Standard No: CCCPv1.0i-2017
Issued: 6 July 2017

Good Environmental Choice Australia
Environmental Performance Standard

Cement, Concrete and Concrete Products

Issued by: Good Environmental Choice Australia Ltd

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USE OF GECA STANDARDS

This standard identifies environmental, quality, regulatory and social criteria that the top products sold in the Australian marketplace can meet in order to be recognised by GECA as “environmentally preferable”.

This standard seeks to set the benchmark for environmentally preferable products. The Australian Ecolabel Program is based on the international standard ISO 14024: "Environmental Labels and Declarations - Guiding Principles" which requires environmental labelling specifications to include criteria that are objective, reasonable and verifiable.

This standard may be used by GECA appointed conformity assessment bodies to verify whether a product fully conforms to the criteria set by this standard. Where a product is certified under the Australian Ecolabel Program, it may display the GECA ecolabel (the “Environmental Choice Australia Mark”) to show that the product has been independently audited and demonstrates conformance with the environmental and social criteria detailed in this standard.

The purpose of voluntary environmental labels and declarations is the communication of verifiable and accurate information for the numerous environmental aspects of goods and services. As required by the Trade Practices Act the information cannot be misleading. Such information encourages the demand for, and supply of, those products that cause less harm to the environment, thereby stimulating the potential for market-driven continuous environmental improvement. Where a company has a product certified as conforming to this standard, it may gain a marketing advantage in government and business procurement programs, as well as greater market recognition in general because of its independently verified environmental attributes.

The principles of life cycle management have been used to set criteria to address relevant environmental loads typical in a product category. As such, this standard may also offer guidance for Australian producers to reduce the environmentally harmful impacts of their product(s). Producers may use the environmental criteria in this standard to design and refine the processing, manufacturing and delivery of their product(s). In addition producers may find other environmental issues and more measures along the product’s life cycle, which are beyond the content of this standard. Producers are encouraged to include and adapt improvements in their environment programs and designs to aim for even better environmental results where technically possible. GECA welcomes feedback where this has been achieved.

While all GECA ecolabelling standards are voluntary, nevertheless they contain criteria that address compliance with specific laws. In addition, a GECA standard may recognise specific Australian Standards. A prerequisite for certification under the GECA ecolabel is to satisfy the relevant Australian or International Standard, where it is required by law. However, Australian Standards typically define “fit-for-purpose” criteria and usually do not provide assurance of environmental preferability. GECA ecolabelling standards go beyond Australian Standards and define an environmental benchmark for the product category.

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DOCUMENT HISTORY

Status:	Current
Current Version:	1.0i
Date Published:	06 July 2017

Previous Versions	Date Published	Summary of Changes
1.0	February 2017	
1.0i	July 2017	Update: "Definitions and Acronyms"; Inclusion of notes in 'How to apply for GECA Certification' and 'Social and Legal Compliance' sections.

HOW TO APPLY FOR GECA CERTIFICATION

Manufacturers or service suppliers interested in GECA certification using the Environmental Choice Australia Ecolabel are encouraged to read carefully through the entire standard and to evaluate whether their products are likely to conform to the standard and to pass the assessment process.

To launch an application, please contact GECA by phone, email or via the GECA website (www.geca.org.au). The completed application form can be sent to GECA either by mail, fax or email.

After receiving the completed application form and the application fee, GECA refers the verification process to an appointed auditing body. The auditing body contacts the applicant and gives a clear overview of the steps needed to achieve certification for their particular product type.

Note: GECA reserves the right to refuse, suspend or postpone an application if (a) the organisation does not meet minimum compliance with Environmental Law, Labour Law, Fair Pay, Work, Health and Safety, Lawful behaviour (e.g. pending or ongoing lawsuits) (b) the organisation does not have transparent reporting that is available/accessible on request (c) the core mission of the organisation and/or product is in conflict with GECA's mission and/or is perceived by GECA to pose a risk to the GECA brand or reputation.

STRUCTURE OF THE STANDARD

Each section within this standard contains criteria and Demonstration of Conformance (DoC). The criteria state the requirements for the product and applicant company with respect to its environmental performance. The DoCs list the information required to verify compliance to the criteria. Selected sections also contain introductory text which outlines the purpose behind the criteria or the reason for its inclusion in the standard.

REQUESTING ADDITIONAL EVIDENCE

Demonstration of Conformance items are listed for each criterion. The GECA approved auditor/s will request additional information to ensure conformance on a case by case basis. Hence, the conformance items listed below are considered a guide to the minimum Demonstration of Conformance items that will be required from the applicant company.

DEFINITIONS & ACRONYMS

% w/w: Percent weight/weight, equivalent to percent by mass.

AAC: Autoclaved Aerated Concrete is a type of lightweight, pre-cast concrete manufactured in an autoclave to contain air bubbles/pockets throughout the material.

Admixtures: Ingredients in concrete other than cement, water, and aggregate that are added to the mix immediately before or during mixing.

Aggregate: Aggregates are inert granular materials such as sand, gravel, or crushed stone that, along with water and cement, are an essential ingredient in concrete.

Alkali Activated Cement: A binder composed of one or more mineral components containing aluminium and silicon oxides, and generally one or more activators.

Alternative (Non-Portland) Cement: Any alternative cement (displaying cementious properties) that is used in place of general purpose cement and is based on chemistries other than general purpose cement chemistries. This includes but is not limited to Geopolymers/Alkali Activated Cements.

AS: Australian Standard.

ASTM: American Society for Testing and Materials.

CAB: Conformity Assessment Body as described by GECA's Scheme Rules. CABs are often referred to as 'auditors', however only GECA appointed auditors may be used to obtain GECA certification.

Captured or Reclaimed Water: Rainwater captured on either the concrete supplier's manufacturing site, or another site, or water recycled/recovered from previous use such as blackwater or greywater from any locations.

CAS Number: Chemical Abstract Service number. Unique CAS numbers are assigned to chemical compounds as a means of identification.

Cement: Ground substance which has the ability to set and harden by means of chemical reactions when mixed with water, and which after hardening, retains its strength and stability. In this standard cement includes general purpose cement and alternative (non-portland) cement.

Concrete: Material formed by mixing cement, aggregate (coarse and/or fine) and water, with or without the incorporation of admixtures and additions.

Copper Slag: By-product formed during the copper smelting process where the molten copper forms at the bottom of the furnace and molten slag is formed on top and can be drained off.

Demonstration of Conformance (DoC):. Defines sources of evidence acceptable to GECA to demonstrate compliance with each criterion of the standard. An applicant manufacturer must provide documentation to the appointed auditing body in order to demonstrate conformance of its products under assessment. For further information on Demonstration of Conformance requirements see *Evidence of Conformance* at the end of this standard.

EMS: Environmental Management System.

EPD: Environmental Product Declaration.

Fly Ash: A residue generated in combustion of fine particles that rise with the flue gases. Usually refers to the ash produced during the combustion of coal.

GECA: Good Environmental Choice Australia Ltd.

GECA Mark: The Good Environmental Choice Australia Mark, the mark awarded to applicants complying with GECA ecolabelling standards after assessment by a GECA appointed auditing body.

General Purpose Cement (as defined in AS 3972): A hydraulic cement containing portland cement and, at the discretion of the cement manufacturer, may contain a combination of mineral additions alone or in combination with minor additional constituents (maximum 5%) up to 7.5% by mass of the total cement.

Geopolymer Cement: A binder consisting of an inorganic polymeric material which is formed as a result of a geopolymerisation process and is regarded as an alternative to general purpose cement. Materials suitable for geopolymerisation include alumosilicates (minerals composed of aluminium, silicon, and oxygen), which can be found in nature (metakaolin, natural pozzolanic materials) or industrial wastes (flyash, GBFS).

GGBS: Ground Granulated Blast Furnace Slag is a by-product of the iron and steel industry. The slag is the left-over material (which floats to the top) when smelting iron ore in a blast furnace. Granulated slag is formed by quickly cooling (quenching) molten slag with water and ground to a fine powder it possesses hydraulic properties when suitably activated.

GHS: Global Harmonized System of Classification and Labeling of Chemicals

Heavy Metal: Elements including lead (Pb), cadmium (Cd), mercury (Hg), chromium (Cr), arsenic (As) and cobalt (Co).

