

Environmental performance

Resource management

More than 50 percent of PVC's feedstock is derived from an abundantly available resource – salt. It is salt (sodium chloride) from which the chlorine in PVC is derived. The remaining 43 percent of PVC's feedstock – ethylene – comes from petroleum, which means that PVC consumes proportionally less non-renewable resources than other traditional polymers.

Low embodied energy

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 alternatives. PVC resin manufacturing in Australia has achieved significant energy and greenhouse gas emission efficiencies over the past ten years.

Material efficiency

Through factory and post-industrial recycling, there is generally little resource wastage during the production of PVC and its conversion to finished products. Product development and innovation by Australian manufacturers is further improving design efficiency, optimising material efficiency in products. Modified PVC (PVC-M), oriented (PVC-O) pipes and lower gauged film are such examples.

Thermal efficiency

Good thermal insulation properties of PVC window frames and cladding help to increase the energy efficiency of buildings. Double-glazed PVC windows rated under the government supported Windows Energy Rating Scheme (WERS) have consistently achieved high energy-efficient ratings.

Design for durability and long life

Over 90 percent of PVC applications are designed for medium or long-term use. PVC is resistant to weathering, chemical rotting, corrosion, shock and abrasion. Some applications such as underground pipe and wall formwork are expected to have service lives of more than 100 years. Exhumed PVC pipe that had been buried in Australian soils for 30 years has been tested and found still to be in excellent condition.

Studies have indicated that over 60 percent of window profiles and cable insulation applications will have working lives of more than 40 years.

Low maintenance and Life Cycle costs

Vinyl products such as flooring, wall coverings, fencing and windows require very little maintenance over their life spans – an environmental and economic benefit. PVC window frames and cladding, for example, do not require painting, reducing life cycle costs and potential emissions.

Health and safety

PVC is lightweight and easy to install in most of its applications. These factors offer occupational safety advantages over some traditional materials. PVC's light weight also means less energy is expended in transportation.

Minimal pollution

PVC is produced in Australia under EPA monitored manufacturing methods and well within international guidelines for PVC manufacturing. Emissions are low and the Australian manufacturer publicly provides information on its environmental performance through annual sustainability reports at www.av.com.au PVC manufacturing in Australia is not a source of dioxin emissions.

Recycling

Most PVC applications are recyclable. There are existing and emerging recycling programs for a range of PVC products in Australia. For example, PVC cable insulation, pipe, billboard material, floor off-cuts, thermoformed packaging scrap, post-consumer bottles and medical products.

PVC products available with recycled content

- commercial floor tiles
- stormwater pipe and fittings
- plumbing DWV pipe
- roadside guideposts
- hoses

At the end of a PVC product's life, if not recycled, the product can be safely incinerated or deposited in landfill.

The Vinyl Council of Australia is working to advance the sustainability of the vinyl, or PVC, industry in Australia. Its members are drawn across the supply chain of the vinyl industry. www.vinyl.org.au phone **03 9368 4857** email info@vinyl.org.au

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PVC



Delivering solutions



Vinyl Council Australia

PVC (polyvinyl chloride), or vinyl, is specified for use in a wide range of products and makes a major contribution to the health, education, building and infrastructure, packaging and food safety sectors.

PVC has the versatility to help it meet modern design needs. Because of the material's technical properties and environmental attributes, PVC often outperforms competing or traditional materials and adds significant value to quality, safety, sustainability and cost-effectiveness in delivering the required service, be it transporting clean drinking water; conserving energy in a home, or protecting fresh food.

Technical properties

Strong and lightweight

PVC is a light weight material which has abrasion resistance, strength and durability. PVC light-weight structures, such as roofing membranes, are especially suited to building in Australia's tropical zone.

Easy to install

PVC can be cut, shaped, welded and joined easily in a variety of styles. Its light weight reduces manual handling difficulties.

Fire resistant

Unplasticised PVC is inherently difficult to ignite and stops burning once the source of heat is removed. Compared to its common plastic alternatives, uPVC performs well in terms of lower combustibility, flammability, flame propagation and heat release.

Although plasticisers in flexible PVC reduce its natural fire resistance, this is countered by the addition of flame retardants. Newly developed PVC formulations (FR-PVC) have significant benefits in terms of lower acid emissions, smoke generation and enhanced fire resistance.

Cost-effective

PVC has been a popular material for decades due to its physical and technical properties as well as cost-performance advantages. According to a 2008 BIS Shrapnel assessment, using common PVC products rather than alternatives reduces the cost of building a typical Australian home by 2-3 percent. Using additional, less common PVC products in the house reduces the building cost by up to eight percent.

Safe

PVC is non-toxic. It is a safe material with more than half a century of proven, effective use. It is one of the world's most researched and thoroughly tested materials and meets international standards for health and safety for both the products and applications for which it is used.

Non-conductive

PVC does not conduct electricity and is therefore an excellent material for electrical applications such as insulation sheathing for cables. It also does not conduct heat or cold, providing thermal efficiency in applications such as window frames and helping to save energy in buildings.

Versatile

The physical properties of PVC allow designers a high degree of freedom when designing new products and developing solutions. It can be used indoors and out, flexible or rigid, for food contact and medical needs. Its versatility is reflected in the wide range of applications it is found in, such as automotive, packaging, interior design, clothing and fashion, billboards, marine, safety equipment and toys, as well as a range of building and infrastructure applications: pipes, cables, flooring, windows, walls and roofing.

Product Stewardship

The Australian PVC industry has a well-established and recognised Product Stewardship Program with signatory companies from across the PVC supply chain. Signatories have made commitments under the program to address environmental impacts. For more information visit www.pvcproductstewardship.org.au



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PVC has a versatility that helps it meet modern and future design needs

