



Version 1.1

- Code of Practice
for Environmental
Management



Contents

Introduction	3
Raw Materials	3
Manufacturing	3
Greenhouse Impact Management	3
Emissions to Air	3
Water Conservation	4
Waste Water (Trade Waste)	4
Solid Waste Management	5
Environmental Risk Management	5
Land and Ground Water Management	6
Siting and Premise Maintenance	6
Emergency Awareness and Plans	6
Records and Reporting	6
Product Specification and Installation	6
Product Stewardship	7
Environmental Innovation in Product Development	7
ATTACHMENT 1	
Banned Dyestuffs	8
ATTACHMENT 2	
Code of Practice Audit Checklist	10
ATTACHMENT 3	
Guidance for the Preparation of a Product Stewardship Information Package	
Used Carpet and Installation Wastes Management	13
Carpet Performance Life Span	13
Reuse before Recycling	13
Raw Material Recycling	13
Down Cycling	13
Waste to Energy	14
Other Waste Uses	14
Disposal to Land Fill	14
Post Consumer Carpet and Installation Waste	14



Introduction

The Code of Practice is an important element of the environmental certification of carpets registered with the Australian Carpet Classification Scheme (ACCS).

This Code provides a guide to good environment management in all aspects of carpet manufacturing, and the subsequent carpet life cycle performance.

The provisions of the Code are as follows:

Raw Materials

Manufacturers must ensure that:

- regulated substances banned from consumer products must not be used in the production of carpets. These banned materials include brominated fire retardants, chlorinated phenols, lead, asbestos and materials with a carcinogenic rating
- monomer residues must be minimised within standards set for the particular polymer type
- formaldehyde and other aldehyde-based biocides, including pentachlorophenol (PCP) must not be used in formulations or within the manufacturing premise.

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

Manufacturing

Manufacturing facilities will be designed, operated and maintained to meet all regulatory requirements pertaining to the environment, health and safety.

An environment management system in line with the requirements of ISO 14001 will facilitate regular environmental monitoring and reporting.

Greenhouse Impact Management

Manufacturers must develop Greenhouse impact reduction plans by auditing Greenhouse emissions through energy consumption measurement and developing technologies and management systems to minimise energy consumption.

The Code requires manufacturers to commit to a process of continuous improvement in environmental management, monitoring and reporting. To this end, participation in the Greenhouse Challenge is strongly encouraged.

Heat recovery from hot waste streams should be practiced where it provides an economic return to the company.

Emissions to Air

In addition to compliance requirements, manufacturers must apply process controls to continuously reduce pollution loads emitted to the air. Discharges of pollutants to the air must be directed only through stacks to ensure maximum levels of dispersion.



Odour from manufacturing processes should not be detectable beyond the factory premise. If odour is detected, it must be the subject of a remediation program. Any odour complaints must be recorded and acted upon.

No visible air emissions should be observed from the factory premise, other than water vapour.

No ozone depleting substances will be used within the factory premise and none of these substances will be discharged during normal operations.

No classified carcinogenic substances will be used or discharged from the factory premise.

VOC emissions will be maintained within regulated limits and minimised where possible within the processes used.

Water Conservation

It is incumbent on manufacturers to monitor water consumption as a function of production and develop water conservation strategies.

Cooling water and other clean wastewater streams should be recycled within the factory. The factory should also have examined the opportunity for rain water harvesting and use. Boiler systems should have condensate return lines and boiler blow down should be monitored and minimised through appropriate boiler management.

Manufacturing facilities will conduct water balances that check water inputs against wastewater outputs to ensure that no water is lost through leakage, or misuse.

Waste Water (Trade Waste)

All process waters discharged from the site will be directed to a central point, if necessary, treated to comply with wastewater regulatory requirements. No process water will be discharged to storm water drains or directly to land.

Trade waste heat recovery with incoming water flows will be practiced, if feasible, to reduce the trade waste temperature to less than 38°C.

Trade waste will not contain free heavy metals. All surfactants and scouring agents will be readily biodegradable and no free floating oils will be allowed to contaminate waste. Salts will not be allowed to rise above levels that could compromise waste water reuse. Total dissolved salts (metals and chloride, sulphate, phosphate, nitrate) should be maintained below 800 mg per litre in the final effluent. (Total dissolved solids, including organic compounds to be maintained below 1000mg per litre). In cases where treated waste water is discharged to sea, the limit for salts may be relaxed.

No toxins that may adversely affect aquatic biosystems should be discharged in trade waste. For example, pyrethroids must be within regulated limits or be discharged at less than 1.0 mg/L in trade waste when discharged to a municipal treatment system. Waters discharged directly to surface waters in the open environment should contain less than 0.1 microgram per litre of pyrethroids.

