



The New Zealand Ecolabelling Trust

Licence Criteria for

Pre-mixed Concrete

EC-51-11

The New Zealand Ecolabelling Trust
P.O. Box 56533
Dominion Road
Mt Eden
Auckland
New Zealand

Ph + 64-9-845 3330
Fax + 64-9 845 3331

Email: info@enviro-choice.org.nz
Website: <http://www.enviro-choice.org.nz>

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SPECIFICATION CHANGE HISTORY – minor clarifications, corrections or technical changes made since the specification was last reviewed and issued in <issue date>

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1. INTRODUCTION

Environmental Choice New Zealand (ECNZ) is an environmental labelling programme which has been created to help businesses and consumers find products and services that ease the burden on the environment. The programme results from a New Zealand Government initiative and has been established to improve the quality of the environment by minimising the adverse and maximising the beneficial environmental impacts generated by the production, distribution, use and disposal of products, and the delivery of services. The programme is managed by the New Zealand Ecolabelling Trust (The Trust).

ECNZ operates to the ISO 14024:1999 standard "Environmental labels and declarations – Type 1 environmental labelling – Principals and Procedures" and the Trust is a member of the Global Ecolabelling Network (GEN) an international network of national programmes also operating to the ISO 14024 standard.

ISO 14024 requires environmental labelling specifications to include criteria that are objective, attainable and verifiable. It requires that interested parties have an opportunity to participate and have their comments considered. It also requires that environmental criteria be set, based on an evaluation of the environmental impacts during the actual product or service life cycle, to differentiate product and services on the basis of preferable environmental performance.

The life cycle approach is used to identify and understand environmental issues (adverse or beneficial impacts) across the whole life of a product or service (within a defined product or service category). This information is evaluated to identify the most significant issues and from those to identify the issues on which it is possible to differentiate environmentally preferable products or services from others available in the New Zealand market. Criteria are then set on these significant and differentiating issues. These must be set in a form and at a level that does differentiate environmentally preferable products or services, is attainable by potential ECNZ licence applicants and is able to be measured and verified. As a result of this approach, criteria may not be included in an ECNZ specification on all aspects of the life cycle of a product or service. If stages of a product or service life cycle are found not to differentiate environmentally preferable products or services, or to have insufficient data available to allow objective benchmarking in New Zealand, those stages will not generally be included in criteria in the specification. For some issues, however, (such as energy and waste) criteria may be set to require monitoring and reporting. These criteria are designed to generate information for future reviews of specifications.

The ECNZ is pleased to publish this specification for pre-mixed concrete. The specification has been published to take account of substances harmful to the environment, and consumption of resources.

This specification sets out the requirements that pre-mixed concrete will be required to meet in order to be licensed to use the ECNZ Label. The requirements include environmental criteria and product characteristics. The specification also defines the testing and other means to be used to demonstrate and verify conformance with the environmental criteria and product characteristics.

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This specification has been prepared based on an overview level life cycle assessment, relevant information from other ECNZ specifications and information made available from international environmental best practice guidelines.

This specification will be valid for a period of five years. Twelve months before the expiry date (or at an earlier date if required), The Trust will initiate a further review process for the specification.

2. BACKGROUND

Pre-mixed concrete manufacture can potentially place a significant burden on the environment. The most important adverse impacts on the environment are related to quarrying of raw materials, potential nuisance impacts from dust discharges and discharges of high pH water to waterways.

Pre-mixed concrete involves the processing and blending of raw materials which are then bagged for supply to end users and retail outlets. There are three main manufacturers of bagged pre-mixed concrete in New Zealand with two of the companies associated with the manufacturers of the cement in New Zealand.

The bagged pre-mixed products are sold in hardware stores and are used by commercial contractors and builders for small jobs where the volume does not require a delivery of ready mixed concrete.

Bagged pre-mixed concrete is also the most common concrete product used at domestic properties.

