson

Key 2018 Progress

- 45 out of 49 Signatories reported in accordance with the Program guidelines in 2018. This represents a reporting rate of 92% (which is one-percentage point down on 2017 (93%).

SUPPORTING IMPROVEMENT IN 2019:

- The Council will formally write to all four Signatories who failed to report in 2018 re-iterating the program requirements to support and offering assistance if requested. Signatories who, in the assessment of the Technical Steering Group have not met the reporting requirements and are not demonstrating committed effort to meet the Program Commitments, may be removed from the list of Signatories.

Annual Progress Report

The 2017 annual report was published in July 2018 following third party verification of the report and ten Signatory company audits.

2018 REPORT VERIFICATION

A limited assurance and verification statement has been prepared by Ernst & Young (EY) related to this report of 2018. The purpose of the verification process is to provide an independent opinion on the accuracy of the data and statements made in the report. EY conducted nine site visits and one telephone interview and verified the information submitted by these Signatories and contained in this report.

Each year the Signatories are randomly selected for third party audit each year to ensure that the statements/survey returns provided are accurate. The ten Signatories selected in 2018 were The Andrews Group, Cryo Grind, Deceuninck Australia, Formosa Plastics Corporation, Integrated Packaging, Iplex Pipelines, RBM Plastic Extrusions, Rehau, Specialty Polymers & Chemicals and Tarkett Australia.

A copy of Ernst & Young's Verification Audit Statement is shown on page 25.

Research Monitoring

The Vinyl Council monitors national and international developments in scientific research relevant to the potential health and environmental impacts of the PVC product life cycle, and keeps members, Program Signatories and stakeholders informed through Technical Steering Group meetings, member meetings and events, conferences and seminars, regular emailed news briefings, operations reports, website etc. The Vinyl Council is a member of the Global Vinyl Council and the Asia Pacific Vinyl Network, both of which are forums for sharing information on the health and safety of PVC products and industry initiatives to advance the sustainability of the industry.

Technical Steering Group

Name	Organisation
Peter Byron	Armstrong Flooring
Mike Glover	Australian Resilient Flooring Association
Nigel Jones	Australian Vinyls
Bradley Keam	Baxter
Ian Rayner	Breathe Fresh
Dieter Klamann	Chemson Pacific
Michael Witte	CMS Electracom
Brad Scharenguivel	Deceuninck
Bronwyn Campbell	Gerflor
Alan Whittle	Iplex
John Candela	Specialty Polymers & Chemicals
Ian Lilja (Chair)	Sun Ace Australia
Nick Hayhurst	TCL Hoffman (representing Baerlocher)
George Macovaz	Vinidex
Laveen Dhillon	Vinyl Council of Australia
Sophi McMillan	Vinyl Council of Australia
Matthew Hoyne	Welvic Australia
Paul Evely	Welvic Australia

Changes to Signatories

New signatories who joined the program in 2018 were aluplast, Premier Extrusion, Dunlop Flooring, Forbo, Teknor Apex and eXsource. Of these, three responded to the Signatory survey. Signature Floorcoverings left the program in 2018.

Stakeholder Engagement

The Vinyl Council seeks to actively engage with a wide range of stakeholders in order to both promote the contribution of the industry as well as making sure our members remain informed and up to date on developments that impact their sector. In 2018 we invited a wide range of experts to address the Council. These presentations and forums covered a diverse range of topics and included:

- Presentations and case studies covering energy audits and case studies which aimed to help our members on their journey towards improved energy efficiency and greenhouse gas reduction;
- Legislative developments with regards to modern slavery in Australia, how they will impact industry and what action is required to be taken;
- Briefing on changes to the Green Star Building Rates Tool by the GBCA; and
- Update on waste and resource recovery: Markets and market development by Sustainability Victoria.

EY, our quality assurance auditor, provided an annual update on the process, outcomes, findings and recommendations of its independent audit program.

The Council delivered papers including to the PVC AUS 2018: Shaping the Future Conference and the International Stewardship Forum. We were also an active participant and supporter of the Product Stewardship Cluster. The Product Stewardship Cluster was established in 2017 with representation from existing and emerging product stewardship schemes, organisations, government and other industry stakeholders. The platform aims to facilitate projects that can improve sustainability, foster resource recovery innovation, provide education and collaborative leadership and act as a mechanism for networking.