IARC: International Agency for Research on Cancer.

ISO: International Organization for Standardization.

LCA: Life Cycle Assessment.

Packaging: Materials used for the transport, containment or display of products.

Portland Cement: A hydraulic cement that is manufactured as a homogenous product by grinding together portland cement clinker and calcium sulphate (gypsum). It is also referred to as Ordinary Portland Cement.

Portland Cement Clinker: Partially fused product resulting from intimate mixing of calcareous and argillaceous or other silica, alumina or iron-bearing materials, or any combination of these materials, and burning these at a clinkering temperature.

Post-Consumer Material: Post-consumer material is generated by end-users (including households, businesses, industries and institutions) from products that can no longer be used for their intended purpose. Post-consumer material also includes the return of material from distribution chains.

Pozzolanic Materials: A siliceous or siliceous and aluminous material, which in itself possesses little or no cementing property, but will in a finely divided form - and in the presence of moisture - chemically react with calcium hydroxide at ordinary temperatures to form compounds possessing cementitious properties.

Pre-Cast Concrete: Concrete that is cast in a factory setting including a wide range of products, including for example concrete bricks, blocks, paving stones, and wall panels.

Pre-Consumer Material: Pre-consumer (sometimes also referred to as post-industrial) material is recovered from the manufacturing process before it is sold to end consumers.

Producer / Manufacturer: For the purpose of this standard these terms comprise both manufacturers of a product as well as service suppliers. These may not necessary be the companies that apply for GECA certification, since certification can also be awarded to retailers of a product. However, for some criteria it is required that the original manufacturer of the product conforms to particular requirements.

REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals.
http://echa.europa.eu/web/guest/regulations/reach.

QMS: Quality Management System.

Ready-Mix Concrete: A common form of concrete which is prepared for delivery at a concrete plant instead of being mixed on the construction site.

Recycled Content: Denotes the proportion of a product that is generated from post-consumer and pre-consumer material.

SCM: Supplementary Cementitious Materials that are a by-product from other processes or natural materials (e.g. pozzolans, ground granulated blast furnace slag (GGBS), fly ash, amorphous silica).

SDS: Safety Data Sheet (formerly Material Safety Data Sheet – MSDS). Contains information relating to the composition, classification and risk assessment of the product. To qualify as suitable, the SDS and information therein must not be more the 5-years old.

WSA's CPA: World Steel Association's (WSA) Climate Action Program (CPA). https://www.worldsteel.org/steel-by-topic/climate-change.html

WBCSD-CSI: The World Business Council for Sustainable Development's Cement Sustainability Initiative is a global effort by 25 major cement producers with operations in more than 100 countries.

Note: All percentages described in this document are to be measured as percent by mass.

BACKGROUND

Good Environmental Choice Australia (GECA) is a not-for-profit organisation running an independently audited green certification program. GECA develops standards against which environmentally preferable products can get certified. These standards are designed to reward top performing products and services. The Cement, Concrete and Concrete Products Standard is a new standard and as described in GECA's Standards Development Guidelines, consultation with stakeholders and technical experts was undertaken as part of the standards development process.

GECA aims to target the key environmental impacts of products across their lifecycle. Due to its properties such as strength, durability, affordability, and availability of raw materials, concrete is a popular choice for many building projects. However, the environmental consequences of cement and concrete production can be significant and major environmental loads stem from the sourcing and manufacturing phase in the life cycle, such as sourcing of raw materials, water and energy usage, and release of CO_2.

Recent sustainable initiatives are aiming at improving cement and concrete production and composition, and lessen its environmental impact. The GECA standard is seeking to support and reward these efforts to minimise impacts of cement and concrete products. It enables manufactures to gain access to credits under green building/infrastructure rating tools and provides assurance for green procurers and specifiers when looking for products with a lower environmental impact.

STANDARD CATEGORY SCOPE

Criterion 1: The product shall fall within the scope of this standard. The scope of this standard is applicable to...

Category A Cement and Supplementary Cementitious Materials (SCM)	Category B Concrete	Category C Concrete Products
Including but not limited to:	Including but not limited to:	Products with >50% (by weight) concrete including but not limited to:
▪ General purpose cement and mixtures of general purpose cement blended with materials such as fly ash, slag or naturally occurring pozzolanic materials.	▪ Ready mix concrete ▪ Concrete manufactured in temporary batching plants (on site)	▪ Concrete masonry ▪ Precast concrete ▪ Concrete pipes ▪ Concrete roof tiles ▪ Autoclaved Cellular Concrete (ACC) (e.g. in panels or noise barriers)

Exclusions and Notes

Any adhesive products based on cementitious materials are excluded from this standard as they fall under GECA's Adhesives, Fillers and Sealants standard.

Concrete and concrete products based on alternative (non-portland) cement are included in Category B and C, respectively.

Demonstration of Conformance

DoC 1.1: A brief description of the product(s) or product range as they apply to the scope of this standard, accompanied by a list including the location of plants, manufacturing/assembly sites and the origin of the virgin and/or alternative raw materials.

Structure of the Standard

The standard contains three distinct categories (as defined in Criterion 1:) and is divided into sections containing the criteria applicable to that category. This will give you the opportunity to only look at the section that is of interest/relevant for you and/or that your product would fall under.
The requirements for Environmental Claims and the Social and Legal Requirements are common for all three categories and hence are mentioned at the end of the three sections.

CATEGORY A – CEMENT

FITNESS FOR PURPOSE

To be certified, the product(s) must be fit to perform its intended purpose or application. A minimum level of quality and durability is implicit before the GECA ecolabel can be displayed on the product. The applicant must ensure that the product is fit for its intended purpose.

Criterion 2: The product shall be fit for its intended purpose and shall meet performance requirements of relevant Australian standards, or prove fitness for purpose with other appropriate documentation.

General purpose cement based products shall meet the requirements of AS3972 and be tested in accordance with AS/NZS 2350.

To ensure the quality standards are maintained, a Quality Management System (QMS) consistent with ISO 9001 shall be in place.

Demonstration of Conformance

DoC 2.1: Documentation identifying applicable standards or performance requirements met by the product supported by relevant test reports and results. Documentation showing that a QMS is in place.

MATERIAL REQUIREMENTS

The criteria in this section are intended to address impacts that may occur over the life cycle of a product that can be avoided or mitigated during the design phase of product development.

Unless otherwise stated, the requirements in this section apply to each type of material contained in the finished product regardless of weight.

Raw Material Sourcing

Most virgin raw materials (e.g. limestone, silica, alumina, iron oxide, gypsum) needed for the production of cement require some form of mining or quarrying. These activities can be linked to an extended land-use and exploitation of natural resources (excavations, quarrying, ground water and lime stone) which can create environmental and social issues. This can include threatening of biodiversity and ecosystems in adjacent areas, erosion in coastal and river banks, or pollution of waterways through increased turbidity and suspended solids. Local impacts may also include noise and dust pollution, and landscape damage which may be considered significant by the local community.

Criterion 3: Virgin mined/quarried raw materials shall come from mining/quarrying operations:

- Which have and implement a management plan to minimise adverse effects from noise, vibration, dust, and discharges to water and land;
- With a documented rehabilitation program;
- With an implemented EMS in accordance with ISO 14001;
- With community engagement or cultural heritage plans.

Demonstration of Conformance

DoC 3.1: Information about the virgin material procurement program and records of the supplier, nature and geographical source of all virgin mined material inputs; and

DoC 3.2: Certificates or other evidence of implemented EMS; documented mine rehabilitation program, and community engagement or cultural heritage plans.

Manufacturing Process

Cement manufacturing processes use energy and water, generate waste, and can cause emissions of significant amounts of CO_2 and a range of pollutants. The main environmental impacts of cement manufacturing can occur on a global, regional or local scale. Global impacts include the use of energy (e.g. in the kiln, in grinding operations or through transportation), the release of CO_2, and the use of fossil resources as fuel for the kiln. Regional and local impacts would include the emission of pollutants such as NOx, SOx, and dust.
Research and development in the cement has included improvements in processing technologies to reduce energy and fuel use, usage of alternative fuels in the kiln, replace an amount of clinker in the cement with mineral additives and blend cement with supplementary cementitious materials (SCM).
Another approach to reducing CO_2 emissions is the use of alternative cement chemistries, including the development of novel cements. The goal of the development of these novel cements is the use of different raw materials than used in the usual cement manufacture to further reduce CO_2 emissions and energy requirements.