There are two general types of bagged pre-mixed concrete products available. One is a general purpose concrete product where water is added to the dry concrete and the material is mixed in a mixing bag, or concrete mixer. The second product type is quick-set concrete used predominantly for fence posts and foundations, where the dry product is added to the hole which is full with water.

To reduce the amount of raw materials required to be quarried and volume of cement used, pre-mixed concrete plants are starting to use alternatives to natural aggregate with recycled concrete being used or proposed and fly ash used to replace cement.

There are two main impacts from bagged pre-mixed concrete manufacture and use which include dust during manufacture, and high pH runoff during use. Due to the separation between the manufacturer and the user, consumer information will be important in ensuring end users do not cause impacts on the environment during use and disposal of unused or unwanted surplus product and packaging.

Based on a review of currently available information, the following product category requirements will produce environmental benefits by encouraging more sustainable sourcing of raw materials, reducing the use of hazardous substances and their associated discharges and ensuring discharges to the environment are appropriately managed to minimise potential adverse effects. As information and technology change, product category requirements will be reviewed, updated and possibly amended.

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3. INTERPRETATION

“**ECNZ**” means Environmental Choice New Zealand

“**Energy Management Programme**” means a program to achieve and sustain efficient and effective use of energy including policies, practices, planning activities, responsibilities and resources that affect the organisation’s performance for achieving the objectives and targets of the Energy Policy.

“**Label**” means the Environmental Choice New Zealand Label.

“**pH**” is a scale of numbers indicating how acidic or alkaline a water is. A pH of 7 is neutral, higher pH values are progressively more alkaline and lower pH values are progressively more acidic.

“**Raw material**” means a material used in the manufacture of concrete.

“**Recycled aggregate**” means an aggregate resulting from the processing of inorganic material previously used in construction, or material diverted from the waste stream (eg: recycled concrete, glass).

Where references are made in this document to published lists, standards, or documents, the reference should be read as referring to the most recent edition of these lists, standards or documents.

4. CATEGORY DEFINITION

This category includes bagged pre-mixed concrete, which comprises a mixed product including the cement, aggregate and additives, with only water required to be added by the end user.

To be licensed to use the Label, the pre-mixed concrete must meet all of the environmental criteria set out in clause 5 and product characteristics set out in clause 6.

5. ENVIRONMENTAL CRITERIA

5.1 Legal Requirements

Criteria

The product must comply with the provisions of all relevant laws and regulations that are applicable during the product’s life cycle.

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Verification Required

Conformance with this requirement shall be demonstrated by providing a written statement on regulatory compliance, signed by the Chief Executive Officer or other authorised representative of the applicant company. This statement shall be supported by documentation identifying the applicable regulatory requirements and demonstrating how compliance is monitored and maintained.

Explanatory Notes

Relevant laws and regulations could, for example, include those that relate to:

- producing, sourcing, transporting, handling and storing raw materials and components for manufacture;
- manufacturing processes;
- handling, transporting and disposing of waste products arising from manufacturing;
- transporting product or raw materials within and between countries; and
- using and disposing of the product.

The documentation required may include, as appropriate:

- procedures for approving and monitoring suppliers and supplies; and
- information provided to customers and contractors regarding regulatory requirements.

It is not intended to require licence holders to accept increased legal responsibility or liability for actions that are outside their control.

5.2 Raw Materials

5.2.1 Cement

Criteria

The cement used in the pre-mixed concrete shall meet the requirements of the ECNZ specification EC-42-10 for Portland Cement and Portland Cement Blends (or any more recent version).

Verification Required

Conformance with this requirement shall be demonstrated by providing, a written statement on compliance, signed by the Chief Executive Officer or other authorised representative of the applicant company. This statement shall be supported by evidence to demonstrate the cement product is licensed by ECNZ or an independent assessment report completed by a competent assessor to show the cement meets all the requirements of EC-42-10.

