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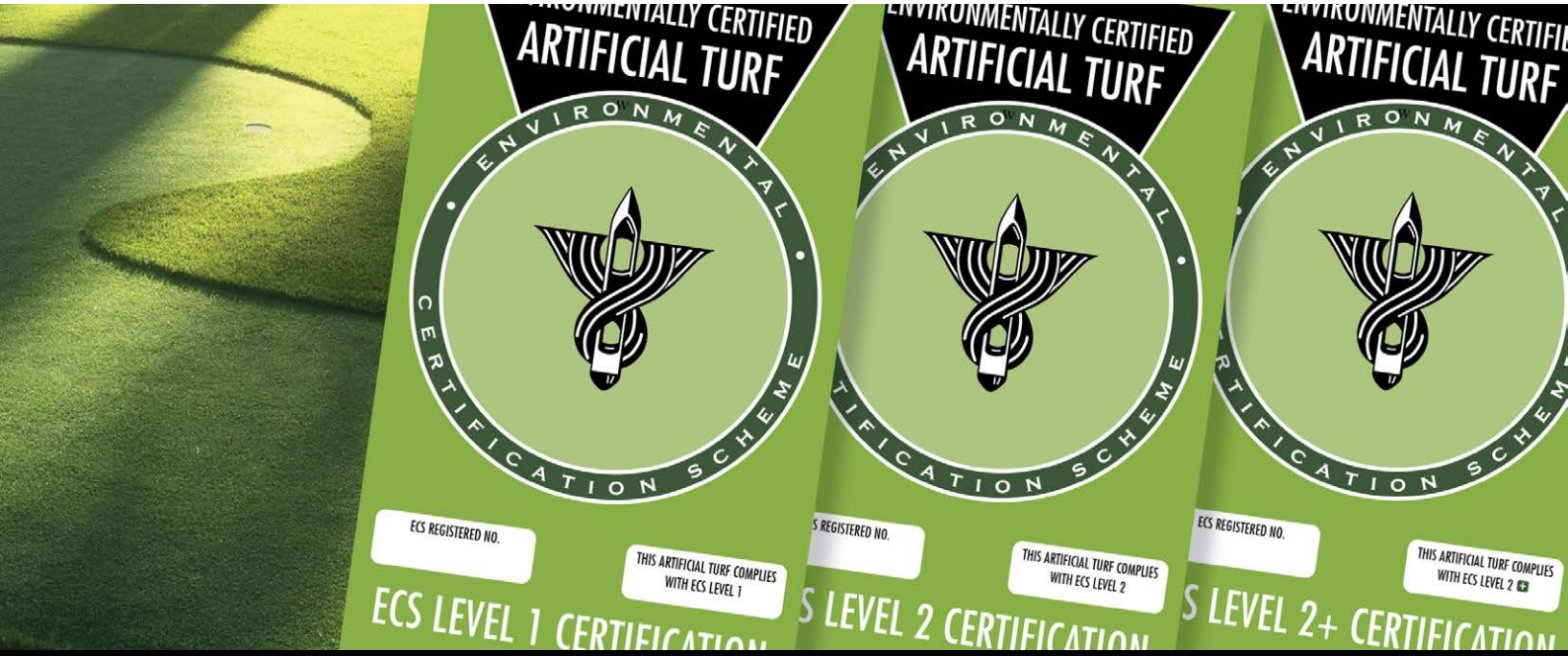

Version **1.0**

ECS

Artificial Turf Technical Specifications

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Table of Contents

Product definition:

Artificial turf fulfills many outdoor and some indoor functions where an even surface is required that mimics natural grass without the high maintenance requirements. Artificial turf is generally tufted onto a backing fabric and locked in place with an adhesive. It is then laminated onto a secondary backing. The most common construction elements are polypropylene and polyethylene that make up the mono-filaments that present as the face fibre.

The colour, shape and length of the filaments are tailored to the application that is commonly one of the following:

- Landscaping.
- Sports fields.
- Playgrounds.

