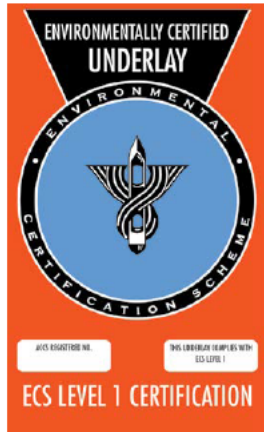


ECS Level 1

Green Building Council of Australia Responsible Product Value (RPV) = 8 RPV



Criteria

Level 1 criteria are all mandatory for a licensee to meet the requirements of the ECS. Points achieved are cumulative for each criterion.

Criterion 1. Fit for Purpose

The underlay must meet the relevant requirements set for that particular class of product under Australian conditions. The product must have suitable guarantees of performance for the intended application.

Australian standard AS 4288 – Soft underlays for textile floor coverings specifies the requirements for underlay

and includes the following classification scheme with 5 categories of intended use, described as:

- **LR** – light residential use, not suitable for stairs
- **GR** – general residential use
- **L** – luxury use, domestic/commercial where high energy absorption is required
- **GC** – general commercial use, suitable for normal foot and wheeled traffic
- **HC** – heavy commercial use, suitable for heavy foot and wheel traffic and castor chairs

Flooring performance requirements are determined within the Australian National construction code, NCC. These depend on the specific application of the flooring and the building class. The floor covering and underlay combination must meet the requirements of the NCC indicated in Table 3. or the international equivalent standards. Rebonded foam underlay is deemed to satisfy acoustic and sound criteria at a thickness $\geq 7\text{mm}$.

National Construction Code	Requirement		
Specification for Fire Resistance	Critical Radiant Flux	2.2 kW/m ²	AS ISO 9239.1
Acoustic performance	Floor impact noise (apartments and studios)	L'nT,w <62	AS/NZS/ISO 717.1
	Sound attenuation Noise Reduction Coefficient	≥ 0.2	AS/NZS/ISO 2107
Thermal insulation	Steady state thermal resistance measured	$\geq 0.1 \text{ m}^2\text{K/W}$	ISO 8302

Table 3. Standards to be met by complying flooring systems (for specific applications)

Manufacturers must declare compliance with specifications of the Australian Standard **AS 4288 – Soft Underlays** with their application for ECS ratings.



Criterion 2. Manufacturing Health, Safety and Environmental Management

The manufacturer must declare compliance with all elements of the ECS Code of Practice for Environmental Management. These include the provision of a safe and healthy workplace in which employees are not exposed to risks from the raw materials used for the product.

This Code is available from the CIAL web site.

The manufacturing declaration template is available, and this form is attached to the ECS Underlay Guidance Manual.

Criterion 3. Indoor Air Quality – low VOC emitting product.

The aim of the criterion is to ensure that emissions of volatile organic compounds (VOCs) from environmentally certified underlays do not exceed prescribed target levels for total emissions and particular chemicals of concern.

The certified underlay must pass a test in which its emissions of VOCs are assessed to be below the criteria set out in Table 4.

Chemical of Concern	Criterion Maximum Emission Factor (24 hr) ug/h/m ²
Acetaldehyde	20
Benzene	10
Butylated Hydroxy Toluene	300
Caprolactam	120
Chloro-benzene	937
Chloroform	281
Dichloroethylene (1,1)	66
2-Ethylhexanoic Acid	46
Formaldehyde	10
1-Methyl-2-Pyrrolidone	300
Naphthalene	20
Nonanal	24
Octanal	24
4-Phenylcyclohexene	50
Styrene	410
Trichloroethylene	562
Toluene	280
Vinyl Acetate	400
2-Ethyl-1-Hexanol	50
Hydrocarbons (C ₁₀ – C ₁₄)	300
Vinyl Cyclohexene	85
Xylenes	50
MAXIMUM TOTAL VOC	500

Table 4. VOC emission rate limits

Testing must be undertaken according to the test method: ISO 10580:2010 Resilient, textile and laminate floor coverings – Test method for volatile organic compound (VOC) emissions.

This standard method provides emission rate for VOC emissions after 28 days of product conditioning. The emission rate is measured as an emission factor (EF) in micro grams per square metre of floor covering per hour.

The licensee shall provide a relevant test report from a NATA registered laboratory provided as per the declaration in Schedule 11 – Product Emissions.





Criterion 4. Raw Material (low toxicity)

Chemical constituents in underlay have been reviewed and restrictions placed on these chemicals to ensure that the product and manufacturers do not suffer from toxic impacts of the product over its full lifecycle.

The CIAL has used health screening to establish that the potential adverse health impact of the product is kept below the No Observable Adverse Health Exposure Level (NOAEL) during the manufacturing, use and end of life of the floor covering.

It is recognized that some regulated substances may be used and/or inadvertently produced during manufacture or may be present although not declared in proprietary products used in manufacture. It is incumbent on manufacturers to ensure that products do not contain more than 0.1% by weight of these substances unless a lower concentration is required in other sections of this document.