Photos: PVC AUS 2018

Verification Audit Statement

Photo: Iplex

Photo: Iplex

EY
Building a better working world

Independent Limited Assurance Statement to the Management and Directors of the Vinyl Council of Australia

Our Conclusion:

Ernst & Young ('EY', 'we') was engaged by the Vinyl Council of Australia ("VCA") to undertake 'limited assurance' as defined by Australian Auditing Standards, hereafter referred to as a 'review', over the extraction of 51 selected statements and inclusion in the 2018 PVC Stewardship Program Progress Report ("PSP Report") for the year ended 31 December 2018. Based on our review, nothing came to our attention that caused us to believe that the extraction of 51 statements and inclusion in the 2018 PSP Report has not been prepared and presented fairly, in all material respects, in accordance with the criteria defined below.

What our review covered

We reviewed the 51 selected statements presenting data and activities which indicate the performance of the VCA signatories against the Commitments– as set out in Appendix A.

Criteria applied by VCA

In preparing the selected statements, VCA applied the Australian PVC industry's PVC Stewardship Program in the form of a 'Commitment and Verification Guide'.

Key responsibilities

EY's responsibility and independence

Our responsibility was to express a conclusion on the extraction of data from the VCA signatories' self-assessment survey responses presented in the PSP Report based on our review.

We were also responsible for maintaining our independence and confirm that we have met the requirements of the *APES 110 Code of Ethics for Professional Accountants* have the required competencies and experience to conduct this assurance engagement. EY has not had any part in collecting and calculating data, or in preparing any part of the Report.

VCA's responsibility

VCA's management ("management") was responsible for selecting the Criteria, and preparing and fairly presenting the Subject Matter in accordance with that Criteria. No conclusion is expressed as to whether the selected methods used are appropriate for the purpose described in this report. Further, VCA's responsibility includes establishing and maintaining internal controls, adequate records and making estimates that are reasonable in the circumstances.

Our approach to conducting the review

We conducted this review in accordance with the Australian Auditing and Assurance Standards Board *Australian Standard on Assurance Engagements Other Than Audits or Reviews of Historical Financial Information* ('ASAE 3000')] and the terms of reference for this engagement as agreed with VCA on 23 November 2017.

Summary of review procedures performed

A review consists of making enquiries, primarily of persons responsible for preparing the data presented in the PSP Report and related information, and applying analytical and other review procedures.

Our procedures included the following:

- Confirmed the factual accuracy of the information presented in the PSP Report by examining the data and information contributing to the 51 statements (covering all commitments presented in the Criteria) and ensuring that it had been extracted correctly from the VCA's internal systems
- Read the PSP Report for any significant anomalies, particularly in relation to VCA's activities and trends in data
- Obtained an understanding of the VCA's key systems and processes used for managing, analysing and reporting Signatory performance information
- Conducted 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 but not included in the scope of our extraction assurance, we conducted ten site visits and checked information submitted by the following ten Signatories to supporting sample documentation:

- The Andrews Group
- Cryo Grind (Aust) P/L
- Deceuninck Australia
- Formosa Plastics Corporation
- Integrated Packaging
- Iplex Pipelines Aust P/L
- RBM Plastic Extrusions
- Rehau P/L
- Specialty Polymers and Chemicals
- Tarkett Australia P/L.

We believe that the evidence obtained is sufficient and appropriate to provide a basis for our limited assurance conclusions.

Limited Assurance

Procedures performed in a limited assurance engagement vary in nature and timing from, and are less in extent than for a reasonable assurance engagement. Consequently the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had a reasonable assurance engagement been performed. Our procedures were designed to obtain a limited level of assurance on which to base our conclusion and do not provide all the evidence that would be required to provide a reasonable level of assurance.

While we considered the effectiveness of management's internal controls when determining the nature and extent of our procedures, our assurance engagement was not designed to provide assurance on internal controls. Our procedures did not include testing controls or performing procedures relating to checking aggregation or calculation of data within IT systems.

Limitations

The scope of work covered the Subject Matter referred to above as included in the PSP Report. EY did not provide assurance over the data. Specifically excluded from our scope was source data presented to the VCA from Signatories, other than for those Signatories listed above, which were assessed by undertaking site visits and documentation reviews, on a limited basis.