Dyeing practices must not include the use of free Chromium VI, as is undertaken in after-chroming (mordant dyeing). Dye fixation to the fibre should be maximised and dyes generating toxic residues will not be used. Prohibited dyes are those listed in the Commission of the European Communities Decision 1999/178 EC, Clauses 20-22, and 2002 revisions. (Refer Attachment 1)

Latex wastes should be settled to remove water before they are discharged. Unsettled latex wastes will not be discharged to trade waste.



Solid Waste Management

Solid wastes generated by manufacturing processes represent a direct cost to the manufacturer. The manufacturer should apply the hierarchy of waste management:

- avoid or reduce the waste
- recover and reuse the waste
- recycle the waste raw materials
- recover energy in wastes
- dispose of wastes safely.

This hierarchy of waste management should also be applied to all waste streams in all manufacturing processes.

No hazardous materials (or dangerous goods) can be placed in waste for land fill.

No chemical containers, chemical residues, oils, solvents, or other liquids can be placed in general waste containers.

No recyclable materials can be commingled with solid waste – paper and cardboard, drink cans, metals, or recyclable plastics. These materials will be collected for external recycling.

Soft fibre, face fibre yarn and other mono-compositional wastes must be recovered as a segregated waste and recycled through suppliers or waste merchants. Wherever possible, larger carpet off-cuts will be recycled.

Environmental Risk Management

Manufacturers must establish a register of risks to the environment from manufacturing operations. Risks should be assessed and, if considered significant, managed through a hierarchy of controls i.e.

- removal of risk
- risk reduction in frequency or impact
- risk impact mitigation or control
- target protection.

Hazardous substances and dangerous goods storage systems must be implemented to minimise the risk of spillage to open drains.

Process chemicals and liquid materials must be securely stored to reduce the risk of any spillage entering the open environment.

Obsolete equipment and used chemical containers must be drained of oils and chemicals before being stored.

Cooling towers, scrubbers and other liquid control systems must be drained to trade waste in the case of a leak, overflow, or spillage.

Provision must be made to protect against the possibility of chemical and oils/fuels loss in the cases of floods and storm damage.

Underground storage tanks must be monitored annually, evaluated and removed if found to be faulty or leaking.



Land and Ground Water Management

Land must be assessed for contamination and managed to prevent the further spread of pollution into ground water or uncontaminated land.

Contamination may be the result of previous occupancies, the presence of underground storage tanks, spillage of oils and liquids, dumping of rubbish or fill into holes, or the leakage of oils from plant and equipment.

Asbestos must be checked and recorded if present on site. A management program must be established for all buildings, plant, equipment, or soils that contain asbestos.

Siting and Premise Maintenance

Siting of manufacturing facilities is a critical element in successfully fitting into a local environment. A suitable buffer zone of 100 to 300 meters away from sensitive land uses such as residential areas, hospitals and schools, is required for greenfield developments.

The factory premise should be enhanced and protection afforded to neighbouring properties by the planting of trees and shrubs that provide additional buffering and attenuation of noise emitted from the site.

Emergency Awareness and Plans

Emergency plans are needed when a major incident occurs. For example, controls to prevent release of pollutants from the site include storm water pit valves, spill kits, sand and other absorbents and neutralising agents for spill control.

Employees must be trained on emergency awareness and emergency management plans. Contractors and visitors should be informed of the emergency actions and evacuation procedures.

Records and Reporting

Under the Federal Companies Act 2000, public companies are required to address significant environmental issues in Annual Reports.

Most environmental licences and trade waste contracts require monitoring and compliance reporting.

Under this Code companies must produce an annual environmental report based on the Code of Practice audit checklist. (Refer Attachment 2)

Product Specification and Installation

Products must be ACCS graded and satisfy the additional environmental criteria

The ACCS classifies carpets according to their suitability for use in residential and contract installations. Gradings are awarded taking into account carpet construction parameters as well as performance data derived from both wear simulation tests and floor trials and real life use conditions.

Guidance will be provided by the manufacturer on the most efficient installation methods (including the specification of water based acrylic or similar low-VOC adhesives) and after sales carpet care.



Product Stewardship

An information package is a minimum requirement that indicates how best to care for the carpet over its life and how to minimise the environmental impacts in carpet maintenance. It must contain information that contributes to:

- maximising the useful performance of the carpet;
- maintaining impact noise reduction performance;
- maintaining ambient noise reduction properties; and
- maximising walking safety.

