

# On Vinyl

March 2010



## Green Star PVC credit to encourage best practice PVC use

Recognising the progress made in recent years by the Australian PVC industry, the Green Building Council of Australia (GBCA) is changing its approach to the specification of PVC in Green Star projects.

Following a nearly two year review of the existing credit and PVC products, GBCA proposed in January 2010 to replace the PVC Minimisation Credit in the Materials category of its Green Star building rating tool with a new approach to recognise and encourage best practice in the Australian PVC industry.

The proposed new Credit will award points to projects where the major common uses of PVC in buildings achieve independent verification of best practice performance in the life cycle of the product. GBCA has outlined the required performance criteria in its "Best Practice Guidelines", which are to be met.

The common applications to which this applies are pipe, conduit and associated fittings; wire and cable insulation; and flooring products that contain PVC such as resilient vinyl flooring or PVC-backed carpet.

Under the new Credit, other categories of PVC products, such as wall systems, windows and siding, could be used without discrimination in future Green Star projects. These do not need to be independently verified but will not earn points.

Throughout the process, GBCA liaised extensively with stakeholders, including the Vinyl Council and its members. The new Credit's approach has been widely supported by members of the Australian and overseas industry.

Welcoming the outcome of the GBCA review, Chief Executive of the Vinyl Council, Sophi MacMillan, said "There is now an opportunity for our industry to demonstrate it can continue its momentum for more sustainable product outcomes to meet the future needs of the building and construction industry."

The GBCA review found that the PVC industry in Australia had achieved significant improvement in the past five years, in large through its Product Stewardship Program. GBCA's Chief Executive, Romilly Madew, said "Rewarding best practice PVC products within the Green Star rating system will stimulate demand for best

practice, responsibly-produced PVC products in Australia."

A four week stakeholder comment period has closed and following final adjustments to the Credit, the new PVC Credit will be taken up in Green Star tools from potentially as early as April 2010, according to reports from GBCA.

### Recognition requires verification

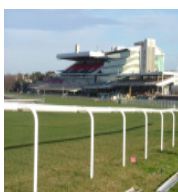
It is anticipated that the verification documentation will be finalised in the second half of 2010 and third party verified product may be available in the market from 2011 onwards. "Choosing PVC products that meet the best practice criteria in the proposed new Credit will improve environmental performance in the building sector and encourage a more sustainable PVC industry," Ms MacMillan said.

If you are interested in attending an educational briefing on how the new Credit is to apply and what it means for PVC product specification, or you would like a briefing conducted at your organisation, please contact us at [info@vinyl.org.au](mailto:info@vinyl.org.au)

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**P1:** Green Star PVC credit to encourage best practice PVC use



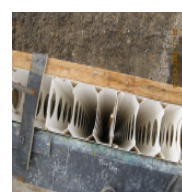
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# PVC PRODUCT STEWARDSHIP

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

Annual reports are published under the Program, providing information on progress in meeting the commitments. They assess the status of issues and record new and revised Program commitments where appropriate.

## Program Developments

Recent Program developments include:

- The phase out of the use of lead stabilisers by all the major PVC pipe Signatories by the target date of end 2008. Relevant Australian standards for pipes are being revised to reflect this.
- A reduction in the standard for vinyl chloride emissions from PVC resin manufacturing in Australia, from 50g per tonne of PVC to 30g per tonne.
- The introduction of a new commitment to avoid mercury in upstream manufacturing of resin and its precursors.
- The commencement of a trial to recover and recycle certain PVC waste products from hospitals, diverting the material from landfill.

Data on Program progress during 2009 is currently being collected for the next annual report. All reports are independently verified together with the performance of up to eight Signatories each year.

Briefings on the Program and Signatory progress are given annually. If you are interested in receiving an invitation to the 2010 briefings, please email us at [info@pvcproductstewardship.org.au](mailto:info@pvcproductstewardship.org.au)

## Innovative PVC at Green Cities 2010

The Vinyl Council represented the Australian PVC industry at Green Cities 2010, held recently in Melbourne. Green Cities is the annual conference and exposition of the Green Building Council and Property Council of Australia.

The Council found the Expo to be a useful opportunity to engage with an important group of stakeholders and to discuss the proposed changes to the PVC Materials Credit under Green Star.

The VCA received a positive response from the property sector and believes that the majority of delegates who visited the PVC stand supported the proposed changes to the Credit. The interest in PVC products and industry developments was encouraging. The stand formed part of the Expo's

Innovation Technology theme and demonstrated how PVC can have a positive impact on a building's operational energy consumption and/or embodied energy. The stand displayed an innovative PVC form-work wall system with a uPVC window profile, vinyl flooring and pipe products.

PVC often outperforms competing or traditional materials on a life cycle basis and product development by Australian manufacturers is further improving material and energy efficiency. Because it uses less oil for its feedstock, PVC is considered to be one of the least energy intensive of all thermoplastics and PVC products are often found to have a lower embodied energy when compared to competing materials.