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5.2.2 Virgin Aggregate

Criteria

Sources from which virgin aggregate materials are obtained for an ECNZ licensed pre-mixed concrete must have and implement:

- (a) management plans including any policies and management procedures to minimise adverse effects from the following potential impacts:
 - noise;
 - vibration;
 - dust; and
 - discharges to surface water, groundwater, oceans or land.
- (b) a restoration plan for any aggregate sourced from a quarry.

Verification Required

Conformance with these requirements shall be stated in writing and signed by the Chief Executive or authorised representative of the aggregate supplier and countersigned by the Chief Executive Officer or other authorised representative of the applicant company. This statement shall be supported by documentation, including:

- copies of the relevant management plans;
- records demonstrating the management plans are being effectively implemented (including monitoring results).

5.2.3 Recycled Aggregate

Criteria

- a) Licence holders must have and implement a formal process to consider the use of recycled aggregate in pre-mixed concrete. The process must consider the environmental benefits relevant to each product/ batch or contract.
- b) Licence holders must report annually to ECNZ on the volume of recycled aggregate used, including:
 - percentage of recycled aggregate used in specific product/ batches or contracts;
 - source of any recycled aggregate used; and
 - results of any chemical analysis for contaminants undertaken on any recycled aggregate used, or determined to be inappropriate.
- c) Sources from which materials are obtained for an ECNZ licensed pre-mixed concrete that undertake aggregate crushing on-site must have and implement management plans including any policies and management procedures to minimise adverse effects from the following potential impacts:
 - noise;
 - vibration;
 - dust; and

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- discharges to surface water, groundwater, oceans or land.

Verification Required

Conformance with these requirements shall be stated in writing and signed by the Chief Executive Officer or other authorised representative of the applicant company on application and annually. This statement shall be supported by documentation including

- annual reports on recycled aggregate use and records of the formal evaluation process.
- copies of the relevant management plans;
- records demonstrating the management plans are being effectively implemented (including monitoring results).

5.2.4 Hazardous Substances

Criteria

- a) The following substances or their compounds shall not be added to the pre-mixed concrete during the production process (excluding any substance that may be present in cement that meets the requirements of clause 5.2.1):
- Mercury;
 - Arsenic;
 - Selenium;
 - Lead;
 - Cadmium;
 - Chromium IV; or
 - Antimony.
- b) No substance shall be used in the production processes that are classified as toxic, carcinogenic, harmful to the reproductive system or genetically harmful (excluding cement).

Exempted from these requirements are impurities of the elements listed above which are contained in raw materials or components in trace levels (< 0.1 %) for each element.

Verification Required

Conformance with these requirements shall be stated in writing and signed by the Chief Executive Officer or other authorised representative of the applicant company. This statement shall be supported by documentation that:

- lists all hazardous substances and products included in the concrete (including CAS No where available);
- includes Material Safety Data Sheets for hazardous substances; and

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- identifies the classifications that apply to each substance.

Compliance with these requirements may be demonstrated by providing data on classifications under hazardous substances regulations in New Zealand as set out below:

- 6.1A, 6.1B or 6.1C (acutely toxic)
- 6.6A or 6.6B (toxic – mutagenic)
- 6.7A or 6.7B (toxic - carcinogen)
- 6.8A or 6.8B (toxic - reproductive/developmental)

5.2.5 Discharge to Water

Criteria

- a) Discharges to the natural environment from pre-mixed concrete manufacturing facilities after reasonable mixing (natural water bodies, groundwater or ocean) shall not exceed the following criteria:

Pollutant	Allowable Range
pH	6-9

- b) Discharges of contaminants to the natural environment (natural water bodies, groundwater, ocean or land) from pre-mixed concrete manufacturing facilities excluding pH shall be demonstrated to result in acceptable and environmentally sustainable level of impact on the quality of the receiving environment.
- c) The pre-mixed concrete manufacturer must have and implement a management plan for discharges to surface water, groundwater, oceans or land.