Artificial turf can be made to a specification for a particular sport or activity. The filaments are made to resemble grass blades and come in a range of lengths from 8mm for a fine even surface to 40mm or more for a softer more cushioned surface. Artificial turf is most often used with an in-fill material that sits at the base of the filaments to promote stability. In-fill materials used include sand, rubber crumb, cork crumb and other organic materials. These are applied after the artificial turf has been installed onto a stable base.

In-fill materials are not considered in this standard.

Objectives of the ECS artificial turf

The Environmental Certification Scheme, ECS, was established by the Carpet Institute of Australia in 2006 to provide impetus for the carpet industry to ascertain and improve its environmental performance. Over recent years this has expanded to cover surface covering products with the objective of providing an eco-labelling system common to this segment of the building industry.

ECS objectives:

1. Provide consumers with a certification system that shows certified products as good and best performing in safety, health, and environmental standards.
2. Allow the manufacturing industry to demonstrate these credentials.
3. Establish impetus for industry continuous improvement in energy, carbon emissions, material efficiency and waste reduction.

The ECS artificial turf standard is structured with a series of performance criteria designed to meet the requirements of environmentally conscious procurement agencies and building standards bodies such as the Green Building Council of Australia, GBCA. The ECS provides a convenient performance standard for specifying agencies in building and outdoor surface covering materials.

The ECS artificial turf standard is set at two basic performance levels:

Level 1 will meet a good practice rating under the GBCA's Responsible Products Framework.

Level 2 will meet a best practice rating under the GBCA's Responsible Products Framework as shown in the following table.

Level 2+ allows for additional product environmental performance standards.

Criterion no.	Level achievement	RPV points
1. Fit for purpose	ECS 1	
2. Manufacturing safety, health and environmental management	ECS 1	2
3. Raw material (low toxicity)	ECS 1	
4. Transparency of product materials	ECS 1	1
5. Manufacturing declaration	ECS 1	
6. Health product declaration	ECS 1	2
7. Product stewardship	ECS 1	1
8. No chemicals of concern	ECS 1	2
		8
9. Manufacturing efficiency improvement	ECS 2	5
		13
10. Modern slavery declaration	ECS 2	1
11. Environmental product declaration	ECS 2+	7
12. Product carbon neutral	ECs 2+	3
		24

Table 1. Summary of criteria

Note: The points provided are equivalent to Green Building Council of Australia's Responsible Product Framework point scores at the time of publishing. This may change over time.

ECS LEVEL 1 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 artificial turf must meet the relevant standards set for that particular class of product under Australian conditions. The product must have suitable guarantees of performance for the intended application. This could include a warranty period for performance aspects such as colour retention which may in turn depend on the application.

Specifications of products may be fully defined by the various sporting bodies for sports fields and other particular applications.

Manufacturers must declare compliance with specification standards with their application for ECS ratings. In the case of sporting field applications the European standard EN-15330-1 sets the standards for sports turf surfaces. The ESTO has developed a Landscape Quality Classification for artificial turf.

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 V2.1. These include the provision of a safe and healthy workplace in which employees are not exposed to risks from the raw materials used for product manufacture.

The code describes performance standards for environmental manufacturing practices with appropriate controls to meet ISO 14001 requirements and occupational health and safety practices to meet ISO 45001 standards.

This code is available from the CIAL web site.

Criterion 3. **Raw material (low toxicity)**

Chemical constituents in artificial turf 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 the potential adverse health impact of the product is kept below the No Observable Adverse Health Level (NOAEL) during the manufacturing, use and end of life of the product.

It is recognised that some regulated substances may be inadvertently produced in 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 Artificial Turf 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.

Regulated Substances that Must Not be Used in the production of artificial turf.

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 Inventory of Industrial Chemicals (AIIC).

– 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 pigments and dyestuffs is contained in Schedule 9 Attachment 3.

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

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).

The heavy metal requirements cover the following metals: Antimony, 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 used to manufacture the product 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 artificial turf 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.

This declaration is made for raw materials in the form provided in Schedule 9 (Guidance Manual).

Criterion 4. **Product composition transparency**

This standard requires complete transparency of product composition as declared in the raw material declaration (Schedule 9).