Cement

Criterion 4: The product shall fulfil **at least one** of the following criteria:

SCM: The product shall contain at least 30% of Supplementary Cementitious Materials (SCM). SCM materials must comply with AS 3582 for Supplementary Cementitious Materials for use with general purpose and blended cement series; or

CO_2 Emissions: It shall be demonstrated that the manufacturing plant(s) has implemented technologies/methods that lead to a reduction in CO_2 emissions. The CO_2 emissions of the manufacturing plant(s) must be lower than 605 kg CO_2/tonne of cement; or

Demonstration of Conformance

DoC 4.1: SCM: Information about the type and amount of SCM in the cement, and calculations showing the % (by mass) of SCM in the product. The amount of SCM that may already be contained in the general purpose cement (maximum 7.5%) does not count towards the 30% SCM; or

DoC 4.2: CO_2 emissions: Information about technologies/methods used together with documentation listing details on CO_2 emissions. The calculation of CO_2 emissions has to be in accordance with the World Business Council on Sustainable Development's – Cement Sustainability Initiative's (WBCSD-CSI) "CO_2 and Energy Accounting and Reporting Standard" (www.wbcsdcement.org/pdf/tf1_co2%20protocol%20v3.pdf).

Environmental Management Systems

An Environmental Management System (EMS) integrates procedures and processes for training of personnel, monitoring and reporting of environmental performance information to stakeholders of an organisation. The EMS aims to identify and address significant environmental impacts of the manufacturing operations.

Criterion 5: The applicant / manufacturer shall have an Environmental Management System in place that is in accordance with ISO 14001. The environmental aspects including but not limited to the following shall be among the ones addressed by the EMS:

- Emissions to air (including but not limited to: SO_2, dust/PM)
- Releases to water and land
- Waste management (waste and by-products)
- Storage and handling of hazardous raw materials and dangerous goods
- Noise management

Demonstration of Conformance

DoC 5.1: Documentation showing an Environmental Management System (in accordance with ISO 14001) is in place which addresses the above mentioned environmental aspects supported by relevant documentation such as ISO14001 certificate, Aspects and Impacts Register, recent certification audit report and any other information as per the discretion of the auditor .

HAZARDOUS MATERIALS

The criteria in this section are intended to address some of the main hazardous substances found across this product category which may be added to the final product or to product ingredients during manufacturing. The intention is to reduce the use of hazardous materials and to prevent pollutants entering the environment and to protect human health.

Banned Substances

Certain substances or compound classes have been identified as particularly harmful for human health and/or the environment.

Criterion 6: In order to promote the reduction of pollutant hazards in the manufacture, use, or disposal of products the following substances (and where appropriate, their compounds) shall not be added to products or used during manufacture:

- Compounds or ingredients that are or may decompose into substances that are classified as a known or suspected endocrine disruptor, carcinogen, mutagen or teratogen, including:
    - any R45 (H350), R46 (H340), R48 (H372, H373), R49 (H350) substances,
    - IARC group 1 or 2A substances,
    - EU consolidated list of C/M/R category 1 or 2 substances.
- Substances of Very High Concern listed on the REACH Candidate list (http://echa.europa.eu/candidate-list-table).
- Toxic heavy metals and their compounds, or ingredients containing heavy metals and their compounds, including lead (Pb), cadmium (Cd), mercury (Hg), chromium (Cr), arsenic (As), selenium (Se), cobalt (Co), tin (Sn) and antimony (Sb), and Nickel must not be deliberately added or used.

Exemptions:

Above substance may be present as contaminants. Contaminants are defined as residues from raw material production or from a previous lifecycles (in case of recycled materials) present in the finished product, in raw materials or in alternative fuels used in the kiln, but not substances that are added to a raw material or product for a purpose, irrespective of quantity. Trace levels of contaminants may not exceed publically available safety standards.

Exemptions for a specific substance may be permitted only where the applicant can demonstrate that the substance:

- is necessary for performance or safety reasons; and
- is stored and managed in a manner that prevents environmental pollution during manufacture; and
- is chemically bound in a way that will prevent environmental pollution upon disposal by landfill or incineration.

Demonstration of Conformance

DoC 6.1: Ingredients list for the product and Safety Data Sheet (SDS) for each ingredient, identification of potential contamination sources. If a substance is present as contaminant, applicable safety standards and procedures that are met have to be detailed.

DoC 6.2: Where an exemption is claimed for a substance that is added for a purpose, a signed declaration from an Executive Director of the applicant company stating the purpose for which the given substance is necessary; documentation clearly outlining how each chemical is used, managed and stored; and evidence that human exposure or environmental contamination is prevented.

DESIGN FOR ENVIRONMENT

Packaging

Criterion 7: Packaging shall comply with at least one of the following:

- Each material constituting >20% by weight of the total primary and secondary packaging used, must contain at least 50% recycled content by weight;
- Each material constituting >20% by weight of the total primary and secondary packaging used, must be derived from plant-based materials (e.g. PLA plastics); or
- Each separable item constituting >20% by weight of the total primary and secondary packaging, must be recyclable in Australia. This may be demonstrated using the Australian Packaging Covenant's Packaging Recyclability Evaluation Portal (PREP).

Paper and cardboard packaging must be either certified under recognised forest certification scheme (e.g. FSC or PEFC) or contain at least 30% recycled content by weight.

Material used for the transport of products (tertiary packaging) and whose disposal is not the responsibility of the end-consumer may be exempt from the above requirements if they are re-used by the applicant, or are recyclable in specialist recycling facilities.

Demonstration of Conformance

DoC 7.1: Details of materials used as packaging, including information on the input of recycled and virgin materials reported by weight if applicable. The recycled content can be averaged over a 12-month period to find the amount or range of recycled content; and / or

DoC 7.2: Evidence of recyclability or copy of PREP Assessment Report; and/or

DoC 7.3: Evidence of certification under relevant forest certification scheme; and/or

DoC 7.4: Details of re-use programs for transport materials within the applicant company.

CATEGORY B – CONCRETE

FITNESS FOR PURPOSE

To be certified, the product(s) must be fit to perform its intended purpose or application. A minimum level of quality and durability is implicit before the GECA ecolabel can be displayed on the product. The applicant must ensure that the product is fit for its intended purpose.

Criterion 8: The product shall be fit for its intended purpose and must meet performance requirements of relevant Australian or international standards, or prove fitness for purpose with other appropriate documentation.

Ready-Mix Concrete shall meet the requirements of AS1379 (or equivalent international standards) and be tested in accordance with AS1012.
Concrete made from Geopolymer Cement needs to be in accordance with the guidelines in the handbook "Z16-Geopolymer Concrete; a Recommended Practice" published by the Concrete Institute of Australia.[1] (https://www.concreteinstitute.com.au/News/National/Release-of-Z16-Geopolymer-Recommended-Practice-H.aspx)

To ensure the quality standards are maintained, a Quality Management System (QMS) consistent with ISO 9001 shall be in place.

Demonstration of Conformance

DoC 8.1: Documentation identifying applicable standards or performance requirements met by the product supported by relevant test reports and results. Documentation showing that a QMS is in place.

MATERIAL REQUIREMENTS

The criteria in this section are intended to address impacts that may occur over the life cycle of a product that can be avoided or mitigated during the design phase of product development.

Unless otherwise stated, the requirements in this section apply to each type of material contained in the finished product regardless of weight.

Raw Material Sourcing

Most raw materials needed for the production of cement and for the mixing of concrete, require some form of mining or quarrying. These activities can be linked to an extended land-use and exploitation of natural resources (excavations, quarrying, ground water and lime stone) which can create environmental and social issues. This can include threatening of biodiversity and ecosystems in adjacent areas, erosion in coastal and river banks, or pollution of waterways through increased turbidity and suspended solids. Local impacts may also include noise and dust pollution, and landscape damage which may be considered significant by the local community.
Cement only makes up about 10–15% of the concrete but cement's production can still be considered as a major contributor to the overall environmental impact. Other raw materials of concrete that involve mining or quarrying include aggregates. Aggregates typically account for 70–80 % of the concrete volume and play a substantial role in different concrete properties such as workability, strength, dimensional stability and durability. Most often, sand is used as fine aggregate and various sized and shaped gravel as coarse aggregate. Both sand and gravel are usually obtained through mining. This can be in-stream extraction (dredging) or land mining usually involving blasting. Although impacts from aggregate sourcing are relatively small compared to the environmental impact from cement production, they can be important problems on a regional scale.

