

The Australian Ecolabel Program Good Environmental Choice Australia Standard

Refrigerators



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Use of This Standard

This voluntary environmental labelling standard may be used by competent environmental assessors to establish product compliance to the Australian Ecolabel Program. Products that are certified with the mark of conformity, the “Good Environmental Choice Label” have been independently tested and demonstrate compliance to the environmental and social performance criteria detailed in this standard. The overall goal of environmental labels and declarations is the communication of verifiable and accurate information, which is not misleading, on environmental aspects of products and services. This encourages the demand for, and supply of, those products and services that cause less stress on the environment, thereby stimulating the potential for market-driven continuous environmental improvement.

This standard identifies environmental, quality, regulatory and social performance criteria that products sold on the Australian market can meet in order to be considered as good “environment practice”. Products that have been certified as complying to this standard may gain greater market recognition and a marketing advantage in government and business procurement programs, as well as broad consumer preference.

This standard can be used by Australian producers to guide their designs for environment programs by using the environmental criteria as key performance benchmarks to reduce the environmental loads of their product. The standard is necessarily restricted in its identification of environmental loads from the product life-cycle. Producers should consider other environmental measures along the product cycle, which are not included in this standard, in their environment program designs for and aim for even higher levels of environmental performance where technically possible.

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GOOD ENVIRONMENTAL CHOICE AUSTRALIA STANDARD

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Document History

First draft published 19 November 2007 following the GECA Standard Development process. Some criteria were based on the existing standards of the Nordic Swan (Nordic Countries), KOECO (South Korea), the Blue Angel (Germany) and the EU Flower (European Union), GECA Standard 26 – Refrigerants, and GECA Standard 39 – Supermarket Refrigeration Systems.

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Abstract

This Standard specifies environmental performance requirements for refrigeration units for the Australian Ecolabel Program. The Australian Ecolabel Program complies with ISO 14024: "Environmental labels and declarations - Guiding principles" which requires environmental labelling specifications to include criteria that are objective, reasonable and verifiable.

Definitions

GWP means Global Warming Potential. It is defined as the cumulative radiative forcing - both direct and indirect - integrated over a specified period of time (100 years in this Standard) from the emission of a unit mass of gas relative to the cumulative radiative forcing of carbon dioxide. CO₂ has a GWP of 1.0.

Label means the Good Environmental Choice Australia Label.

ODP means Ozone Depletion Potential defined in this standard as the comparative ozone depleting ability over a 100 year time frame of a compound in comparison to the ozone depleting ability of CFC -11, which is arbitrarily assigned an ODP of 1.0

Recycled Content refers to post-consumer recycled content, defined as material generated by households, or by commercial, industrial and institutional facilities in their role as end-users of the product, which can no longer be used for its intended purpose. This includes returns of material from the distribution chain.

1 INTRODUCTION

1.1 Purpose

This Standard seeks to define good environmental performance benchmarks for refrigerators. The voluntary environmental labelling standard implemented by Good Environmental Choice Australia (GECA) as part of the Australian ecolabel program specifies environmental performance criteria for small refrigeration units for use in domestic and commercial applications. This standard stipulates the environmental load of such products throughout the major aspects of their life cycle.

1.2 Background

This Standard is a voluntary environmental labelling standard which specifies requirements for refrigeration units available on the Australian market.

Small refrigeration units are present in almost every area of the built environment and can give rise to significant environmental burdens at every stage of production, use and disposal. This standard identifies the most significant of the environmental loads involved over the whole life cycle of refrigeration equipment and minimises the impact of each. Products certified under this standard demonstrate meaningful environmental preferability over their peers.

Refrigerants used in air conditioning and refrigeration have significantly contributed to global warming in addition to ozone depletion. Ozone depleting CFC and HCFC compounds found wide application as refrigerants before the significance of ozone depletion was discovered, and industry has slowly been forced to switch to non-ozone depleting substances. However, many of the HFC and other compounds used to replace the original CFC refrigerants also contribute significantly to the global warming problem. "Natural" refrigerants, such as hydrocarbons, carbon dioxide and ammonia are the logical solution to this problem.