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 can refer to the component as "proprietary and confidential" and provide adequate independent evidence of the safety and level of toxicity to the satisfaction of the Panel. Otherwise the full product composition must be made publicly available through the licensees' web site.

Criterion 5. **Manufacturing declaration of performance**

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.

The manufacturing declaration should be provided in the format of Schedule 12 (Guidance Manual).

Criterion 6. **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, even if they are maintained as "proprietary and confidential". 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 7. **Product stewardship**

The aim of this criterion is to maximize artificial turf's useful life and then minimise the impacts to the environment associated with installation, use and disposal of the product after recycling and reuse options are exhausted.

In the interests of extending the useful life of certified products, licensees and/or suppliers of artificial turf shall be required to provide suitable advice to purchasers and installers on proper installation practices and maintenance of products that will meet manufacturer warranty requirements.

The product stewardship policy should consider infill used on the artificial turf to be selected so that environmental impacts from the installed artificial turf are minimized.

The impacts considered shall include:

- Run-off to stormwater creating surface water pollution,
- Drainage through the artificial turf contaminating land and groundwater,
- Microplastic pollution of the environment.

In each case controls are required that meet environmental standards set in Australia for land, groundwater and surface waters.

Licensees and/or suppliers of certified artificial turf must have a product stewardship program in place. The program shall be publicly available and include contractual arrangements with their customers to take back product at the end of the product's useful life for reuse, recycling or reprocessing.

This product stewardship program must be demonstrated to the Panel using Schedule 13 provided in the Guidelines and contain an independent assessment of the product stewardship system stating its ability to achieve the product stewardship goals as stated.

Criterion 8. **No chemicals of concern**

The aim of this criterion is to encourage manufacturers to introduce risk management practices to eliminate chemicals of concern with human and environmental exposure to a level that is beyond regulatory compliance at each stage in the life cycle of the artificial turf manufactured (production, installation, and maintenance).

The inventory and risk assessment showing residual risks after management actions have been taken must be reviewed by a suitably qualified and experienced assessor prior to lodgement. This can be achieved through a recognised system of risk assessment following the ISO 31000 standard, using the Toxnot, or Toxscreen systems or making sure that the chemical inventory is free from chemicals of concern as defined in criterion 3.

The licensee may meet this requirement by providing evidence of it being Red List free.

Checklist of actions:

Tasks	**Documents**
Identification of all chemicals used	Chemical inventory
Hazardous chemical list	SDS for all chemicals GHS hazard warnings
Review regulatory guidelines -AICI, Prop 65, SIN list, GHS, Green chem list	Hazardous chemicals listed Exposure standards
Classification of hazards	Hazards list
Priority list for action	Priority chemical list
Alternatives identified	Substitution plans
Substitutions undertaken	

Table 2. Chemicals of concern action list

All criteria 1 to 8 are mandatory and will provide a total ECS Level 1 point score of 8. This should provide the product with a *good performance* rating under the GBCA's Responsible Product Framework.

LEVEL 2 criteria

The level 2 criterion 9 is mandatory to the ECS for artificial turf and must be achieved in addition to those given in Level 1.

Criterion 9. Manufacturing efficiency improvement

The aim of this criterion is to require manufacturers to achieve year on year improvements in manufacturing efficiencies per square meter of certified artificial turf produced. These efficiencies must include the following metrics of manufacturing at the facility that produces the artificial turf:

a) Total energy (electricity, gas, liquid fuels and other forms of energy used in MJ/m2 of product,

b) Total carbon produced as a tier 2 measure of carbon (kg CO_{2eq}/m2),

c) Water consumption expressed as L/m2 of production, and

d) Total waste generated and sent to landfill expressed as kg/m^2 of production.

This data is to be provided on an annual basis for the manufacturing facility through the manufacturing declaration (Criterion 5.).

To satisfy this criterion a minimum 5% efficiency improvement over 5 years or a 1% reduction per year over the same period, must be achieved in all four efficiency categories.