Cement

[1] A handbook on geopolymers is being developed and expected to be published in 2017. The required guidelines in this standard may be updated then to reflect the current development.

Criterion 9: The cement used in the concrete shall be GECA certified or fulfil the requirements listed in Criterion 4: (Section A - Cement); or

The portland cement content in the product shall be reduced by 30% by mass (compared to the reference case); or

For products based on alternative cement chemistry (e.g. Alkali Activated Cement): It shall be demonstrated that the concrete is produced using alternative cement chemistries (to general purpose cement) which lead to less virgin raw materials being used, and reduced CO_2 emissions and energy requirements.
However, the following conditions apply:

- The product must be accompanied by an EPD or LCA reporting/disclosing the other environmental impacts.[2]
- Only Ground blast furnace slag and Fly ash (GBFS) geopolymers allowed when compared to MK Metakaolin (MK) geopolymers.

Demonstration of Conformance

DoC 9.1: GECA certificate for the cement used in the concrete; or

DoC 9.2: See DoC in Criterion 4:; or

DoC 9.3: Information about the type and amount of SCM in the cement, and calculations showing the portland cement is reduced by 30% (by mass) in the product compared to the reference case (see Table 1); or

Table 1. Reference case portland cement contents for use in establishing portland cement reductions.

Concrete Strength (MPa)	Reference case portland cement content (kg/m^3)
20	280
25	310
32	360
40	440
50	550
65	550
80	610
100	660

DoC 9.4: For products based on alternative cement: Information on the type of cement in the product accompanied by an EPD or LCA. The LCA must be generated in accordance with internationally applicable LCA techniques specified in ISO 14044:2006 (Environmental Management – Life Cycle Assessment – Requirements and Guideline) and independently peer reviewed in accordance with ISO 14044. The EPD must be issued in conformance with ISO 14025 or EN15804, be independently audited and must be based on a cradle-to-gate scope (as a minimum).

Aggregates

Criterion 10: At least 40% of (virgin) coarse aggregate in the concrete shall be replaced by recycled aggregate or other alternative materials (e.g. reused by-products); or

At least 25% of (virgin) fine aggregate (sand) in the concrete shall be manufactured sand or other alternative materials; or

Coarse and/or fine aggregates used in the concrete are certified under GECA's Recycled Products standard.

The use of alternative materials should not increase the use of general purpose cement by over 5 kg/m^3 of concrete;

[2] This is intended as a first step for geopolymers (and other products with alternative cement chemistries) to disclose their other environmental impacts (i.e. other than global warming potential impacts) as research is still not conclusive and this information will add to the body of research while in the meantime encouraging a low carbon material/product.

Alternative materials include but are not limited to washed copper slag, blast furnace slag, recycled concrete aggregate, granulated blast furnace slag, recycled concrete and masonry, fly ash, steel furnace slag, furnace bottom ash, coal washery reject, reclaimed aggregate, reclaimed asphalt pavement, glass cullet, scrap tyres, used foundry sand or spent foundry sand.

Demonstration of Conformance

DoC 10.1: Information on type, amount and source of material used to replace virgin aggregate materials; or

DoC 10.2: GECA certificate for the aggregates used in the concrete.

Mix Water

Criterion 11: Where the concrete is mixed by the manufacturer in a batch plant or during transportation, 50% of the mixing water shall be reclaimed (e.g. reused water or brine) or captured water.

Demonstration of Conformance

DoC 11.1: Calculations showing overall reclaimed or recaptured water used in mix water.

Manufacturing Process

Concrete manufacturing processes use energy and water, generate waste, and may cause emissions of pollutants. Concrete is produced by blending precise amounts of cement, aggregates, chemical additives and water. This process takes place in a concrete batch plant. Concrete mixing trucks then transport already-mixed concrete to its destination, or the mixing can actually be performed by the truck as it is traveling to the site. Although each of the constituents of concrete has its own environmental impact, the overall impact of concrete is significantly influenced by the cement and aggregates industry. However, depending on the type of concrete product, there may be additional significant impacts form the batch plant such as water usage and emission, and local pollution (noise, dust).

Environmental Management Systems

An Environmental Management System (EMS) integrates procedures and processes for training of personnel, monitoring and reporting of environmental performance information to stakeholders of an organisation. The EMS aims to identify and address significant environmental impacts of the manufacturing operations.

Criterion 12: The applicant / manufacturer shall have an Environmental Management System in place that is in accordance with ISO 14001-2015. The environmental aspects including but not limited to the following should be among the ones addressed by the EMS:

- Emissions to air (including but not limited to: SO_2, dust/PM)
- Releases to water and land
- Waste management (waste and by-products)
- Storage and handling of hazardous raw materials and dangerous goods
- Noise management

Demonstration of Conformance

DoC 12.1: Documentation showing an Environmental Management System (in accordance with ISO 14001:2015) is in place which addresses the above mentioned environmental aspects supported by relevant documentation such as ISO14001 certificate, Aspects and Impacts Register, recent certification audit report and any other information as per the discretion of the auditor.

HAZARDOUS MATERIALS

The criteria in this section are intended to address some of the main hazardous substances found across this product category which may be added to the final product or to product ingredients during manufacturing. The intention is to reduce the use of hazardous materials and to prevent pollutants entering the environment and to protect human health.

Banned Substances

Certain substances or compound classes have been identified as particularly harmful for human health and/or the environment.

Criterion 13: In order to promote the reduction of pollutant hazards in the manufacture, use, or disposal of products the following substances (and where appropriate, their compounds) shall not be added to products or used during manufacture:

- Compounds or ingredients that are or may decompose into substances that are classified as a known or suspected endocrine disruptor, carcinogen, mutagen or teratogen, including:
    - any R45 (H350), R46 (H340), R48 (H372, H373), R49 (H350) substances,
    - IARC group 1 or 2A substances,
    - EU consolidated list of C/M/R category 1 or 2 substances.
- Substances of Very High Concern listed on the REACH Candidate list (http://echa.europa.eu/candidate-list-table).
- Toxic heavy metals and their compounds, or ingredients containing heavy metals and their compounds, including lead (Pb), cadmium (Cd), mercury (Hg), chromium (Cr), arsenic (As), selenium (Se), cobalt (Co), tin (Sn) and antimony (Sb) and Nickel, must not be deliberately added or used.

Exemptions:

Above substance may be present as contaminants. Contaminants are defined as residues from raw material production or from a previous lifecycles (in case of recycled materials) present in the finished product, but not substances that are added to a raw material or product for a purpose, irrespective of quantity. Trace levels of contaminants may not exceed publically available safety standards.

Exemptions for a specific substance may be permitted only where the applicant can demonstrate that the substance:

- is necessary for performance or safety reasons; and
- is stored and managed in a manner that prevents environmental pollution during manufacture; and
- is chemically bound in a way that will prevent environmental pollution upon disposal by landfill or incineration.

Demonstration of Conformance

DoC 13.1: Ingredients list for the product and SDS for each ingredient, identification of potential contamination sources. If a substance is present as contaminant, applicable safety standards and procedures that are met have to be detailed.

DoC 13.2: Third party laboratory test reports for a leaching test (TLCP) to test for heavy metals and organic compounds of environmental concern (according to the US EPA 1311 test Toxicity Characteristic Leaching Procedure (TCLP) or AS4020).

DoC 13.3: Where an exemption is claimed for a substance that is added for a purpose, a signed declaration from an Executive Director of the applicant company stating the purpose for which the given substance is necessary; documentation clearly outlining how each chemical is used, managed and stored; and evidence that human exposure or environmental contamination is prevented.

Asbestos

Inhalation of asbestos fibres may lead to a number of serious health risks, including asbestosis and the cancer mesothelioma.

Criterion 14: It shall be shown that procedures are in place to identify and reject material (e.g. recycled aggregate raw feed) containing asbestos.

Demonstration of Conformance

DoC 14.1: Copy of procedure in place and proof of implementation of the procedure (e.g. checklists, testing procedures and results).