## PVC protects sports

A PVC tensile fabric membrane has been used to replace the iconic Mound-Stand canopy at Lords Cricket Ground by Marylebone Cricket Club (MCC) in the UK. The original structure had come to the end of its design life and vinyl was chosen to replace it with a brand new canopy to provide 15 years' protection.

UK sports fans can see the creative use of PVC membranes in other tensile architecture structures such as the retractable PVC roof installed at Wimbledon last year.

Here in Australia, a dozen bays of AAMI Stadium in Adelaide are to be covered in vinyl membranes emblazoned with sponsors' logos, reportedly a first for a major Australian sports ground. The fireproof vinyl covers are a means of helping raise much-needed advertising and sponsorship revenue for the Port Adelaide club. According to an article in The Australian in February, the chief executive of the club, Mark Haysman said, "The seat bay covers will really change the whole look and feel at the stadium and create a very unique atmosphere."



The Royal Melbourne Showgrounds 25m high pavilion used 10,240m<sup>2</sup> of PVC coated polyester in 2006 when it was built, and, at the time, was the largest structure of its type in Australia.

# Did you know?

## 5 facts about PVC and additives

# 1

Blending certain additives with PVC provides the characteristics required for the end product such as durability, scratch resistance and flexibility.

There are two major groups of additives: stabilisers and plasticisers. Stabilisers protect the material from the heat of processing. Plasticisers increase the flexibility, extensibility and workability of PVC. In addition, fillers, pigments and other additives may be required.

# 2

Stabilisers have traditionally been metal-based compounds. In the past these may have incorporated lead or cadmium but these have largely been phased out in Australia. Today, tin, calcium-zinc and organic based stabiliser compounds are used.

Plasticisers must have good compatibility, efficiency in bringing softness and some mobility within the PVC matrix. The most commonly used plasticisers are a group of compounds known as phthalate esters, but non-phthalate plasticisers such as epoxidised soy bean oil (ESBO), citrates, trimellitates and polymeric, are used in some applications.

Signatories to the PVC industry Product Stewardship Program have committed to disclose openly the additives included in their products, to phase out lead based stabilisers across all PVC applications by 2010, to use life cycle thinking in development of new products and to adhere to the industry's Policy on the use of Plasticisers.



# Saving energy across the life cycle

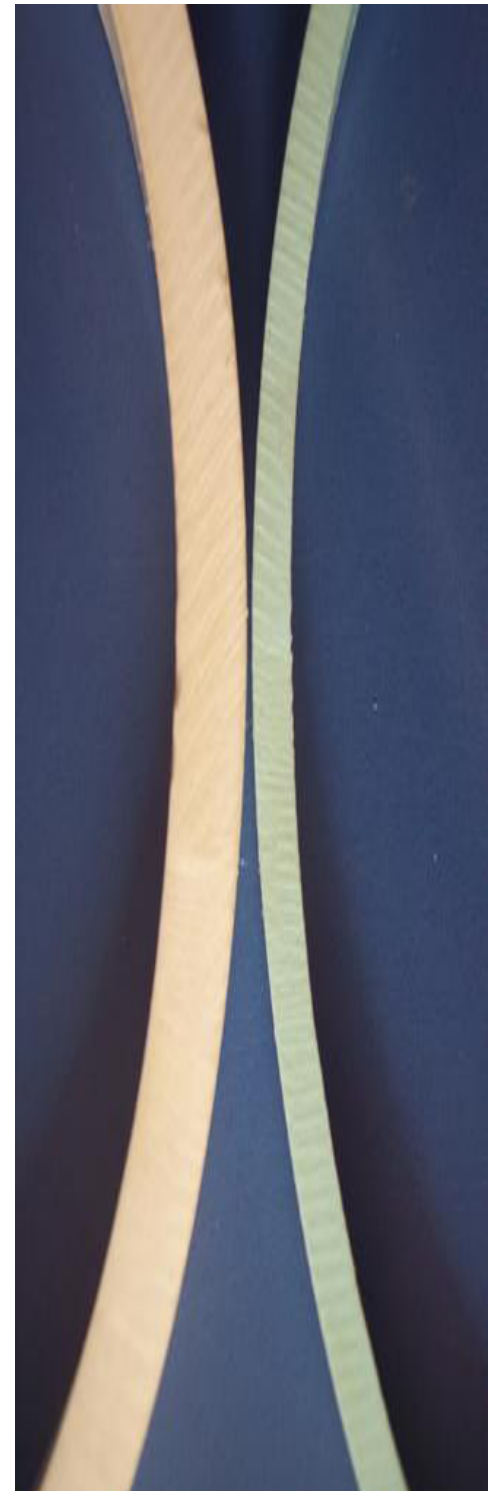
PVC building products have some significant energy and environmental benefits. Life cycle evaluations comparing PVC building products to similar products made of other materials have found PVC products perform favourably in terms of thermal energy efficiency, product durability and low embodied energy.