All criteria 1 to 9 are mandatory and will provide a total ECS Level 2 point score of 12. This should provide the product with a best performance rating under the GBCA's Responsible Product Framework.

ECS Level 2+

Additional ECS awarded credits given as specific credits at ECS Level 2+

Criterion 10. Modern slavery

The aim of this criterion is to require manufacturers to investigate, act on and report on:

– The risks of modern slavery in their operations and supply chains,

– Findings of supply chain investigations and corrective actions undertaken to address these risks,

– Annual updates of plans to address all modern slavery risks.

The declaration must be published in a format as set out in the federal Government document entitled – Commonwealth Modern Slavery Act 2018 - Guidance for Reporting Entities - https://antislavery.org.au/commonwealth-modern-slavery-act-2018-guidance-for-reporting-entities/ or equivalent reporting standard.

Criterion 11. Environmental product declaration

The aim of this criterion is to encourage manufacturers to have a product specific publicly available declaration showing the life cycle environmental impacts of specific classes of acoustic panels. Accordingly manufacturers are required to produce an Environmental Product Declaration (EPD) in compliance with a recognised standard e.g. EN 15804 (ISO 14025).

The EPD must be written in accordance with Product Category Rules such as Floor Coverings (2018), PCR for Construction Products and Construction Services, or similar international system with a functional unit of 1m2 (or 1 kg) of artificial turf over one year of use and be officially registered.

Criterion 12. Carbon neutral product

To achieve this criterion manufacturers are required to establish a carbon neutral position for the product and publish a carbon neutral declaration for the product certified by the federal government.

Manufacturers must provide a third party verified product LCA or EPD that includes carbon emissions taken to mean climate change impacts in CO2eq per square meter of artificial turf over the product life cycle. This must be accompanied by a certificate of carbon offset purchased by the licensee and its share allocated to the textile floor covering submitted for ECS certification. OR The licensee can submit a verified Climate Active carbon neutral declaration for their product.

ATTACHMENT 1

Evaluation of Raw Material Toxicity

Step 1: Identify all materials in the product

Step 2: Examine the chemicals identified in the Safety Data Sheets for each material

Step 3: If a chemical is on the banned list, replace the product and find a safer alternative

Step 4: If a chemical is on the control list, determine the concentration of the chemical in the product

Step 5: If a concentration is above the maximum level set, reduce the concentration or replace the chemical

Step 6: If a chemical is otherwise of concern, regularly review the chemical for updates on toxicity and hazards

Step 7: If a chemical is not on the banned list and is below the maximum concentration level, then the raw material is of sufficiently low toxicity to be compliant

ATTACHMENT 2

ECS Banned Chemicals

Raw materials banned from use in underlay*	Why	Probable Application / Source
1,4-Dioxane	Carcinogenic	Solvent
Acetaldehyde	Probable carcinogen	Biocide/antimicrobial
Antimony Trioxide	Probable carcinogen	Flame retardants
Arsenic and arsenic compounds	Carcinogen	Filler contaminant
Asbestos	Carcinogen	Filler contaminant
Benzyl Butyl Phthalate (BBP)	Reproductive toxin	Plasticiser
Di Butyl Phthalate (DBP)	Reproductive toxin	Plasticiser
Cadmium and compounds	Carcinogen	Dyes and pigments
Chromium (VI) compounds Chromate – Chromic Acid – Dichromate	Carcinogen	Dyes and Pigments
Chlorinated hydrocarbon waxes	Persistent, bio accumulative, toxic	Plasticiser
Di Ethyl Hexyl Phthalate	Reproductive toxin	Plasticiser
Di Isononyl Phthalate	Reproductive toxin	Plasticiser
Dimethyl Fumerate	Irritant	Anti-fungal agent
Dyes/pigments that are toxic or metabolise to toxic substances	Probable carcinogen, mutagen, toxic to reproduction)	Dyes (see list in Attachment 3)
Dyes/pigments that are potentially sensitising	Skin and eye irritants	Dyes (see list in Attachment 3)
Ethylene Diamine Tetra Acetic acid (EDTA)	Toxic Respiratory sensitiser	Dyeing auxiliary Biocide
Formaldehyde	Carcinogen	Biocide/antimicrobial
Lead and compounds	Probable carcinogen	Heat stabilizer
Mineral oils (untreated, mildly treated)	Carcinogen	Lubricants, spinning oils
Nonyl Phenol Ethoxylates	Persistent pollutant – toxic	Surfactant
Para alkyl phenols	Endocrine disruptor	Surfactant precursor
PAHs (Polyaromatic Hydrocarbons)	Probable carcinogens	Tar constituent
PBDE (Polybrominated diphenyl ether)	Persistent pollutant – toxic	Flame retardants
PCP (Pentachlorophenol)	Persistent pollutant - toxic	Disinfectant
PFAs (Perfluoro alkane substances)	Persistent toxin	Stain resist treatment
Organotin complexes	Toxic	Biocide
Silica	Chronic toxicity (dusts)	Filler
Trichloroethylene	Probable carcinogen	Solvent degreasing
Tetrachloroethylene	Probable carcinogen	
Triclosan	Persistent pollutant	Biocide / antimicrobial