Use of our Assurance Statement

We disclaim any assumption of responsibility for any reliance on this assurance report to any persons other than management and the Directors of VCA, or for any purpose other than that for which it was prepared.
Our review 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.

Ernst & Young

Ernst & Young
8 Exhibition Street, Melbourne, Victoria, Australia
20 August 2019

Photo: Tarkett

Photo: Armstrong Flooring

2018 Signatory Benchmarking

Gold: 100 percent	
Australian Plastic Profiles	www.app.net.au/
Baerlocher (M) SND BHD	www.baerlocher.com/
Baxter Healthcare	www.baxterhealthcare.com.au/
Brenntag Australia	www.brenntag.com/
Chemiplas Australia	www.chemiplas.com.au
Chemson Pacific	www.chemson.com/
Formosa Plastics Corporation	www.fph.com.tw
Gerflor Australasia	www.gerflor.com.au/
Pipemakers	www.pipemakers.com.au/
Plustec	www.plustec.com.au/
Polymer Direct	www.polymerdirect.com.au
Primaplas	www.primaplas.com.au/
PT Asahimas Chemical	www.asc.co.id/
RBM Plastics Extrusions	www.rbmplastics.com.au
Serge Ferrari	www.sergeferrari.com
Speciality Polymer & Chemicals	www.spcaust.com.au
Sun Ace Australia	www.sunace.com.au/
Tarkett Australia	www.tarkett.com.au/
Tech Plas Extrusions	www.techplas.com.au/
Vinidex	www.vinidex.com.au/

Silver Commendation	
AFS Systems	www.afswall.com.au
The Andrews Group	www.theandrewsgroup.com.au
Welvic Australia	www.welvic.com/

Silver: 80–99 percent	
APN Compounding	www.apncompounding.com/
Armstrong Flooring	www.armstrong-aust.com.au/
Australian Vinyls Corporation Ltd	www.av.com.au/
Breathe Fresh (Australia)	www.berryplastics.com.au
CMS Electracom	www.cmselectra.com/anz/
Cryo Grind (Aust)	www.cryogrind.com.au
eXsource [1]	www.qenos.com
Integrated Packaging	www.ipstretch.com/
Iplex Pipelines Aust	www.iplex.com.au/
Karndean International	www.karndean.com.au/
Plastral	www.plastral.com.au/
Polyflor Australia	www.polyflor.com.au
Stormtech	www.stormtech.com.au/

Bronze: 50–79 percent	
Altro APAC	www.asf.com.au/
Aluplast [1]	www.aluplast.net/in-eng
Kenbrock Flooring	www.kenbrock.com.au/
Premier Extrusion [1]	www.premierextrusion.com.au
Profine International Profile Group	www.profine-group.com/en/
Rehau	www.rehau.com/au-en/
Rojo Pacific	www.rojopacific.com.au/
Veka Plastics (Singapore)	www.vekainc.com/

Non Compliance: < 50 percent	
Deceuninck Australia	www.deceuninck.com.au/

Failed to Report	
Dunlop Flooring	www.dunlopflooring.com.au
Forbo	www.forbo.com/flooring/en-au
Sekisui Rib Loc Australia	www.sekisuichemical.com
Teknor Apex	www.teknorapex.com

Resigned	
Signature Floor Coverings	www.signaturefloors.com.au/

[1] First year reporting as a Signatory to the Program.

AWARD	AWARD ASSESSMENT	DATA SURVEY ASSESSMENT SCORE	DATA SURVEY ASSESSMENT SCORE PLUS BEYOND COMPLIANCE POINTS
Excellence in PVC Stewardship (Gold)	Signatories who scored full compliance in all commitment areas.	100%	100%
Silver Commendation	Signatories who scored silver status but were awarded bonus points for demonstrating beyond compliance in one or more commitment area and received no more than one partial compliance.	90–99%	99%
Silver Award	One or more non-compliance.		80–98%
Bronze Award			50–79%