For example, a 2003 Japanese study showed refitting windows in residential homes across three different climatic regions with uPVC instead of the typical aluminium product could save from 800 kg to 1.6 tonnes of carbon emissions a year per house in terms of reduced heating and cooling. A 2005 life cycle assessment on windows by a Spanish University found a double-glazed PVC window accounted for less carbon emissions over a 50 year life (742kg), than a double-glazed timber window (886kg) and significantly less emissions than a double-glazed aluminium window (1935kg).

### Reducing embodied energy and carbon

An innovative Australian form-work system made from interlocking PVC panels is generating growing interest in the construction sector. Dincel Construction System has the ability to deliver significant embodied energy savings over the life time of a building compared to traditional steel-reinforced concrete wall systems. (Refer to image on page 1).

A peer reviewed case study shows that the embodied energy offered in a residential apartment building by the Dincel system is 42 per cent lower compared to a conventional building system at the time of construction and as much as 70 per cent lower when a 100 year building life cycle is taken. In other words, the use of Dincel walls save over 75 tonnes of greenhouse gas emissions compared to conventional wall construction systems. This would be the equivalent to taking 20 cars off the road for every apartment built.



A traditional PVC pipe (left) and PVC-O pipe (right)

### Innovative Futures

World leading technology from Australia to produce thinner walled, oriented PVC pipes (PVC-O) leads to savings in several aspects of the product's life cycle:

- product light-weighting reduces transport costs and energy
- improved hydraulic efficiency reduces energy needed to pump water through the water delivery system, and
- durability for over 100 years reduces resource and energy inputs for replacement product.

Future PVC products can make a decisive contribution to responsible and sustainable development in the built environment, particularly in the area of reducing life cycle energy use and carbon emissions.

## Draft Risk Assessment of DEHP released

In January 2010, Australia's National Industrial Chemicals Notification and Assessment Scheme (NICNAS) released its draft risk assessment of the phthalate, di-ethylhexyl phthalate (DEHP or DOP), for public comment.

Following the 2006 declaration of nine phthalates as Priority Existing Chemicals, this is the first of nine risk assessments to be published, all with a specific focus on sensitive end uses: toys, childcare articles and cosmetics.

DEHP has been a common plasticiser in a variety of PVC products for several decades; however, there is very little, or no, PVC toy manufacture in Australia and it is not thought to have been widely used by major producers of toys and childcare articles for some years.

The Vinyl Council coordinated with NICNAS to host a briefing for stakeholders in Melbourne on the draft Risk Assessment. A number of participants from the PVC sector as well as the Australian Competition and Consumer Commission (ACCC), the Australian Toy Association (ATA) and other stakeholders attended.

NICNAS outlined the methodology of the Assessment and its findings and recommendations, including:

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

The Assessment consequently makes a recommendation that the ACCC consider appropriate regulatory measures to limit exposure to DEHP in toys and childcare articles..

The ACCC responded to the draft assessment's recommendations by proposing a ban on products that contain more than 1% of DEHP with effect from 2 March 2010 for a period of 18 months. The largely precautionary ban relates to toys, childcare articles where significant mouth contact may occur and vessels and eating utensils for feeding infants.

Details about the stages of the PEC assessment and copies of the risk assessment are available at: [http://www.nicnas.gov.au/Publications/NICNAS\\_Handbook.asp](http://www.nicnas.gov.au/Publications/NICNAS_Handbook.asp) (see 'Section III - Existing Chemicals')

For more information on the use of phthalates in PVC products, visit the Vinyl Council at: [www.vinyl.org.au/Phthalateplasticisers](http://www.vinyl.org.au/Phthalateplasticisers)

## AWU - local manufacturing vital to green jobs

Paul Howes, National Secretary for the Australian Workers' Union, presented to Vinyl Council Members at its Annual General Meeting in late 2009.

He discussed the challenges facing local manufacturing and the formation of the Manufacturing Alliance. Also, factors such as climate change have emerged over the last few years as some of the most important issues facing both local manufacturing and the international community.

Speaking shortly before the United Nations Climate Change Conference in Copenhagen and the introduction of Australia's new Carbon Pollution Reduction Scheme Bill, he cited PVC products such as pipe as part of the climate change solution. He believes that carbon pricing will have a significant effect on local manufacturing saying "It's not fair to have basically a new tax on business that overseas companies don't face."

While Mr Howes acknowledged that several hurdles need to be overcome to continue to develop the production base in Australia, he views downstream manufacturing as playing a valuable role in the economy, with the sector employing over a million people nationwide.

Recognising the importance of the growth of "green" jobs, Mr Howes said they are not much different from "brown jobs": and what is important is what the products are to be used for.



Photo courtesy of AW Edwards installing Dincel Construction System at Norwest Private Hospital

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