Verification Required

Conformance with these requirements in shall be demonstrated by providing a written statement on compliance, signed by the Chief Executive Officer or other authorised representative of the applicant company. The statement shall be supported by the following:

- test results demonstrating that the above pH limit is being met;
- an independent assessment of quality of discharges and impacts on the receiving environment completed by a person or agency competent to complete such an assessment. The assessment may be based on the quality of discharges from the point at which the discharges from the site or any relevant combined or municipal waste collection and treatment system discharges to the natural environment; or from the plant in situations where the plant discharge is mixed with other organisations' waste streams and the combined waste stream and its treatment before it is discharged to the natural environment is outside the control of the plant

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or licence applicant and suitable information is not available on the quality of the combined discharge; and

- copies of the relevant management plan and records demonstrating the management plan is being effectively implemented (including monitoring results).

5.3 Cement Silos

- a) All cement silos shall be fitted with the following:
- fabric filters to capture cement emissions during loading of the cement silos; and
 - overfill sensors to detect overfilling.
- b) All cement transfer shall be undertaken pneumatically and shall be fully enclosed.
- c) There should be no visible emissions from the filters during loading.

Verification Required

Conformance with this requirement shall be stated in writing and signed by the Chief Executive Officer or other authorised representative of the applicant company. This statement shall be supported by:

- information from the supplier of control equipment confirming that the equipment meets the criteria or evidence that the equipment required to meet the criteria is installed and operational (eg: photographs); and
- a copy of the plant's preventive maintenance plan for all the equipment required to meet the criteria.

5.4 Discharges to Air

Criteria

Air emissions from point sources or air filters (excluding fabric filters on cement silos) shall not exceed the following limit:

Pollutant	Units	Maximum Allowable Concentration
Particulate Matter	mg/Nm ³	50

Verification Required

Conformance with this requirement shall be stated in writing and signed by the Chief Executive Officer or other authorised representative of the applicant company on application and annually. This statement shall be supported by the following information:

- stack emissions testing results undertaken in accordance with the relevant ISO, USEPA or ASTM test methods to demonstrate compliance or information from the supplier of the control equipment confirming that the equipment meets the criterion; and

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- a copy of the plant's preventive maintenance plan for all air emission control equipment.

5.5 Dust Management Plan

Criteria

The pre-mixed concrete manufacturer must have and implement a dust management plan covering all areas of the operation including accessways, processing and packaging plant and associated activities.

Verification Required

Conformance with this requirement shall be stated in writing and signed by the Chief Executive Officer or other authorised representative of the applicant company. This statement shall be supported by documentation, including a copy of the plant's dust management plan and records to show it is being effectively implemented.

5.6 Consumer Product Information

Criteria

The pre-mixed concrete manufacturer shall have consumer information available for users at point of sale, on packaging and by other means (eg: on the website) on the potential impacts on the environment from the use of pre-mixed concrete. This must include instructions on appropriate use and actions to be taken to minimise the impact on the environment, describing actions to avoid contaminated water entering stormwater or surface water including:

- (a) The potential effects on the environment from the use and disposal of the pre-mixed concrete product;
- (b) Methods for controlling runoff from washing and wetting of fresh concrete;
- (c) Procedures for washing equipment including advising that all washing should be undertaken over grass or bare land areas and that no washing should be undertaken where the washwater may flow to streams, the coast or stormwater;
- (d) Disposal of wash water from cleaning up containers and mixers;
- (e) Disposal of surplus or waste material;
- (f) Disposal of packaging; and
- (g) Environmental situations where the products may not appropriate.

The applicant must have, implement and periodically review a strategy for providing consumer product information. The strategy must include a sound rationale for determining which information should be provided by each means (eg: point of sale, website, labelling).

Verification Required

Conformance with these requirements shall be stated in writing and signed by the Chief Executive Officer or other authorised representative of the applicant company. This statement shall be supported by documentation, including:

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- the manufacturer's strategy and rationale for providing information to consumers;
- a copy of the manufacturer's consumer information; and
- procedures to provide this to customers.