* Other materials may be banned but not mentioned in this list as they were not identified as in current use in manufacture of floor coverings. New chemicals should be checked for safety and health impacts.

ATTACHMENT 3

Banned Dyestuffs and Pigments

These include those dyes that may induce a toxic effect on exposed people. There are a number of categories of toxic impact that a chemical may affect, and the guidelines derived in this code are derived from European Commission decisions for Eco-Labelled textiles . The toxic impacts covered are cancer, mutation, reproductive toxicity and sensitization.

EC Decision 1999/178/EC and subsequent amendments.

Clause 20.

Azo dyes shall not be used that may cleave to any one of the aromatic amines as listed[1]:

4-Aminobiphenyl	92-67-1
Benzidine	92-87-5
4-Chloro-o-toluidine	95-69-2
2-Naphthylamine	91-59-8
o-Aminoazotoluene	97-56-3
2-Amino-4-nitrotoluene	99-55-8
p-Chloroaniline	106-47-8
2,4-Diaminoanisol	615-05-4
4,4.-Diaminodiphenylmethane	101-77-9
3,3.-Dichlorobenzidine	91-94-1
3,3.-Dimethoxybenzidine	119-90-4
3,3.-Dimethylbenzidine	119-93-7
3,3′-Dimethyl-4,4′-diaminodiphenylmethane	838-88-0
p-Cresidine	120-71-8
4,4′-Methylenebis(2-chloroaniline)	101-14-4
4,4′-Oxydianiline	101-80-4
4,4′-Thiodianiline	139-65-1
o-Toluidine	95-53-4
2,4-diaminotoluene	95-80-7
2,4,5-Trimethylaniline	137-17-7
4-Aminoazobenzene	60-09-3
O-Anisidine	90-04-0
2,4-Xylidine	95-68-1
2,6-Xylidine	87-62-7
2-amino-2-ethoxy naphthalene	293733-21-8
4-amino-3-fluoro phenol	399-95-1
o-Anisidine (2-methoxy aniline)	90-40-0

[1] http://www.etad.com/information/etad_information_19th_amendment.pdf

Clause 21

Dyes and pigments that are carcinogenic, mutagenic or toxic to reproduction.

C.I. Basic Red 9
C.I. Disperse Blue 1
C.I. Acid Red 26
C.I. Basic Violet 3
C.I. Basic Violet 14
C.I. Disperse Orange 11
C.I. Direct Black 38
C.I. Direct Blue 6
C.I. Direct Red 28
C.I. Disperse Yellow 3
C.I. Basic Blue 4
C.I. Basic Blue 26
C.I. Pigment Black 25
C.I. Pigment Yellow 34
C.I. Pigment Yellow 157
C.I. 77332
C.I. Pigment Red 104

or dyes and pigments that contain more than 0.1% by weight of substances specified under the following risk phrases