Admixtures and Colours

Admixtures are ingredients (mostly organic chemicals) added to the concrete mixture to improve or change properties such as setting times, workability and durability. They are mostly and conventionally added in amounts less than 5% by weight. Polished concrete floors or certain types of architectural/decorative concrete may also use colours with ingredients potentially harmful or with a potential impact on the environment.

Criterion 15: Any admixtures used shall meet the requirements of AS 1478 (Chemical Admixtures for concrete, mortar and grout) and the following information shall be made available to the end-user:

- Name and type of admixture used
- Chemical composition (chemical class and classification of the principal active ingredient)

Demonstration of Conformance

DoC 15.1: SDSs for all admixtures uses accompanied by documentation showing that requirements of AS 1478 are met.

Criterion 16: Any colours used in the product shall pass Criterion 13:.

Demonstration of Conformance

DoC 16.1: See DoC 13.1:.

DESIGN FOR ENVIRONMENT

Product Installation

Criterion 17: It shall be shown that some initiative is taken towards reducing the impact from the product's installation by:

- Having a scheme to take back off-cuts and waste from installation; and
- Providing good practice guidelines to designer, constructors and other users that address:
    - Efficient Installation
    - Waste minimisation during installation
    - Water addition (if applicable)
    - Any take back scheme in place

Demonstration of Conformance

DoC 17.1: Description and proof of scheme to take back off-cuts; and copy of any guidelines and/or information provided to user.

Recyclability

Criterion 18: Some initiative shall be taken towards reducing the impact from the product's usage and/or end-of life by showing that:

- The product is recyclable at the end of its life/ elements that may prevent recycling have been avoided; or
- Information is provided to the user on recycling of the product (e.g. possible options for recycling, with names of recycling facilities where possible).

Demonstration of Conformance
Description and proof of: recyclability of product; or information provided to the user on recycling of the product (e.g. possible options for recycling, with names of recycling facilities where possible

CATEGORY C – CONCRETE PRODUCTS

FITNESS FOR PURPOSE

To be certified, the product(s) must be fit to perform its intended purpose or application. A minimum level of quality and durability is implicit before the GECA ecolabel can be displayed on the product. The applicant must ensure that the product is fit for its intended purpose.

Criterion 19: The product shall be fit for its intended purpose and must meet performance requirements of relevant Australian or international standards, or prove fitness for purpose with other appropriate documentation.

Relevant standards include, but are not limited to: AS3600; AS 3700; ASNZS 4058;
Further guidance on applicable standards specific to product types can be found here:
http://infostore.saiglobal.com/store/getpage.aspx?path=/publishing/shop/productguides/buildingproducts.htm?site=bcmicrosite

To ensure the quality standards are maintained, a Quality Management System (QMS) consistent with ISO 9001 shall be in place.

Demonstration of Conformance

DoC 19.1: Documentation identifying applicable standards or performance requirements met by the product supported by relevant test reports and results. Documentation showing that a QMS is in place.

MATERIAL REQUIREMENTS

The criteria in this section are intended to address impacts that may occur over the life cycle of a product that can be avoided or mitigated during the design phase of product development.

Unless otherwise stated, the requirements in this section apply to each type of material contained in the finished product regardless of weight.

Raw Material Sourcing

Most raw materials needed for the production of cement and for the mixing of concrete, require some form of mining or quarrying. These activities are linked to an extended land-use and exploitation of natural resources (excavations, quarrying, ground water and lime stone) which can create environmental and social issues. This can include threatening of biodiversity and ecosystems in adjacent areas, erosion in coastal and river banks, or pollution of waterways through increased turbidity and suspended solids. Local impacts may also include noise and dust pollution, and landscape damage which may be considered significant by the local community.

Cement

Criterion 20: The cement used in the concrete shall be GECA certified OR fulfil the requirements listed in Criterion 9: (Section B -Concrete);

Demonstration of Conformance

DoC 20.1: GECA certificate for the cement used in the concrete; or

DoC 20.2: See DoC in Criterion 9:.

Aggregates

Criterion 21: Any aggregates used shall fulfil the requirements of Criterion 10: (Section B - Concrete).

Demonstration of Conformance
See DoC in Criterion 10:.

Mix Water

Criterion 22: 50% of the mixing water used in the manufacture of the concrete product shall be reclaimed (e.g. reused water or brine) or captured water.

Demonstration of Conformance

DoC 22.1: Calculations showing overall reclaimed or recaptured water used in mix water.

Additional Materials

Criterion 23: Steel: All the steel in the product shall be sourced from a steel maker that has a currently valid and certified ISO 14001 Environmental Management System in place and is a member of the World Steel Association's (WSA) Climate Action Program (CPA).

Demonstration of Conformance

DoC 23.1: Signed declaration of the steel manufacturer supported by relevant documentation (ISO certification and CAP certificate from the WSA).

Criterion 24: Timber (applies to non-recycled timber components): All virgin wood fibre shall be covered by valid sustainable forest management and/or chain of custody certificates issued by an independent third party certification scheme such as FSC, PEFC or equivalent.

Where certification schemes allow mixing of certified material, recycled materials and uncertified material, the proportion of uncertified material shall not exceed 50%. Such uncertified material shall be covered by a verification system which ensures that it is legally sourced and meets any other requirement of the certification scheme with respect to uncertified material. The certification bodies issuing forest and/or chain of custody certificates shall be accredited/recognised by that certification scheme.

Demonstration of Conformance

DoC 24.1: Signed declaration of compliance, supported by relevant certificates or other evidence of forest management certification and/or chain of custody certification (to confirm the required amount of virgin fibre that is used in the product is from a certified sustainably managed source); and relevant certificates or other evidence to confirm that the wood originates from legal sources.

Criterion 25: Other materials used in the product (e.g. plastic fibres) shall be manufactured using at least 90% recycled materials and should not prevent recycling of the concrete at the end of its life.

Demonstration of Conformance

DoC 25.1: Signed declaration of compliance, supported by relevant documentation and evidence of recycled content.

Manufacturing Process

Concrete product manufacturing processes use energy and water, generate waste, and can cause emissions of a range of pollutants. Depending on the concrete product, the manufacturing process may be very similar to concrete manufacturing or may require other manufacturing facilities and processes. Similar to concrete manufacturing, the impact of concrete products is significantly influenced by the amount of cement used. In addition to the impact from cement, the manufacturing process may produce waste and emissions to air and water.

Environmental Management Systems

An Environmental Management System (EMS) integrates procedures and processes for training of personnel, monitoring and reporting of environmental performance information to stakeholders of an organisation. The EMS aims to identify and address significant environmental impacts of the manufacturing operations.

Criterion 26: The applicant / manufacturer shall have an Environmental Management System in place that is in accordance with ISO 14001-2015. The environmental aspects including but not limited to the following should be among the ones addressed by the EMS:

- Emissions to air (including but not limited to: SO2, dust/PM)
- Releases to water and land
- Waste management (waste and by-products)
- Storage and handling of hazardous raw materials and dangerous goods
- Noise management

Demonstration of Conformance

DoC 26.1: Documentation showing an Environmental Management System (in accordance with ISO 14001:2015) is in place which addresses the above mentioned environmental aspects supported by relevant documentation such as ISO14001 certificate, Aspects and Impacts Register, recent certification audit report and any other information as per the discretion of the auditor.

HAZARDOUS MATERIALS

The criteria in this section are intended to address some of the main hazardous substances found across this product category which may be added to the final product or to product ingredients during manufacturing. The intention is to reduce the use of hazardous materials and to prevent pollutants entering the environment and to protect human health.

Banned Substances

Certain substances or compound classes have been identified as particularly harmful for human health and/or the environment.

Criterion 27: In order to promote the reduction of pollutant hazards in the manufacture, use, or disposal of products the following substances (and where appropriate, their compounds) shall not be added to products or used during manufacture:

- Compounds or ingredients that are or may decompose into substances that are classified as a known or suspected endocrine disruptor, carcinogen, mutagen or teratogen, including:
    - any R45 (H350), R46 (H340), R48 (H372, H373), R49 (H350) substances,
    - IARC group 1 or 2A substances,
    - EU consolidated list of C/M/R category 1 or 2 substances.
- Substances of Very High Concern listed on the REACH Candidate list (http://echa.europa.eu/candidate-list-table).

