



# The New Zealand Ecolabelling Trust

Licence Criteria for

## Ready Mixed Concrete

EC-43-10

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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 standard "Environmental labels and declarations - Guiding principles" 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 Ready 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 ready mixed concrete will be required to meet in order to be licensed to use the ECNZ Zealand 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

Ready 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.

Ready mixed concrete is manufactured at plants, and delivered in concrete trucks. Due to the nature of the material, the manufacture of ready mixed concrete is undertaken at plants close to the delivery site. There are many companies manufacturing ready mixed concrete in New Zealand, from small companies to large construction product companies. A number of companies are owned or partially owned by the two New Zealand cement manufacturers.

The large companies are generally vertically integrated where cement is sourced from their own plants and aggregate sourced from their own quarries. Therefore, these large companies have control over a wide range of environmental aspects related to ready mixed concrete manufacture.

To reduce the amount of raw materials required to be quarried, ready mixed concrete plants are starting to use alternatives to natural aggregate with recycled concrete and glass either being used or proposed.

The biggest impact from ready mixed concrete manufacture is the potential impacts from high pH runoff. This can occur during the manufacture at the ready mixed plant as well as runoff during pouring and curing of the concrete at the delivery site.

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.

## 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.

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“**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.

*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 Ready Mixed Concrete.

Note: This specification includes ready mixed concrete delivered from a ready mixed concrete plant or could apply to ready mixed concrete manufactured in a temporary batching plant on the site at which the ready mixed concrete is intended to be used.

To be licensed to use the Label, the ready 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.

#### ***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 on application and annually. 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;

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- 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 ready mixed concrete shall meet the requirements of the ECNZ specification EC-42-10 for Portland Cement and Portland Cement Blends.

#### ***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 on application and annually. 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.

### **5.2.2 Aggregate**

#### ***Criteria***

Quarries from which materials are obtained for an Environmental Choice licensed ready mixed concrete 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
  - discharges to surface water, groundwater, oceans or land.
- a quarry restoration plan.

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### **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 or authorised representative of the applicant company on application and annually . 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 alternatives**

#### **Criteria**

- a) Licence holders must have and implement a formal process to consider the use of recycled aggregate in ready 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.

### **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.

### **5.2.4 Hazardous substances**

#### **Criteria**

- a) The following substances or their compounds shall not be added to the ready 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.

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- 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
- 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 Water and water re-use**

#### **Criteria**

- a) The ready mixed concrete manufacturer must have and implement effective water management policies and procedures and/or a water management programme.
- b) Licence holders must report annually to ECNZ on water management, including:
- total water use;
  - breakdown of water sources including water sourced from the local water supply, on-site bores or recycled;
  - water use related to production; and
  - initiatives taken to reduce water use.

### **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 accompanied by documentation that includes:

- copies of the water management policies, procedures and programmes;

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- records demonstrating the policies or procedures are being effectively implemented (including monitoring results); and
- annual reports on water use and management.

## 5.2.6 Discharge to water

### Criteria

- a) Discharges to the natural environment 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) excluding those pollutants in the above table shall be demonstrated to result in acceptable and environmentally sustainable level of impact on the quality of the receiving environment.
- c) The ready 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 on application and annually. 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 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).

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## 5.5 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.

## 5.6 Discharges to air

### **Criteria**

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

<b>Pollutant</b>	<b>Units</b>	<b>Maximum Allowable Concentration</b>
Particulate Matter	mg/Nm <sup>3</sup>	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
- a copy of the plant's preventive maintenance plan for all air emission control equipment.

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## 5.7 Dust Management Plan

### **Criteria**

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

### **Verification Required**

Conformance with this requirement shall be stated in writing and signed by the Chief Executive or authorised representative of the applicant company on application and annually. 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.

## 5.8 Truck washing

### **Criteria**

All ready mixed concrete trucks shall be washed out at a location where all wash water and wash solids are collected and re-used or disposed of to a licensed facility.

### **Verification Required**

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

- a copy of the site layout plan showing designated truck wash areas,
- delivery procedures stating that no truck washing is to be undertaken off the concrete manufacturing site; and
- records of material disposed.

## 5.9 Truck driver training

### **Criteria**

The ready mixed concrete manufacturer must ensure a training programme is in place to ensure all drivers are knowledgeable of procedures to minimise impacts on the environment in the event of a spill or potential discharge.

### **Verification Required**

Conformance with these requirements shall be stated in writing and signed by the Chief Executive or other authorised representative of the applicant company on application and annually. This statement shall be supported by documentation, including a copy of the companies training programme for truck drivers and records of training.

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## 5.10 Product information

### **Criteria**

The ready mixed concrete manufacturer shall have consumer information available on the potential impacts on the environment from the use of ready mixed concrete and instructions on appropriate use and actions to be taken to minimise the impact on the environment including actions to avoid contaminated water entering stormwater or surface water.

### **Verification Required**

Conformance with these requirements shall be stated in writing and signed by the Chief Executive or other authorised representative of the applicant company on application and annually. This statement shall be supported by documentation, including a copy of the manufacturer's consumer information and procedures to provide this to customers.

## 5.11 Waste Management

### **Criteria**

- a) The ready 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.

## 5.12 Energy Management

### **Criteria**

- a) The ready mixed concrete manufacturer must have effective energy management policies and procedures and/or an energy management

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programme covering the ready mixed concrete plant and delivery of ready mixed concrete.

- b) Licence holders must report annually to ECNZ on energy management, including:
- total energy use including fuel used for delivery vehicles;
  - 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 CO<sub>2</sub> emissions associated with energy use.

#### **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 ready mixed concrete product shall be fit for its intended use and conform, as appropriate, to relevant product performance standards. Concrete should comply with Table 2.5 of NZS 3104

#### **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 on application and annually. 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 ENVIRONMENTAL CHOICE 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

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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 a non-compliance occurs, the licence may be suspended or terminated as stipulated in the Licence Conditions. The licensee may appeal any such suspension.

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 “Ready 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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