Glossary

AFRA	Australian Flooring Resilience Association
BBP	Benzyl butyl phthalate
BEP PVC	Best Environmental Practice PVC
Converter	Manufacturer of PVC resins/compounds into a finished products
DBP	Dibutyl phthalate
DEHP	Diethylhexyl phthalate
DIBP	Diisobutyl phthalate
DINP	Diisononyl phthalate
DOP	Dioctyl phthalate
ECHA	European Chemical Agency
EMS	Environmental Management System
EU	European Union
EY	Ernst and Young
GBCA	Green Building Council of Australia
GHG Emissions	Greenhouse Gas emissions
HMW	High molecular weight – refers to phthalate plasticisers with more than 6 carbon atoms in their backbones such as DINP, DIDP
IFG	Importers of Finished Goods
LMW	Low molecular weight – refers to phthalate plasticisers with 3 to 6 carbon atoms in their backbones such as DBP, DEHP, DIBP
LCI / LCA	Life Cycle Inventory / Life Cycle Assessment
Phthalates	A group of chemicals used as plasticisers
Plasticisers	Chemical substances used to soften PVC and provide flexibility to end products
NICNAS	National Industrial Chemicals Notification and Assessment Scheme, the Australian Government regulator of industrial chemicals
The Program	The PVC Stewardship Program signed by members of the Australian PVC industry
PVC (Vinyl)	Polyvinyl chloride
SDG	Sustainable Development Goals
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 PVC thermall stability during processing and the weathering 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
SVHC	Substances of Very High Concern
TiO2	Titanium dioxide
TSG	Technical Steering Group
VCA	Vinyl Council of Australia
VCM	Vinyl Chloride Monomer
VinylPlus	The VinylPlus Program represents the voluntary commitment of the European PVC industry

Benefits of PVC Products

The Council has been very proactive in working with the sector to undertake and disseminate life-cycle assessment information that provide a clear evidence base of the sustainability benefits associated with PVC products. More details can be found on our website at https://vinyl.org.au/sustainability/life-cycle-assessment. A summary of the environmental credentials of PVC include:

Photo: Kommerling

Resource Management

Over 50 per cent of PVC's feedstock is derived from salt, an abundantly available resource. The remaining 43% of feedstock - ethylene - comes from petroleum, which means that PVC consumes proportionately less non-renewable fossil fuels than traditional polymers. Salt is the source of chlorine in PVC.

Relatively Low Energy Content

Because more than half its feedstock is derived from salt, PVC is considered to be one of the least energy intensive of all thermoplastics and it contributes to the relatively low embodied energy in PVC products compared to many other products.

Minimal Pollution

The Program drives Signatories to minimise pollution by ensuring that the companies embed extended responsibility principles into their management systems; apply life cycle thinking with respect to new products introduced to the local market; phase out the use of mercury; reduce VCM emissions from manufacturing to within set limits; and ensure that VCM retained in manufactured S-PVC resin used is not above required thresholds. The success of these initiatives supports downstream product manufacturers to meet the Best Environmental Practice criteria, which is independently audited, for manufacturing PVC set by the Green Building Council of Australia's Green Star tool.

Material Efficiency

Advances in vinyl formulations have made today's vinyl products durable, low-maintenance and lightweight, all which translate into reduced use of other materials. For example, high pressure pipes made from oriented PVC (PVC-O) pipes have up to 50 per cent thinner walls while maintaining the same pressure compared to traditional PVC pipes or polyethylene. Also, through factory and post-industrial recycling, there is little resource wastage during production.

Recycling

PVC is recyclable and recycling programs for PVC occur in Australia, diverting waste from landfill. The increased use of recyclate contributes further to lowering the carbon footprint and supporting circular economy solutions. More details can be found on the Vinyl Council of Australia website at https://vinyl.org.au/sustainability/recycling.

Thermal performance

Vinyl has low thermal conductivity so it can contribute significantly to improving the energy efficiency performance of buildings and reducing greenhouse gas emissions as a result of heating and cooling. PVC windows for example keep heat in during winter and out during summer. This reduces heating and air conditioning usage for lower energy bills.

Low maintenance

Vinyl products such as flooring, wall coverings and windows require very little maintenance over their lifespan – both an environmental and economical benefit. PVC windows and cladding, for example, do not require painting or varnishing. Abrasion and impact are not likely to damage PVC, reducing repair. The strength, durability and low maintenance of PVC means products need less frequent replacement, less materials for maintenance and may be made using less material than alternatives.