- Toxic heavy metals and their compounds, or ingredients containing heavy metals and their compounds, including lead (Pb), cadmium (Cd), mercury (Hg), chromium (Cr), arsenic (As), selenium (Se), cobalt (Co), tin (Sn) and antimony (Sb), and Nickel must not be deliberately added or used.

Exemptions:

Above substance may be present as contaminants. Contaminants are defined as residues from raw material production or from a previous lifecycles (in case of recycled materials) present in the finished product, but not substances that are added to a raw material or product for a purpose, irrespective of quantity. Trace levels of contaminants may not exceed publically available safety standards.

Exemptions for a specific substance may be permitted only where the applicant can demonstrate that the substance:

- is necessary for performance or safety reasons; and
- is stored and managed in a manner that prevents environmental pollution during manufacture; and
- is chemically bound in a way that will prevent environmental pollution upon disposal by landfill or incineration.

Demonstration of Conformance

DoC 27.1: Ingredients list for the product and SDS for each ingredient, identification of potential contamination sources. If a substance is present as contaminant, applicable safety standards and procedures that are met have to be detailed.

DoC 27.2: Third party laboratory test reports for a leaching test (TLCP) to test for heavy metals and organic compounds of environmental concern (according to the US EPA 1311 test Toxicity Characteristic Leaching Procedure (TCLP) or AS 4439 – 1997 Bottle Leaching Procedure).

DoC 27.3: Where an exemption is claimed for a substance that is added for a purpose, a signed declaration from an Executive Director of the applicant company stating the purpose for which the given substance is necessary; documentation clearly outlining how each chemical is used, managed and stored; and evidence that human exposure or environmental contamination is prevented.

Asbestos

Inhalation of asbestos fibres may lead to a number of serious health risks, including asbestosis and the cancer mesothelioma.

Criterion 28: It shall be shown that procedures are in place to identify and reject material (e.g. recycled aggregate raw feed) containing asbestos.

Demonstration of Conformance

DoC 28.1: Copy of procedure in place and proof of implementation of the procedure (e.g. checklists, testing procedures and results).

Admixtures and Colours

Admixtures are ingredients (mostly organic chemicals) added to the concrete mixture to improve or change properties such as setting times, workability and durability. They are mostly and conventionally added in amounts less than 5% by weight. Polished concrete floors or certain types of architectural/decorative concrete may also use colours with ingredients potentially harmful or with a potential impact on the environment.

Criterion 29: Any admixtures used have to meet the requirements of AS 1478 (Chemical Admixtures for concrete, mortar and grout) and the following information has to be made available to the end-user:

- Name and type of admixture used
- Chemical composition (chemical class and classification of the principal active ingredient)

Demonstration of Conformance

DoC 29.1: SDSs for all admixtures uses accompanied by documentation showing that requirements of AS 1478 are met.

Criterion 30: Any colours used in the product must pass Criterion 13:.

Demonstration of Conformance

DoC 30.1: See DoC 13.1:.

DESIGN FOR ENVIRONMENT

Product Installation

Criterion 31: It shall be shown that some initiative is taken towards reducing the impact from the product's installation by:

- Having a scheme to take back off-cuts and waste from installation; and
- Providing good practice guidelines provided to designer, constructors and other users that address:
  - Efficient Installation
  - Waste minimisation during installation
  - Water addition (if applicable)
  - Any take back scheme in place

Demonstration of Conformance

DoC 31.1: Description and proof of scheme to take back off-cuts; and copy of any guidelines and/or information provided to user.

Recyclability

Criterion 32: Some initiative shall be taken towards reducing the impact from the product's end-of life phase by showing that:

- The product is recyclable at the end of its life/ elements that may prevent recycling have been avoided; or
- Information is provided to the user on recycling of the product (e.g. possible options for recycling, with names of recycling facilities where possible).

Demonstration of Conformance

DoC 32.1: Description and proof of initiatives taken to reduce impact from usage and/or end of life phase of the product.

Packaging

Criterion 33: Packaging shall comply with at least one of the following:

- Each material constituting >20% by weight of the total primary and secondary packaging used, must contain at least 50% recycled content by weight;
- Each material constituting >20% by weight of the total primary and secondary packaging used, must be derived from plant-based materials (e.g. PLA plastics); or
- Each separable item constituting >20% by weight of the total primary and secondary packaging, must be recyclable in Australia. This may be demonstrated using the Australian Packaging Covenant's Packaging Recyclability Evaluation Portal (PREP).

Paper and cardboard packaging must be either certified under recognised forest certification scheme (e.g. FSC or PEFC) or contain at least 30% recycled content by weight.

Material used for the transport of products (tertiary packaging) and whose disposal is not the responsibility of the end-consumer may be exempt from the above requirements if they are re-used by the applicant, or are recyclable in specialist recycling facilities.

Demonstration of Conformance

DoC 33.1: Details of materials used as packaging, including information on the input of recycled and virgin materials reported by weight if applicable. The recycled content can be averaged over a 12-month period to find the amount or range of recycled content; and / or

DoC 33.2: Evidence of recyclability or copy of PREP Assessment Report; and/or

DoC 33.3: Evidence of certification under relevant forest certification scheme; and/or

DoC 33.4: Details of re-use programs for transport materials within the applicant company.

The following part of the standard is common to all GECA standards and applies to

CATEGORY A, B AND C

ENVIRONMENTAL CLAIMS

Environmental claims are one of the tools utilised by consumers when attempting to make environmentally preferable choices and therefore it is essential that such claims are true and substantiated.

Criterion 34: Public claims made by the licence applicant / holder regarding a product's environmental performance that are beyond the scope of this standard (other than GECA certified content) shall be independently verified as compliant with ISO 14021: Environmental Labels and Declarations - Self Declared Environmental Claims (Type II Environmental Labelling) requirements. Also refer to the GECA Scheme Rules for the Use of the Environmental Choice Australia Mark.

Demonstration of Conformance

DoC 34.1: Report or statement from the applicant listing all public environmental claims regarding the product by the applicant demonstrating compliance to ISO14021; and

DoC 34.2: A signed declaration from the Chief Executive Officer or authorised representative of the relevant company (e.g. the supplier) stating that any environmental claims made by the company regarding the product in the future will be verified using ISO 14021 and / or GECA certification.

SOCIAL AND LEGAL COMPLIANCE

This section addresses compliance with law and the societal attributes of the manufacturer and the applicant company. Criteria for social aspects of the product are required under the international standard on ecolabelling (ISO 14024), and this section is common to all GECA standards. Equivalent sections are included in standards of all other GEN member ecolabelling bodies around the world. The social aspect partially addresses the third dimension of sustainability - Society. This was first understood by manufacturers under the name Corporate Social Responsibility (CSR). In this standard social criteria include laws for equal opportunity, safety and protection of workers. GECA certification cannot be given to any company that illegally exploits workers or their families.

Note: In cases where there is a conflict between GECA requirements in this section and relevant legislation or regulations introduced by governments and agencies, national legislation overrides state legislation and state legislation overrides regulations and standards issued by GECA.

Environmental Legislation

Criterion 35: The manufacturer(s) of the product and the applicant company shall as per law to comply with relevant environmental legislation and government orders at the Local, State and Commonwealth levels (if these have been issued). Where a manufacturer is from an overseas jurisdiction, it is that jurisdiction's environmental regulations that apply. Where the manufacturer has been found guilty of a breach of any environmental legislation or permit(s) within the last 2-years there must be evidence of corrective action.

Demonstration of Conformance

DoC 35.1: Signed declaration from an Executive Officer of the organisation stating compliance to environmental legislation and government orders; as well as declaration of any breaches of environmental legislation or permits and the date of the breach. Applicant must:

- provide a Legal Register listing applicable environmental legislation (including applicable Regulations under that legislation) in, or as an attachment to, this declaration. The Legal Register must, for each applicable Act and Regulation listed, state whether the manufacturer and applicant company comply; or
- have a certified ISO 14001, Eco-Management and Audit Scheme (EMAS) or equivalent environmental management system in place; and

DoC 35.2: Any relevant permits granted by the EPA or an equivalent national body; and

DoC 35.3: Evidence of corrective action following a guilty verdict, if applicable.