Manufacturers must provide systems and information on environmentally efficient methods of carpet removal, re-use, recycling and disposal. Guidance for the preparation of a product stewardship information package is contained in Attachment 3.

Environmental Innovation in Product Development

The features provided in carpets are largely designed to meet market requirements, however, environmental efficiency is also an element that to be addressed as part of product development by manufacturers.

Elements that enable efficient maintenance and removal at the end of life are important as environmental impacts largely occur in the use phase.

In addition, design for disassembly, fibre recovery, or transformation into down-cycled products will enhance the carpet's life cycle environmental performance.

Please sign below to confirm the agreement of your company to comply with the ACCS Code of Practice for Environmental Management

Signature

Print Name

Position.....

Company Name.....

Date.....



ATTACHMENT 1

Banned Dyestuffs

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 textiles¹. The toxic impacts covered are cancer, mutation, reproductive toxicity and sensitisation.

EC Decision 1999/178/EC and amendments (2002)

Clause 20.

Azo dyes shall not be used that may cleave to any one of the aromatic amines as listed²:

	CAS no.
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-Diaminoanisole	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

Clause 21.

Dyes 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 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

¹ EC Decision 1999/178/EC establishing the ecological criteria for the award of the Community eco-label to textile products and subsequent decisions² http://www.etad.com/information/etad_information_19th_amendment.pdf



or dyes that contain more than 0.1% by weight of substances specified under the following risk phrases³:

- R40 (limited evidence of carcinogenic 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 sensitising dyestuffs

- 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 Yellow 1
- C.I. Disperse Yellow 9
- C.I. Disperse Yellow 39
- C.I. Disperse Yellow 49



³ Classification, packaging and labelling of dangerous substances - Directive 67/548/EEC and amendments consolidated at http://ec.europa.eu/environment/dansub/main67_548/index_en.htm

ATTACHMENT 2**Code of Practice Audit Checklist**

Company: _____					
Address: _____					
Contact: _____			Telephone: _____		
	Y ⁴	N	L	C	Observations and Recommendations
1. Chemicals Management					
Dangerous Goods register			L	C	
Hazardous Substances register			L	C	
Chemicals Management System				C	
Chemical usage review – policy on chemicals					
MSDS register			L	C	
Classified carcinogens in use				C	
High toxicity materials in use				C	
Ozone depleting substances in use				C	
Monomer residue specs checked					
Regulated substances in use				C	
2. Management Systems					
Environmental Management System					
Energy Management – Greenhouse				C	
Environmental Improvement Plans				C	
Worksafe / OH&S System				C	
EPA licence					
Company annual report – environmental section				C	
Environmental incident reports				C	
Chemical handling procedures					
Waste handling procedures					
Hazardous waste management procedures					
Trade waste management procedures					
Storm water management procedures					
3. Environmental Monitoring Records					
a) Air emissions					
Stack tests					
Odour monitoring					
Greenhouse emission records				C	
b) Water					
Consumption records (cf production)				C	
Trade waste records				C	
Trade waste compliance records				C	
Storm water monitoring records					
Ground water monitoring records					
	Y	N	L	C	Observations and Recommendations
c) Solid wastes					
Raw material yield reports				C	
General waste records				C	
Waste recycling records				C	
Prescribed (hazardous) waste records			L	C	

4 Y = YES, N = NO, L = LEGAL REQUIREMENT, C = CODE OF PRACTICE REQUIREMENT



Company: _____					
Address: _____					
Contact: _____			Telephone: _____		
	Y	N	L	C	Observations and Recommendations
4. Environmental Risk Management					
Risk register / Aspects register					
Legal issues register					
Risk management plans					
5. Site inspection					
a) Buildings					Buildings
– good condition					
– asbestos present (register and plan)			L	C	
– oil contamination present					
b) Drains and containment					Drains
– drain condition is okay			L	C	
– pits okay (no discharge of pollutants)			L	C	
– gutters okay (no oil stains)				C	
c) Grounds					Grounds
– vegetation condition is okay					
– fence condition is satisfactory					
d) Site					Site
– buffer to sensitive uses					
– aesthetics					
– visible pollution				C	
e) Air emissions					Air
– visible emissions from stacks				C	
– fugitive emissions observed				C	
– odour detected at boundaries				C	
f) Energy / Greenhouse					Energy
– steam leaks observed					
– idle processes running					
– lighting not required					
– boiler heat recovery systems					
– natural lighting systems					
– solar energy systems					
– heat recovery practiced					
– pipe lagging and insulation				C	
– compressed air leaks					
– motor variable speed drives / high efficiency					
	Y	N	L	C	Observations and Recommendations
g) Water					Water
– leaks observed					
– recovery of storm water					
– reuse of water					
h) Trade waste					Trade waste
– control systems in place				C	
– recovery system if non-compliant					
– recycling of treated waste water					