Energy consumption during the use-phase of a refrigeration product's life is also a major contributor to the enhanced greenhouse problem. The design and use of new energy efficient refrigerators is essential in order to minimise this environmental impact, and the extra upfront cost often involved with progressive new refrigeration equipment may be paid back in terms of energy savings later. In order to ensure the optimum use of existing equipment, efforts should also be directed to providing sufficient information to consumers in order to encourage suitable operating conditions and maintenance that will ensure continued efficient operation.

Hazardous materials used in the production of refrigeration equipment may impact negatively on human health and environmental quality during use, fire or disposal. This standard seeks to minimise these impacts by preventing the use of relevant toxins and encouraging the recycling of all materials.

2 STANDARD CATEGORY SCOPE

This standard is applicable to the following categories of refrigeration units, including:

- Domestic refrigerators and freezers.
- Stand-alone commercial refrigerators with a capacity less than 20 kW.
- Stand-alone refrigerated retail display cases.

Commercial refrigeration systems with a capacity greater than 20 kW may be eligible for certification under GECA Standard 39 – Supermarket Refrigeration Systems.

Refrigerant gasses or coolants may be eligible for certification under GECA Standard 26 – Refrigerants.

3 ENVIRONMENTAL PERFORMANCE CRITERIA

3.1 Fitness for Purpose

Certified products should be good performers in their intended application. Certain standards of quality and durability are implicit in the Label. The manufacturer must ensure that the product is fit for its intended purpose and:

3.1.1 Applicable Standards

The product meets or exceeds the requirements of the relevant Australian Standard, or the product meets the applicable and accepted standard in its target market if it is to be exported, or

3.2 Design Requirements

3.2.1 Energy Efficiency Requirements

Certified products must obtain an Energy Star Rating of at least 4, measured using the relevant Energy Star product category procedures. See <http://www.energystar.gov> for more information.

For products of European origin, an energy efficiency class of A+ or A++ may be accepted (as defined by Directive 94/2/EC and amended by Directive 2003/66/EC).

3.2.2 Noise

The average sound power level generated by the appliance must not exceed 40 dB, measured at a distance of 10 m.

3.2.3 Separability

In order to facilitate recycling at product end-of-life, the product must be designed for disassembly using commonly available tools, in particular:

- Joints must be easy to find (either obvious or clearly labelled),
- Incompatible and hazardous materials must be separable,
- Electronics shall be modular and removable.

Different materials that cannot be recycled together must not be inseparably joined. This includes plastic parts marked with different resin codes (see Section 3.3.2).

3.3 Material Requirements

3.3.1 Refrigerants and Blowing Agents

The following requirements apply using Ozone Depletion Potential (ODP) and Global Warming Potential (GWP) values as defined by the Montreal Protocol and its appendices, as amended from time to time. If a refrigerant that is not defined under the protocol is used, it may be tested in accordance with the test methods accepted by the protocol.

Refrigerants and blowing agents must be certified under GECA Standard 26 – Refrigerants, or comply with the following:

- ODP = 0.0
- GWP \leq 20

3.3.2 Plastics

Certified products must mark each individual plastic product or component weighing greater than 25g with an appropriate resin identification code promulgated by the Plastics and Chemical Industry Association (<http://www.pacia.org.au>) or in accordance with ISO 11469.

Exemptions may be made for products where the nature of the manufacturing process or the size and shape of the product restrict the application of the plastics resin identification code on the product. Exempt products will ensure that appropriate information describing disposal methods for the product, including the relevant resin identification code, are provided at the time of sale of the product to encourage further recycling.

3.3.3 Adhesives

Adhesives must be certified by, or satisfy the requirements of, the Good Environmental Choice Label or carry another ISO 14 024 based ecolabel acceptable to GECA. Exceptions may be granted where there is no compliant adhesive equally fit-for-purpose, provided that the manufacturer establishes a research and testing program aimed at replacement of that adhesive.