R40 (limited evidence of carcinogenetic effect)
R45 (may cause cancer)
R46 (may cause heritable genetic damage)
R49 (may cause cancer by inhalation)
R60 (may cause infertility)
R61 (may cause harm to an unborn child)
R62 (possible risk of infertility)
R63 (possible risk of harm to an unborn child)
R68 (possible risks of irreversible effects)

Clause 22

Potentially sensitizing dyestuffs

C.I. Disperse Blue 1
C.I. Disperse Blue 3
C.I. Disperse Blue 7
C.I. Disperse Blue 26
C.I. Disperse Blue 35
C.I. Disperse Blue 102
C.I. Disperse Blue 106
C.I. Disperse Blue 124
C.I. Disperse Red 1
C.I. Disperse Red 11
C.I. Disperse Red 17
C.I. Disperse Orange 1
C.I. Disperse Orange 3
C.I. Disperse Orange 37
C.I. Disperse Orange 76
C.I Disperse Orange 149
C.I. Disperse Yellow 1
C.I. Disperse Yellow 9
C.I. Disperse Yellow 23
C.I. Disperse Yellow 39
C.I. Disperse Yellow 49
C.I. Disperse Brown 1

ATTACHMENT 4

Chemical Control List

May be present in raw materials[1]	Problem	Probable Application of Concern	Maximum Concentration Allowable mg/kg
Acetaldehyde	Probable carcinogen	Biocide	20
Acrylamide	Probable carcinogen	Monomer of various acrylamide polymers	10
Antimony and antimony compounds	Toxic	Catalyst residues	200
Arsenic and arsenic compounds	Carcinogen	Filler contaminant	20
Barium and compounds	Toxic	Filler contaminant	300
Benzene	Carcinogen	Solvent constituent	
Benzo[a]anthracene	Probable carcinogen	Tar constituent	5
Benzo[a]pyrene	Carcinogen	Tar constituent	1
Beryllium	Carcinogen	Impurity in fillers	20
Boron and compounds	Toxic	Pesticide	3,000
1,3-Butadiene	Carcinogen	Monomer in latex	10
Butylated Hydroxy Toluene	Toxic	Antioxidant	1,000
Cadmium and compounds	Carcinogens	Dyes and pigments	20
Caprolactam	Toxicity	Polyamide monomer	120
Chloroform	Toxicity	PVC breakdown	281
Chromium (VI)	Carcinogen	Dyes and pigments	10
Chromium (III)	Toxic	Dyes and pigments	120,000
Cobalt and compounds	Probable carcinogen	Dyes and pigments	100
Copper	Toxic	Dyes and pigments	1000
DDT	Probable carcinogen / Persistent Pollutant	Pesticide	200
Dichloroethylene (1,1)	Toxic	Solvent / PVC	66
Diphenyl Methane Diisocyanate (MDI)	Sensitizer	Polyurethane monomer	35
2-Ethyl-1-Hexanol	Toxic	Solvent constituent	50
Formaldehyde	Carcinogen	Biocide/antimicrobial	10
Lead and compounds	Probable carcinogen	Heat stabilizer/pigment	300
Manganese	Toxic	Impurity in fillers	1,500
Mercury	Toxic	Impurity in fillers	10
Methanol	Toxic	Solvent Compound	143
1-Methyl-2-Pyrrolidone (NMP)	Toxic	PVC adhesive	300
Naphthalene	Toxic/Probable carcinogen	pesticide	20
Nickel compounds	Carcinogen	Impurity, pigments	600
Nonanal	Toxic	Solvent constituent	24

Table: Chemical Control List (continued)

May be present in raw materials[1]	Problem	Probable Application of Concern	Maximum Concentration Allowable mg/kg
Octanal	Toxic	Solvent constituent	24
PAHs Polycyclic aromatic hydrocarbons	Probable carcinogen	Tar constituents	20
4-Phenylcyclohexene	Toxic	Latex impurity	50
Pesticides	Probable carcinogen/ Persistent pollutant	Pesticide residues	10
Silica	Chronic toxicity	Impurity in limestone	5000
Styrene	Probable carcinogen	Monomer in latex	410
Trichloroethylene	Probable carcinogen	Solvent/PVC	300
Toluene	Toxic	Solvent constituent	400
Vanadium	Toxic	Impurity	50
Vinyl Acetate	Probable carcinogen	Solvent constituent	100
Vinyl Chloride	Carcinogen	Monomer PVC	10
Vinyl Cyclohexane	Probable carcinogen	Latex impurity	85
Xylenes	Toxic	Solvent constituent	50