In this criterion, 'Regulation' means an entire regulatory instrument (for example, the Environmentally Hazardous Chemicals Regulation 2008) and not the individual sections, provisions or clauses of a regulatory instrument.

Fair Pay

Criterion 36: All employees shall be covered by a Federal or State award; a certified industrial agreement or a registered agreement as determined by the Australian Government Fair Work Ombudsman, or a State or Territory Workplace Relations Agency; or a workplace agreement in compliance with Fair Work Act 2009 section 61 – National Employment Standard. Where a manufacturer is from an overseas jurisdiction, it is that jurisdiction's equivalent regulations that apply.

Demonstration of Conformance

DoC 36.1: Signed declaration of compliance from an Executive Officer of the organisation;

DoC 36.2: Text or template of a typical workplace agreement offered to employees of the company; and

DoC 36.3: Sample payslips.

Workplace Safety

Criterion 37: A manufacturer / applicant company must demonstrate general compliance with State or Territory Legislation concerning Occupational and Workplace Health and Safety (OHS)/ Work Health and Safety (WHS) and / or the Commonwealth Safety, Rehabilitation and Compensation Act 1988, where applicable. Where a manufacturer is from an overseas jurisdiction, it is that jurisdiction's equivalent regulations that apply. Where a manufacturer / applicant company has been found guilty of a breach of relevant legislation within the last 2-years, there shallbe evidence of corrective action.

Demonstration of Conformance

DoC 37.1: Signed declaration from an Executive Officer of the organisation stating compliance to workplace legislation and government orders, as well as declaration of any breaches of legislation and the date of the breach. Applicants must list all applicable legislation in, or as an attachment to, this declaration;

DoC 37.2: Copy of the company Occupational / Workplace H&S policy and procedures;

DoC 37.3: Copy of employee induction records, training records, meeting records and risk assessments; or current OHSAS 18001, AS/NZS 4801 or equivalent certification; or third party certification stating compliance to OH&S Act 2004 and the OH&S Regulations 2007 or equivalent jurisdiction specific legislation; and

DoC 37.4: Evidence of corrective action following a guilty verdict, if applicable.

Equal Opportunity

Criterion 38: The manufacturer and / or applicant company shalldemonstrate general compliance with the requirements of the Racial Discrimination Act 1975, Sex Discrimination Act 1984, Disability Discrimination Act 1992, Workplace Gender Equality Act 2012 and complementary State Legislation. The manufacturer cannot be in the list of

'named' or non-compliant employers under the Workplace Gender Equality Act 2012. Where a manufacturer / applicant company is from an overseas jurisdiction, it is that jurisdiction's equivalent regulations that apply. Where a manufacturer has been found guilty of a breach of relevant legislation within the last 2-years, there must be evidence of corrective action.

Demonstration of Conformance

DoC 38.1: Signed declaration of compliance from an Executive Officer of the organisation;

DoC 38.2: Copy of relevant company policies and procedures;

DoC 38.3: Evidence of corrective action following a guilty verdict, if applicable; and

DoC 38.4: The auditor will verify that the company does not appear on the following list: https://www.wgea.gov.au/about-legislation/complying-act

Lawful Conduct

Criterion 39: The manufacturer / applicant company shall not have been convicted of any breach of criminal law, any breach of the Competition and Consumer Act 2010or the Corporations Act 2001, including prosecution or de-listing by the Australian Stock Exchange (ASX) or international equivalent. Where a manufacturer is from an overseas jurisdiction, it is that jurisdiction's equivalent regulations that apply. Where a manufacturer has been found guilty of a breach of relevant legislation within the last 2-years, there must be evidence of corrective action.

Demonstration of Conformance

DoC 39.1: Signed declaration from an Executive Officer of the organisation; and

DoC 39.2: Evidence of corrective action following a guilty verdict, if applicable.

EVIDENCE OF CONFORMANCE

Demonstration of Conformance (DoC)

This section lists the sources of evidence which may be considered during a conformance assessment to establish compliance with this standard. This list is provided in order to guide the applicant manufacturer through the requirements of the standard and to facilitate the preparation of an application.

The DoC requirements as specified, along with each criterion in the standard, define specific sources of evidence acceptable to GECA. Where specific standards or test methods are required, it is intended that the most recent version of the applicable standard or method are used. In cases where criteria offer several DoC requirements, it is the sole decision of the appointed auditing body to choose the appropriate option during the preliminary stage of the assessment. If any or none of the recommended DoC requirements stipulated for a particular criterion in the standard are applicable or presented for valid reasons for a product under assessment, then the appointed CAB may choose an alternative but equivalent source of evidence. In cases where alternative sources of evidence have been accepted for the verification of the product, the CAB will inform GECA by providing a report on the details as far as appropriate. GECA will use this information to continuously improve the DoC requirements stipulated by each standard.

The DoC requirements are summarised in Appendix A to assist applicants in preparing documentation for the verification process with a GECA accredited CAB.

APPENDIX A APPLICATION CHECKLIST

The Application Checklist is intended to guide the applicant company through the application and verification process. The company may collect all information that is required for the verification of the product and attach the relevant documents to their application. The table below summarises the DoC requirements for each criterion in the standard.

Criterion Number	Criterion Content	Demonstration of Conformance See standard body for details	Evidence Attached	Complies Y/ N or NA
All Categories (A,B and C)				
Category Scope (all categories)				
Criterion 1	Range of products	Description of the product(s) or product range (as applied to the scope of this standard); list including the location of plants, manufacturing/assembly sites and the origin of the virgin and/or alternative raw materials.	☐	
Category A – Cement (Criterion 2 – 7)				
Fitness For Purpose				
Criterion 2	Applicable standards and demonstrated performance	Documentation identifying applicable standards or performance requirements, and test reports and other relevant documentation to demonstrate that standards and requirements are met and a QMS is implemented.	☐	
Raw Materials Sourcing				
Criterion 3	Sustainable sourcing of raw materials. Requirements for virgin mined and quarried materials	Information about the virgin material procurement program and records of the supplier, nature and geographical source of all virgin mined material inputs; and	☐	
		Certificates or other evidence of implemented EMS; documented mine rehabilitation program, and community engagement or cultural heritage plans.	☐	
Manufacturing Process				
Criterion 4	Cement manufacturing. Reduced cement content (SCMs); or reduced CO_2 emissions.	SCM: Type and amount of SCM in the cement (at least 30%); or	☐	
		CO2 emissions: Calculation of CO_2 emissions (using WBCSD-CSI methodology) (have to be lower than 605 kg CO2/tonne of cement); or	☐	
Criterion 5	Environmental Management System (addressing certain areas)	Documentation showing an EMS (in accordance with ISO 14001:2015) (addressing the required environmental aspects) supported by info on policies and procedures in place and evidence (e.g. photos, filled registers, etc.) of implementation.	☐	

Criterion Number	Criterion Content	Demonstration of Conformance See standard body for details	Evidence Attached	Complies Y/ N or NA
Hazardous Materials				
Criterion 6	Banned substances - No use of substances acutely toxic, carcinogenic, mutagenic or toxic for reproduction, or hazardous to the environment.	Ingredients list for the product and Safety Data Sheet (SDS) for each ingredient, identification of potential contamination sources. If a substance is present as contaminant, applicable safety standards and procedures that are met have to be detailed.	☐	
		Where an exemption is claimed for a substance that is added for a purpose, a signed declaration from an Executive Director of the applicant company stating the purpose for which the given substance is necessary; documentation clearly outlining how each chemical is used, managed and stored; and evidence that human exposure or environmental contamination is prevented.	☐	
Design for Environment				
Criterion 7	Packaging - Requirements on plastic and paper packaging.	Details of materials used as packaging, including information on the input of recycled and virgin materials reported by weight if applicable. The recycled content can be averaged over a 12 month period to find the amount or range of recycled content; and / or	☐	
		Evidence of recyclability or copy of PREP Assessment Report; and/or	☐	
		Evidence of certification under relevant forest certification scheme; and/or	☐	
		Details of re-use programs for transport materials within the applicant company.	☐	
Category B – Concrete (Criterion 8 – 19)				
Fitness For Purpose				
Criterion 8	Applicable standards and demonstrated performance	Documentation identifying applicable standards or performance requirements, and test reports and other relevant documentation to demonstrate that standards and requirements are met and a QMS is implemented.	☐	
Raw Materials Sourcing				
Criterion 9	Cement that is GECA certified or fulfils requirements of Criterion 4; OR has reduced portland cement content; OR is based on alternative cement chemistry.	GECA certificate for the cement used in the concrete; or	☐	
		DoC as in Criterion 4.	☐	
		Information about the type and amount of SCM in the cement, and calculations showing the portland cement is reduced by 30% (by mass) in the product compared to the reference case	☐	