5.7 Waste Management

Criteria

- a) The pre-mixed concrete manufacturer must have effective waste management policies and procedures and/or a waste management programme covering manufacturing operations; and
- b) Licence holders must report annually to ECNZ on waste management, including:
 - quantities and types of waste recovered for reuse internally and externally;
 - quantities and types of waste recycled internally and externally;
 - quantities and types of waste disposed of to landfill;
 - information on disposal locations for all wastes; and
 - initiatives taken to reduce waste generation and improve recovery/recycling of waste.

Verification Required

Conformance with this requirement shall be stated in writing and signed by the Chief Executive Officer or other authorised representative of the applicant company. This statement shall be accompanied by documentation that:

- describes the waste management policies, procedures and programmes; and
- includes annual reports to ECNZ on waste generation and management.

5.8 Energy Management

Criteria

- a) The pre-mixed concrete manufacturer must have effective energy management policies and procedures and/or an energy management programme covering the pre-mixed concrete plant.
- b) Licence holders must report annually to ECNZ on energy management, including:
 - total energy use;
 - breakdown of total energy use to types of energy used;
 - energy use related to production;
 - initiatives taken to reduce energy use and improve energy efficiency; and
 - initiatives taken to calculate and reduce CO₂ emissions associated with energy use.

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Verification Required

Conformance with this requirement shall be stated in writing and signed by the Chief Executive Officer or other authorised representative of the applicant company. This statement shall be accompanied by documentation that:

- describes the energy management policies, procedures and programmes; and
- includes annual reports to ECNZ on energy use and management.

6. PRODUCT CHARACTERISTICS

Criteria

The pre-mixed concrete product shall be fit for its intended use and conform, as appropriate, to relevant product performance standards. Concrete should comply with NZS 3104: Specification for Concrete Construction.

Verification Required

Conformance with this requirement shall be demonstrated by providing a written statement of compliance, signed by the Chief Executive Officer or other authorised representative of the applicant company. This statement shall be supported by documentation:

- identifying the applicable standards, specifications and or consumer/customer requirements;
- demonstrating how compliance is monitored and maintained (including quality control and assurance procedures);
- records of customer feedback and complaints.

7. REQUIREMENTS AND NOTES FOR ECNZ LICENCE HOLDERS

Monitoring Compliance

Prior to granting a licence, ECNZ will prepare a supervision plan for monitoring ongoing compliance with these requirements. This plan will reflect the number and type of products covered by the licence and the level of sampling appropriate to provide confidence in ongoing compliance with criteria. This plan will be discussed with the licence applicant and when agreed will be a condition of the licence.

As part of the plan, ECNZ will require access to relevant quality control and production records and the right of access to production facilities. Relevant records may include formal quality management or environmental management system documentation (for example, ISO 9001 or ISO 14001 or similar).

Licence holders are required to advise ECNZ immediately of any non-compliance with any requirements of this specification which may occur during the term of the licence. If non-compliance occurs, the licence may be suspended or terminated as stipulated in the Licence Conditions. The licensee may appeal any such suspension.

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ECNZ will maintain the confidentiality of identified confidential information provided and accessed during verification and monitoring of licences.

Using the ECNZ Label

The Label may appear on the wholesale and retail packaging for the product, provided that the product meets the requirements in this specification and in the Licence Conditions.

Wherever it appears, the Label must be accompanied by the words “Pre-mixed concrete” and by the Licence Number eg ‘licence No1234’.

The Label must be reproduced in accordance with the ECNZ programmes keyline art for reproduction of the Label and the Licence Conditions.

Any advertising must conform to the relevant requirements in this specification, in the Licence Conditions and in the keyline art.

Failure to meet these requirements for using the ECNZ Label and advertising could result in the Licence being withdrawn.

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