[1] This list is not exhaustive and other chemicals may require controls to reduce their impact below NOAELs

About the Carpet Institute of Australia

The Carpet Institute of Australia Limited (CIAL) is the lead industry body for Australia's carpet industry. CIAL represents carpet manufacturers, carpet retailers and other suppliers of goods and services to the industry.

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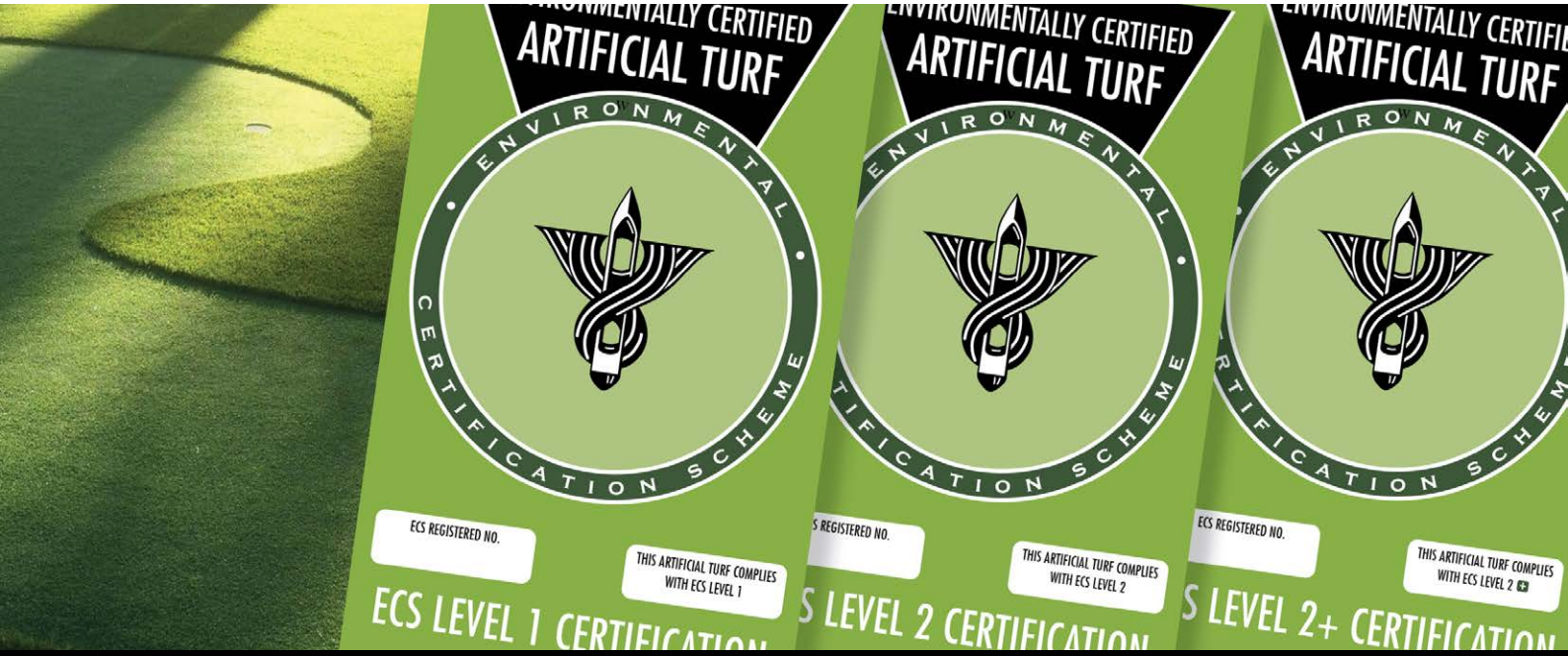

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