Criterion Number	Criterion Content	Demonstration of Conformance See standard body for details	Evidence Attached	Complies Y/ N or NA
		For products based on alternative cement: Information on the type of cement in the product accompanied by an EPD or LCA	☐	
Criterion 10	Aggregate sourcing – replacement of virgin materials with recycled or alternative materials (40% for coarse and 25% for fine aggregates)	Information on type, amount and source of material used to replace virgin aggregate materials; or	☐	
		Relevant GECA certificate	☐	
Criterion 11	Mix water	Calculations showing overall reclaimed or recaptured water used in mix water.	☐	
Manufacturing Process				
Criterion 12	Environmental Management System (addressing certain areas)	Documentation showing an EMS (in accordance with ISO 14001:2015) (addressing the required environmental aspects) supported by info on policies and procedures in place and evidence (e.g. photos, filled registers, etc.) of implementation.	☐	
Hazardous Materials				
Criterion 13	Banned substances - No use of substances acutely toxic, carcinogenic, mutagenic or toxic for reproduction, or hazardous to the environment.	Ingredients list for the product and SDS for each ingredient; and	☐	
		Third party laboratory test reports for a leaching test (TLCP) to test for heavy metals and organic compounds of environmental concern	☐	
		Where an exemption is claimed for a substance that is added for a purpose, a signed declaration from an Executive Director of the applicant company stating the purpose for which the given substance is necessary; documentation clearly outlining how each chemical is used, managed and stored; and evidence that human exposure or environmental contamination is prevented.	☐	
Criterion 14	Identification and rejection of asbestos	Copy of procedure in place and proof of implementation of the procedure (e.g. checklists, testing procedures and results).	☐	
Criterion 15	Admixtures	SDSs for all admixtures uses accompanied by documentation showing that requirements of AS 1478 are met.	☐	
Criterion 16	Colours	As for DoC 13.1: Ingredients list for the product and SDS for each ingredient.	☐	
Design for Environment				
Criterion 17	Product Installation	Description and proof of cut-off take back scheme; and	☐	
		Copy of installation guidelines provided to user	☐	

Criterion Number	Criterion Content	Demonstration of Conformance See standard body for details	Evidence Attached	Complies Y/ N or NA
Criterion 18	Recyclability	Description and proof of : recyclability of product; or information provided to the user on recycling of the product (e.g. possible options for recycling, with names of recycling facilities where possible	☐	
Category C – Concrete Products (Criterion 19 – 33)				
Fitness For Purpose				
Criterion 19	Applicable standards and demonstrated performance	Documentation identifying applicable standards or performance requirements, and test reports and other relevant documentation to demonstrate that standards and requirements are met and a QMS is implemented.	☐	
Raw Materials Sourcing				
Criterion 20	Cement that is GECA certified or fulfils requirements of Criterion 9.	GECA certificate for the cement used in the concrete; or DoC in Criterion 9..	☐	
Criterion 21	Aggregate sourcing – replacement of virgin materials with recycled or alternative materials (40% for coarse and 25% for fine aggregates)	Information on type, amount and source of material used to replace virgin aggregate materials.	☐	
Criterion 22	Mix water	Calculations showing overall reclaimed or recaptured water used in mix water.	☐	
Criterion 23	Additional Materials: Steel	Signed declaration of the steel manufacturer supported by relevant documentation (ISO certification and CAP certificate from the WSA; evidence of 80% minimum recycled content.).	☐	
Criterion 24	Additional Materials: Sustainable forest management for virgin timber	Signed declaration of compliance, supported by relevant certificates or other evidence of forest management certification and/or chain of custody certification	☐	
Criterion 25	Other additional Materials	Signed declaration of compliance, supported by relevant documentation and evidence of 95% recycled content.	☐	
Manufacturing Process				
Criterion 26	Environmental Management System (addressing certain areas)	Documentation showing an EMS (in accordance with ISO 14001:2015) (addressing the required environmental aspects) supported by info on policies and procedures in place and evidence (e.g. photos, filled registers, etc.) of implementation.	☐	
Hazardous Materials				
Criterion 27	Banned substances - No use of substances acutely	Ingredients list for the product and SDS for each ingredient; and	☐	

Criterion Number	Criterion Content	Demonstration of Conformance See standard body for details	Evidence Attached	Complies Y/ N or NA
	toxic, carcinogenic, mutagenic or toxic for reproduction, or hazardous to the environment.	Third party laboratory test reports for a leaching test (TLCP) to test for heavy metals and organic compounds of environmental concern	☐	
		Where an exemption is claimed for a substance that is added for a purpose, a signed declaration from an Executive Director of the applicant company stating the purpose for which the given substance is necessary; documentation clearly outlining how each chemical is used, managed and stored; and evidence that human exposure or environmental contamination is prevented.	☐	
Criterion 28	Identification and rejection of asbestos	Copy of procedure in place and proof of implementation of the procedure (e.g. checklists, testing procedures and results	☐	
Criterion 29	Admixtures	SDSs for all admixtures uses accompanied by documentation showing that requirements of AS 1478 are met.	☐	
Criterion 30	Colours	As for DoC 27.1: Ingredients list for the product and SDS for each ingredient.	☐	
Design for Environment				
Criterion 31	Product Installation	Description and proof of cut-off take back scheme; and	☐	
		Copy of installation guidelines provided to user	☐	
Criterion 32	Recyclability	Description and proof of : recyclability of product; or information provided to the user on recycling of the product (e.g. possible options for recycling, with names of recycling facilities where possible	☐	
Criterion 33	Packaging - Requirements on plastic and paper packaging.	Details of materials used as packaging, including information on the input of recycled and virgin materials reported by weight if applicable. The recycled content can be averaged over a 12 month period to find the amount or range of recycled content; and / or	☐	
		Evidence of recyclability or copy of PREP Assessment Report; and/or	☐	
		Evidence of certification under relevant forest certification scheme; and/or	☐	
All Categories (A,B and C)				
Environmental Claims				
Criterion 34	Public claims made by applicant	Statement of conformance signed by EO, with report showing compliance to ISO 14021.	☐	

Criterion Number	Criterion Content	Demonstration of Conformance See standard body for details	Evidence Attached	Complies Y/ N or NA
Environmental Legislation				
Criterion 35	Applicable environmental legislation and government orders	Statement of conformance signed by EO, with declaration of breaches and applicable legislation and Legal Register listing applicable environmental legislation or certified environmental management system in place.	☐	
		Applicable permits granted by EPA.	☐	
		Evidence of corrective action (if applicable).	☐	
Fair Pay				
Criterion 36	Coverage of employees under certified agreements	Statement of conformance signed by EO.	☐	
		Sample workplace agreement.	☐	
		Sample payslips.	☐	
Workplace Safety				
Criterion 37	Compliance with state or territory legislation	Statement of conformance signed by EO, with declaration of breaches and applicable legislation.	☐	
		Copy of Occupational and Workplace H&S policies and procedures.	☐	
		Copy of employee induction, training, and meeting record and risk assessments; or current OHSAS 18001, AS/NZS 4801 or equivalent certification; or other third party certification.	☐	
		Evidence of corrective action (if applicable).	☐	
Equal Opportunity				
Criterion 38	Compliance with Racial Discrimination Act, Sex Discrimination Act, Disability Discrimination Act, Equal Opportunity for Women in the Workplace Act and complementary State Legislation and Regulations.	Statement of conformance signed by EO.	☐	
		Copy of relevant policies and procedures.	☐	
		Evidence of corrective action (if applicable).	☐	
		Does not appear on list of non-compliant organisations.	☐	
Lawful Conduct				
Criterion 39	No breaches of Trade Practices Act or Corporations Act.	Statement of conformance signed by EO.	☐	
		Evidence of corrective action (if applicable).	☐	