Manufacturers must examine Safety Data Sheets, (SDS) or other raw material technical specifications, to identify chemicals that are either banned, limited in the final product, or of concern to evaluate compliance with the ECS Underlay Technical Specifications.

Additionally, selection criteria for raw material suppliers should include their ability to control environmental outcomes, reporting on environmental performance and their regulatory compliance record.

Schedule 9 Attachment 1 provides guidance on the evaluation of raw material toxicity in the final structure.

Regulated Substances that Must Not be included in underlay products.

Schedule 9 Attachment 2 contains a list of banned chemicals. For the purposes of the Technical Guidelines, banned substances include:

- all materials that are not registered for use in Australia by the Australian Industrial Chemicals Introduction Scheme (AICIS) in the Australian Industrial Chemicals Inventory (AICI).
- IARC classified carcinogens in groups 1 and 2A available at <http://monographs.iarc.fr/ENG/Monographs/vol91/index.php>
- Substances listed in the Stockholm Convention on Persistent Organic Pollutants (Annex A) available at <http://chm.pops.int/Convention/tabid/54/language/en-US/Default.aspx>
- Substances classified as carcinogenic, mutagenic, or reproductive toxins (CMR) Categories 1 and 2 listed in Annex 1 of EU Directive 67/548/EEC available at <http://www.reach-compliance.eu/english/legislation/docs/launchers/launchannex-1-67-548-EEC.html>
- Chemicals listed in Annex III of the Rotterdam Convention as toxic industrial chemicals and pesticides with impacts on human health and ecology.
- Substances with a hazard rating provided in SDS under the GHS system for chemical labelling.

A list of banned dyestuffs is contained in Schedule 9 Attachment 3.

Schedule 9 Attachment 4 contains a list of controlled or restricted use chemicals, in the floor covering products.

A maximum level of toxic heavy metals shall be restricted to below the NOAEL as determined as the health investigation level (HIL A) for metals listed in Table 5-A of Schedule B (1) of the National Environmental Protection Measures (NEPM).

This covers the following metals: Arsenic, Barium, Beryllium, Cadmium, Chromium (III and VI), Cobalt, Copper, Lead, Manganese, Mercury, Nickel and Vanadium.

- Monomer residues

The monomer residues present in the polymeric substances in underlay shall be restricted to a maximum concentration in the finished polymer of 10 mg/kg of the polymer weight. The VOC emission requirements take precedence over this limit.

- Substances of concern

Other substances that have an elevated level of concern may be found at: http://echa.europa.eu/chem_data/authorisation_process/candidate_list_table_en.asp





Products containing these substances at levels greater than 0.1% by weight must be registered if entering EU countries on or before June 1, 2011 (see: http://echa.europa.eu/doc/candidate_list/candidate_list_obligations.pdf).

The EU REACH "Substitute It Now" (SIN list) reviewed as PBT, CMR or of equivalent concern should be consulted as a source of chemicals of concern - available at <http://www.chemsec.org/list/use-the-sin-list>.

The material formulations of the certified underlay product must be provided by the licensee together with a declaration of compliance with the above-mentioned criteria supported by Safety Data Sheets and relevant test reports. The declaration within Schedule 9 of the ECS Guidelines must be provided.

Criterion 5. Product Composition Transparency

This standard requires complete transparency of product composition as declared in the raw material declaration. This must be made publicly available.

Substance composition down to 0.1% must be provided by the manufacturer for all chemical components and the demonstration that the composition meets the low toxicity requirements of the standard.

If a manufacturer wants to maintain a substance as confidential, they must provide adequate independent evidence of the safety and level of toxicity to the satisfaction of the panel.

Criterion 6. Manufacturing Performance Efficiencies

Manufacturers must provide data on their plant efficiencies in energy usage, water consumption, carbon emissions (tier 2) and waste/recycling performance to meet this criterion. They must provide this on an annual basis and their plans for improvement in these facets of operations.

Manufacturers' declarations must be made using the ECS Schedule 12 Declaration of Manufacturing Performance and Efficiency.

Criterion 7. Health Product Declaration

This declaration must be based on the product composition as provided in Criterion 5. The Health Product Declaration (HPD) must include all materials and substances that are a part of the product concerned (or family of products) and provide their impact to human health and to the environment, even if the substances are not currently regulated. The declaration must screen all substances for toxic impact.

The declaration must be published to the rules and in a format as set out in the Open Standard for Health Product Declarations and be publicly available on the licensee's website.

Criterion 8. Environmental Product Declaration

The manufacturer must declare the product's conformance to an environmental product declaration (EPD) published according to the standard ISO 14025 (EN 15804). This EPD must cover the family of underlay products to which the product belongs.

The EPD will be reviewed by the Panel to confirm compliance.

If this is not the case, the manufacturer must provide their own life cycle assessment report covering the product that is independently verified and published according to ISO 14025.

All criteria 1 to 7 are mandatory and will provide a total ECS Level 1 point score of 7.