Company: _____					
Address: _____					
Contact: _____ Telephone: _____					
	Y	N	L	C	Observations and Recommendations
5. Site inspection					
i) Chemical storage					
– adequate bunding				C	Chemical storage
– delivery system				C	
– spill kits				C	
j) Underground storage tanks					
– USTs present on site					USTs
– delivery systems banded				C	
k) General wastes					
– bins available			L		General wastes
– commingling of recyclables					
– hazardous wastes present					
l) Recycling systems					
– paper and cardboard				C	Waste recycling
– metals				C	
– plastics					
– soft fibre recycling				C	
– yarn recycling				C	
– carpet off-cut recycling					
– cropping waste recycling					
m) Hazardous wastes					
– bins available			L	C	Hazardous wastes
– segregation adequate				C	
– hazards controlled				C	

6. Product stewardship	
a) Information supplied	
– installation guidelines	
– disposal guidelines	
– reuse and recycling	
– waste to energy	
– delivery and transport systems	
b) Design innovation	
– raw materials	
– manufacturing systems	
– product design	



ATTACHMENT 3

Guidance for the Preparation of a Product Stewardship Information Package

Used Carpet and Installation Wastes Management

The objective of carpet waste management is to maximise the lifetime of carpet use and reuse and then to minimise the impacts to the environment associated with disposal of the carpet after reuse options are exhausted. In this way the use of the raw materials is maximised and negative environmental impacts of the carpet are minimised.

These points should be examined in the order given.

Carpet Performance Life Span

Maximise the use of the finished carpet by extending its life span in the original installation and subsequent installations by:

- appropriate choice of carpet to meet the installation's trafficking and loading demands;
- installing and maintaining carpet in accordance with the requirements of relevant Australian/ New Zealand standards.

Reuse before Recycling

Often carpet wastes and uplifted carpet is satisfactory for reuse in other rooms, or, in part, as mats. Installation wastes, if sufficiently sized, can be made into mats to be used in association with the installed carpet. Common uses of mats are under tables and desks where there is a concentrated wear pattern.

There are a number of carpet recycling companies that resell used carpet in reasonable condition. These companies are generally based in major population centres.

Raw Material Recycling

Currently there are no raw material recycling facilities in operation in Australia. However there are some synthetic polymer recycling facilities offshore that may become a viable option if the economics of centralised collection and transport can be improved.

Down Cycling

Carpets can be shredded and used in the production of felt for underlay and insulation products.

100% wool carpets are biodegradable and can be used in a number of applications such as:

- weed matting
- geotextiles
- cover for land fills
- compost operations.

These applications are only economic within the local area that the carpet wastes is generated. In some cases down cycling is done on an ad hoc basis, but carpet retailers and recyclers should be aware of these operations when they are available.



Waste to Energy

Carpet has inherent energy that can be made available by shredding and gasifying the carpet wastes producing bio diesel fuel. This operation is not restricted to a particular carpet pile fibre type, but synthetic carpets provide more diesel than wool carpets.

In Europe and the USA carpet is commonly burned in cement kilns. While there are 13 cement kilns operating in Australia, the economics of collecting and transporting used carpet to these areas needs to be compared to other lower cost methods of disposal.

Other Waste Uses

Many other uses have been developed to keep carpet wastes out of landfill. Examples of these uses are wall and ceiling insulation, weed control and mulch mats.

Carpet recyclers should be consulted about these options.

Disposal to Land Fill

Carpet is non-toxic in land fill and will not leach out toxic chemicals or salts that may adversely effect the environment. Nevertheless carpet disposed to land fill is wasted in terms of the raw materials and this should be the last option for the disposal of used carpet.

In general the synthetic polymers will remain in the land fill for centuries while natural fibres such as wool and jute will biodegrade in less than ten years. The degrading natural fibres produce biogas, which is generally captured and used as an energy source.

Post Consumer Carpet and Installation Waste

The objective of carpet waste management is to maximise the lifetime of carpet use and then minimise the environmental impacts associated with carpet disposal after reuse options are exhausted.





Carpet Institute of Australia Limited

PO Box 7172, St Kilda Road, Melbourne 8004

Tel: (03) 9804 5559 • Fax: (03) 9804 5560

Email: info@carpetoz.com.au • Web: www.carpetinstitute.com.au

For peace of mind buy ACCS graded carpet