3.3.4 Prohibited Substances

The following substances must not be used in the production of certified products, including in the cleaning of production equipment:

CFC, HCFC, HFC, Methylene Chloride or other halogenated organic solvents.

The phthalates DEHP, DBP, DAP, BBP, DMP, DMT, DEP, DMEP and DIBP.

Elemental halogens (e.g., fluorine, chlorine, including in-situ precursors from halide salts).

Alkylphenoxyethoxylates (APEO), their derivatives (APDs), or linear alkylbenzene sulphonates (LAS).

The following flame retardants:

Polybrominated biphenyls (PBBs),

Polybrominated diphenyl ethers (PBDEs),

Brominated paraffins or short chain (<14 C) chlorinated paraffins,

Any flame retardant carrying the risk phrases R45, R46, R60 or R61.

3.4 Post Consumption Recycling and Labelling

3.4.1 Product Custodianship

The manufacturer shall accept their product without additional cost (excluding transportation costs) for further recycling, or have arrangements with a local recycler to accept the product, or have an established product stewardship program that will divert the majority of recovered material from landfill. Exceptions may apply to material contaminated by the user (e.g., medical, nuclear). Normal dust and other environmental accumulations do not qualify for this exemption.

3.4.2 Replacement Parts

Functionally compatible replacement parts shall be guaranteed for a period of at least ten years. The manufacturer must make individual replacement parts available to consumers.

3.4.3 Packaging

All packaging shall be recyclable in mainstream local recycling systems, and:

- Packaging shall be easily disassemblable by hand if more than one material type is used,
- Chlorinated plastics must not be used in packaging,
- Packaging shall contain at least 50 % recycled content.

3.4.4 Product Information

The energy efficiency and noise performance of the unit must be clearly presented to the consumer.

Certified products must be accompanied by the following information for product suppliers, installers and consumers:

- Placement instructions, including free space required for air-flow and heat management.
- Heat management advice, including placement of the unit away from heat sources and insulation of the unit from wall, floor and radiative heat sources.
- Instructions on correct operation of the thermostat and seasonal correction of the setting.
- Instructions regarding optimum defrosting frequency in order to maintain acceptable efficiency.
- Advice that the sealing of the door should be replaced when not functioning properly.
- Instructions regarding settling time for the refrigerant after moving or installing the unit.
- Instructions regarding care and maintenance in order to maximise the useful life of the product.
- Advice that ignoring the above points will lead to higher energy consumption and loss of efficiency.
- Information regarding the recycling of all parts, including refrigerants.
- Information regarding the product custodianship offer and how consumers can take advantage of it.

The type of refrigerant must be non-removably labelled on the appliance in order to facilitate safe handling and recovery at end-of-life.

Information must be provided regarding the refrigerant, including:

- The recommended safe handling, installation and end-of-life recovery methods.
- Health information including emergency procedures.
- Precautions for use.
- Environmental precautions against substituting the refrigerant for HFC, HCFC or CFC gasses.

3.4.5 Other Environmental Claims

If other environmental claims are to be made alongside the Good Environmental Choice label, these must be verifiable and approved by GECA prior to use.

4 COMPLIANCE TO ENVIRONMENTAL REGULATIONS

The applicant is required to comply with relevant environmental legislation and government orders at the Local, State, and Commonwealth levels, if these have been issued. An applicant's compliance with these criteria may be established by undertaking a series of random checks; and/or by gathering samples of applicant operational procedures and documents from approved assessors as evidence to support compliance during the verification. Where an applicant is from an overseas jurisdiction, that jurisdiction's environmental regulations apply. Where the applicant is subject to a guilty verdict by a legally constituted court in the last 24 months on the basis of a breach of any environmental legislation or permits, there must be evidence of corrective action.