Competitive life cycle cost

Ease of installation of many PVC products compared to alternatives, greater durability and lower maintenance requirements also make PVC competitive on a life cycle cost.

Vinyl Council Australia

ABN 85 083 012 533
1.02 Junction Business Centre, 22 St Kilda Rd, St Kilda VIC, 3182
+61 3 9510 1711, www.vinyl.org.au, info@vinyl.org.au

Figure 8:

Best Practice Manufacturing Compliance achieved by commitment in 2018

< Click anywhere to return to Best Practice Manufacturing

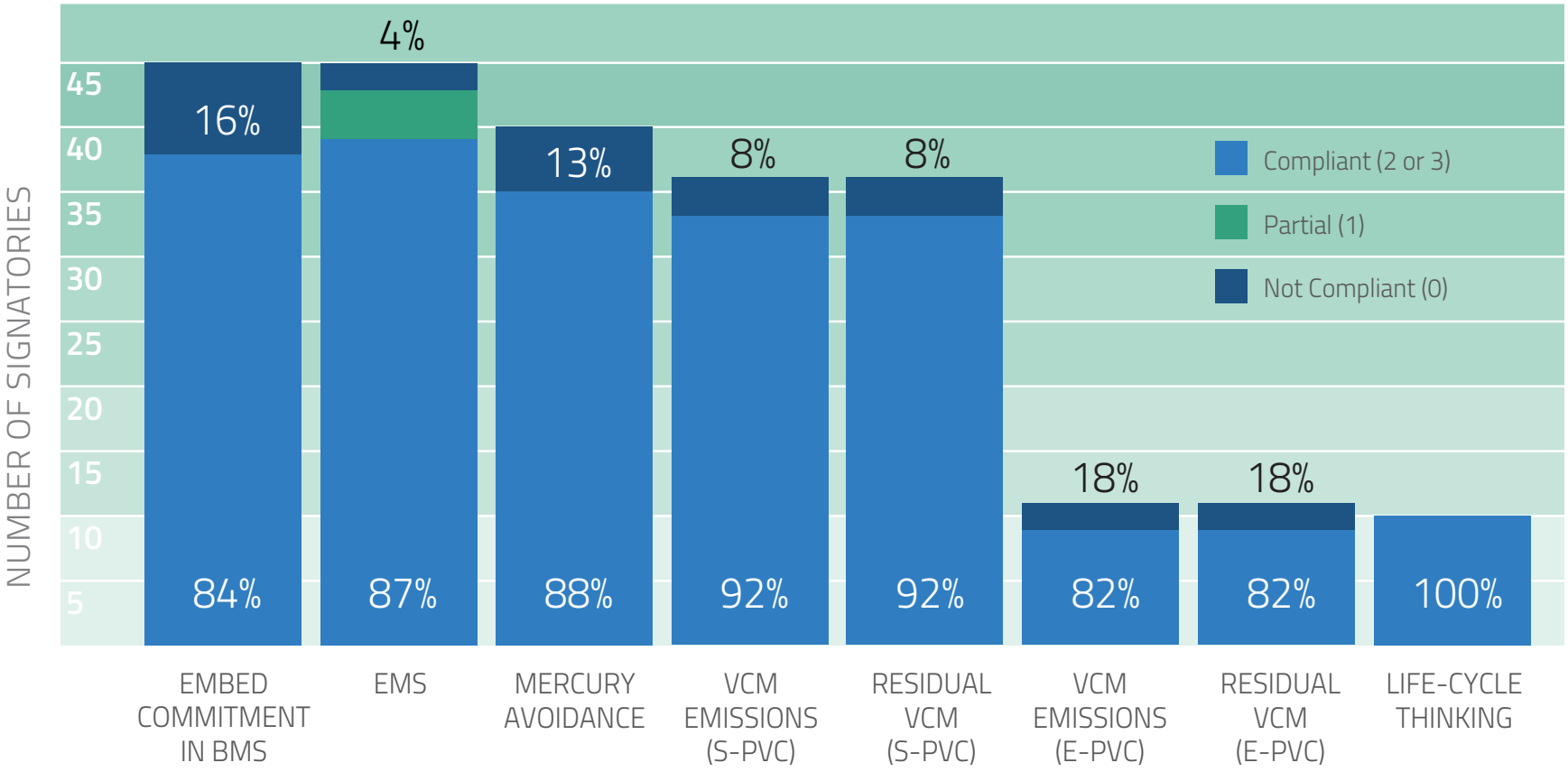


Figure 9:

Safe and Sustainable Additives Compliance achieved by commitment in 2018

< Click anywhere to return to Safe and Sustainable Use of Additives

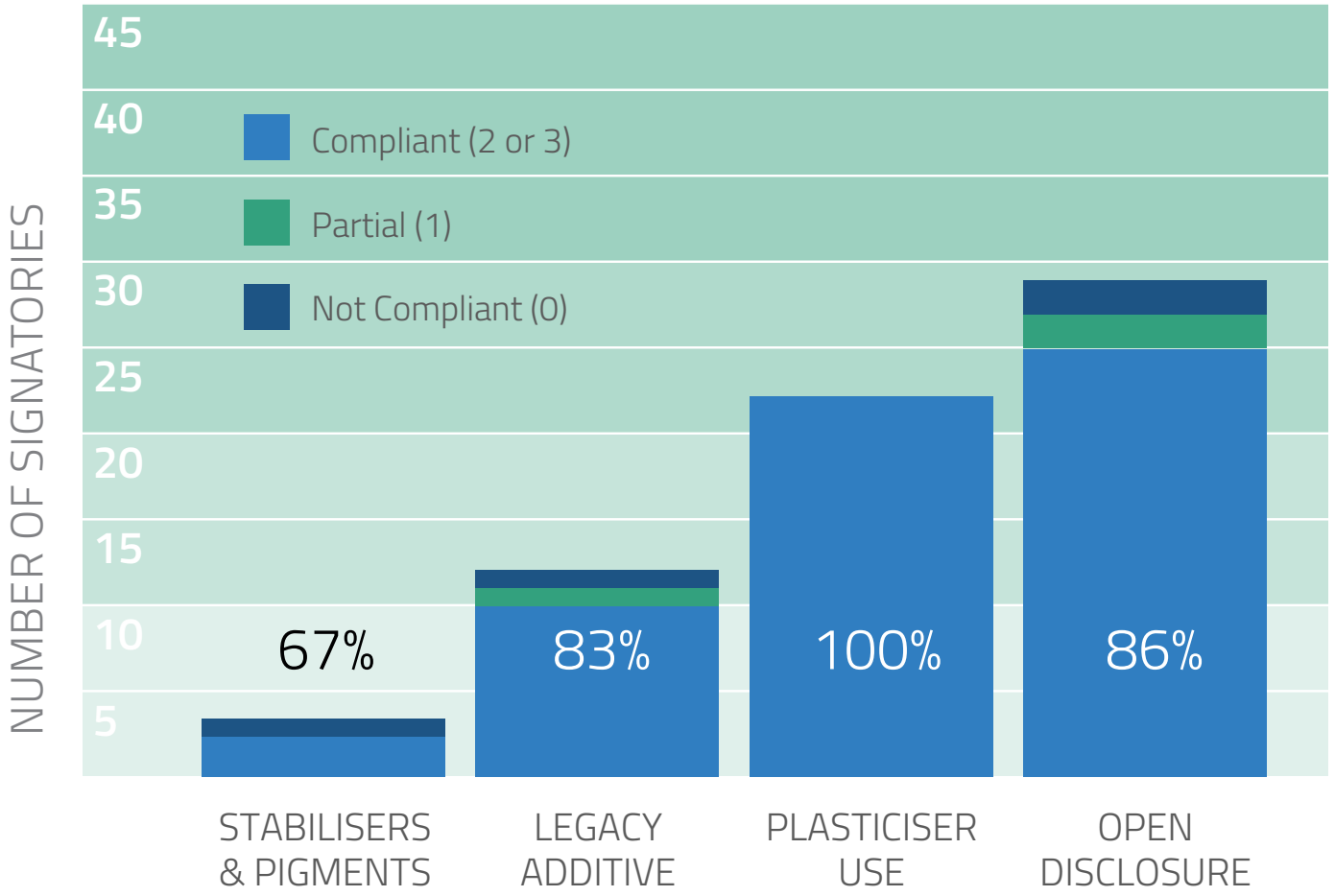


Figure 10:

Lead stabiliser used by the Program Signatories 2002–2018 (tonnes lead metal content)

< Click anywhere to return to Safe and Sustainable Use of Additives

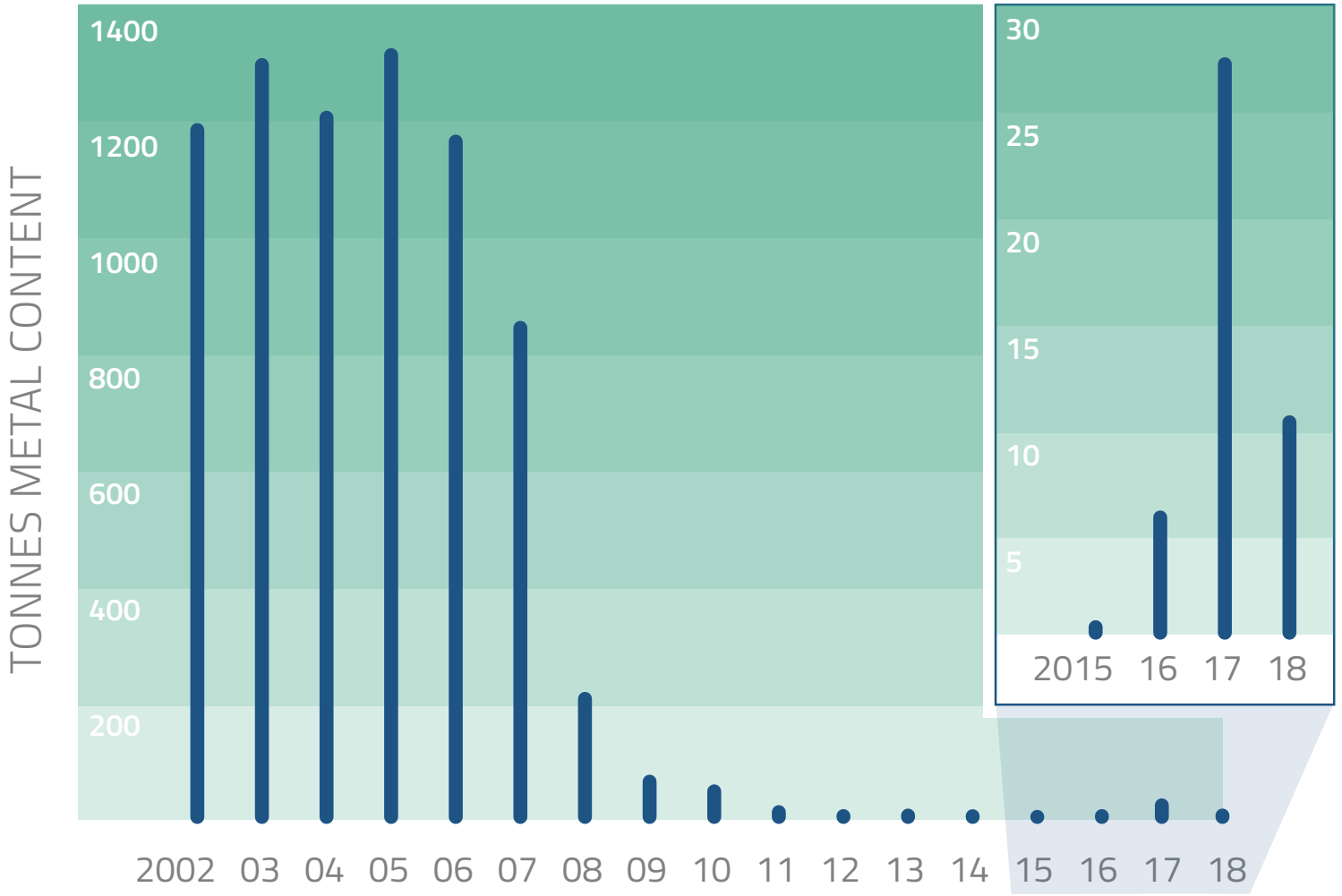


Figure 12:

Resource Efficiency Compliance achieved by commitment 2018

< Click anywhere to return to Resource Efficiency