5 COMPLIANCE TO LABOUR, ANTI-DISCRIMINATION AND SAFETY REGULATIONS

An applicant shall demonstrate that all employees are covered by a Federal or State award or a certified industrial agreement or a registered workplace agreement as determined by the Industrial Relations Commission, the Employment Advocate or a State or Territory Workplace Relations Agency or a workplace agreement in compliance with Workplace Relations Act 1996 Part 7 – The Australian Fair Pay and Conditions Standard.

An applicant shall demonstrate general compliance to the terms of State or Territory Legislation concerning Occupational, Health and Safety and/or the *Commonwealth Safety, Rehabilitation and Compensation Act 1988*, where applicable. Where the applicant is subject to a breach order by a government agency, or a guilty verdict by an Australian Court within the last 24 months, on the basis of a breach of State, Territory or Commonwealth Occupational, Health and Safety Legislation, there must be evidence of corrective action.

The applicant shall demonstrate general compliance to the requirements of the Racial Discrimination Act 1975, Sex Discrimination Act 1984, Disability Discrimination Act 1992, Equal Opportunity for Women in the Workplace Act 1999, and complementary State Legislation. Applicants cannot be in the list of 'named' or non-compliant employers under the Equal Opportunity for Women in the Workplace Act 1999. Where the applicant is subject to a breach order by a government agency, or a guilty verdict by an Australian Court in the last 24 months on the basis of a breach of these Acts, there must be evidence of corrective action.

Where an applicant is from an overseas jurisdiction, the applicant shall demonstrate general compliance to that jurisdiction's anti-discrimination, occupational health and safety, and workers' compensations regulations. Where the applicant is subject to a breach order by a government agency, or a guilty verdict by a legal court in their respective country within the last 24 months on the basis of a the breach of anti-discrimination, occupational health and safety, and workers' compensation regulations, there must be evidence of corrective action.

An applicant's compliance with these criteria may be established by undertaking a series of random checks; gathering samples of applicant operational procedures and documents from approved assessors; and/or by providing a self-declaration document signed by an executive officer of the applicant organisation as evidence to support compliance during verification.

6 EVIDENCE OF CONFORMANCE

6.1 Audit Methodology

Conformance with this standard shall be demonstrated by undertaking an assessment under the above criteria by an approved assessor, following the certification and verification procedures detailed in the Good Environmental Choice Australia Ltd Documented Quality Management System, which generally follows the environmental auditing requirements of ISO 19 011.

6.2 Assessor Competency

The Australian Ecolabel Program classifies approved assessors as:

- a. Assessors registered by Good Environmental Choice Australia Ltd as environmental professionals that hold expertise relevant for an assessment, and who have undertaken training in the procedures of the Australian Ecolabel Program; or
- b. Environmental auditors accredited with the RABQSA.

6.3 Suitable Sources

Audit evidence should be of such a quality and quantity that competent environmental auditors, working independently of each other, will reach similar audit findings from evaluation of the same audit evidence against the same audit criteria.

Suitable sources of information to establish compliance may be, but are not limited to:

- a. Technical specification of the product.
- b. Obvious characteristics of the product under examination.
- c. Scientific test results and reports.
- d. Environmental management system and audit reports and results.
- e. Life-cycle assessment of each stage of the product life-cycle via a physical audit and examination.
- f. Life-cycle assessment via scientific testing.
- g. A statement of confirmation by an executive officer.
- h. An assessment of company or government records.
- i. Other material that can be considered objective evidence.

6.4 Laboratory Testing

New testing shall be undertaken by a laboratory accredited by the National Association of Testing Authorities (NATA), or similar overseas accreditation agents who can conduct the relevant tests and/or provide documentation detailing environmental performance against the criteria of this standard. The test results should be presented on NATA-endorsed reports or from a laboratory acceptable to Good Environmental Choice Australia Ltd.

If test results or environmental auditing results are not available, and/or there is insufficient data to establish full compliance with the criteria required by this standard, then certification cannot be awarded.