

NZ Guidance Document

Voluntary Pre-Registration of refrigerated cabinets

This is a guidance document only and if you have any questions, please contact EECA:
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Purpose

The Energy Efficiency (Energy Using Products) Regulations 2002 permit EECA to set mandatory minimum efficiency requirements (MEPS), to drive greater energy efficiency.

EECA are in the process of introducing regulation to update MEPS and product performance testing requirements for refrigerated cabinets (refrigerated display cabinets, refrigerated storage cabinets, small ice cream freezers and scooping cabinets). This update will replace regulation first introduced in 2003 that covered refrigerated display cabinets (RDCs) only.

NZ requirements will mirror changes in Australia to maintain alignment under both the E3 programme and TTMRA.

Background

Energy use from refrigerated cabinets used in commercial applications is growing in Australia and New Zealand. Sales of commercial refrigerated cabinets are forecast to increase by over 40% by 2035. As such, annual energy use is estimated to increase to over 9000GWh by 2035, despite general improvements from technology advancement and existing regulation.

A review of the existing trans-Tasman MEPS identified a number of problems:

- MEPS levels are set too low for the Australian and New Zealand markets and are no longer driving improved efficiency. More stringent efficiency levels are required to improve energy use in the commercial refrigerated cabinet sector, reduce consumer costs of commercial refrigeration ownership, and also reduce GHG emissions.
- The scope of existing regulations is confusing and complicated and has not kept pace with changes in the market. An example of this change are refrigerated storage cabinets that are similar in construction to regulated RDCs (and today account for around 20% of the market), but are not included in the scope of existing regulations.
- Requiring suppliers to test their appliances to a unique and complicated trans-Tasman standard makes appliance testing more difficult and expensive than necessary, resulting in an unnecessarily high regulatory burden that contributes to non-registration of products, especially at the low volume end of the market.
- These regulatory problems are compounded by market and information failures. The nature of the supply chain in the refrigerated cabinet market means that many buyers of cabinets are not the end-users - creating split incentives regarding cabinet purchase (where purchasing decisions are often made on capital costs rather than running costs). There is also a lack of accessible and comparable information about the energy efficiency of refrigerated cabinets that prevents comparisons between models.

Consequently there is scope to improve the regulations by:

- harmonising trans-Tasman MEPS levels with the energy efficiency index (EEI) levels adopted by Europe in 2017;
- adopting ISO and IEC test standards, rather than a regionally specific Australian and New Zealand test standard;
- including refrigerated storage cabinets, small ice cream freezers and scooping cabinets in the scope of the regulations;
- providing consumers with accessible and comparable information on refrigerated commercial cabinet energy efficiency and running costs.

Consultation

The Australian and NZ Governments have worked extensively with industry and other stakeholders on the development of the new requirements for refrigerated cabinets. In the development of regulation, Australian and New Zealand businesses were consulted on four separate occasions between 2016 and 2018 including participation in an 18-month Technical Working Group (TWG) process to ensure international test standards were fit for adaptation locally.

Details of the updated Regulation

Introduction

It is anticipated that the amended regulations will be approved and come into force in mid 2020. An exact date cannot be provided at this time as the process of amending the regulations is dependent on a number of regulatory and administrative requirements, but in the interim, regulated parties can choose to either meet the current requirements or the new requirements. A minimum of 6 months' notice will be provided before the amended regulations come into force. Voluntary pre-registration to the new requirements is permitted from 1 September 2019 in NZ.

Standards

The updated regulation references standards published by the European Union (EN), International Organization for Standardization (ISO) and International Electrotechnical Commission (IEC) which is consistent with NZ Government policy of harmonisation with international standards where appropriate.

The test standards referenced in the updated regulation are:

EN 16825 means European Standard 16825:2016 Refrigerated storage cabinets and counters for professional use – Classification, requirements and test conditions.

EN 16838 means European Standard 16838:2016 Refrigerated display scooping cabinets for gelato – Classification, Requirements and test conditions.

EN 16901 means European Standard 16901:2016 Ice cream freezers – Classification, requirements and test conditions.

IEC 60335 means Australian/New Zealand Standard 60335.2.89:2010, Household and similar appliances – Safety. Part 2.89: Particular requirements for commercial

refrigerating appliances with an incorporated or remote refrigerant condensing unit or compressor.

Note: IEC 60335 incorporates amendments No. 1 and No. 2.

ISO 23953-1 means *International Organisation for Standardisation Standard 23953-1:2015, Refrigerated display cabinets – Part 1: Vocabulary.*

ISO 23953-2 means *International Organisation for Standardisation Standard 23953-2:2015, Refrigerated display cabinets – Part 2: Classification, requirements and test conditions:*

Scope

The scope of the regulations has been changed to specify that it covers:

- Refrigerated display cabinets designed for storage and display of, and access by consumers to, chilled or frozen items contained in the cabinet in a retail environment
- Refrigerated drinks cabinets (non-perishable beverages)
- Refrigerated storage cabinets (light, normal and heavy duty)
- Small ice cream freezers \leq 500 litres designed for pre-packaged ice cream
- Ice cream scooping cabinets – including ice cream and containerised gelato

Classes of products not covered by regulation

(a) refrigerated vending machines;

(b) icemakers;

(c) refrigerated cabinets that are designed for both food processing and storage, whether or not the cabinet includes an integral refrigerated storage section;

For paragraph (c), examples include the following:

- bakery cabinets that chill, heat and humidify;
- open top tables and saladettes for food preparation;
- cabinets specifically intended for storage of certain foodstuffs (for example, fresh meat, fresh fish) that are designed to operate at temperatures outside the scope of the new regulations;

(d) refrigerated cabinets that have water cooled condensers;

(e) any of the following, within the meaning of EN 16825:

- built-in cabinets (that is, refrigerated cabinets that are designed to be installed into a prepared recess in a wall or similar location and that require furniture finishing);
- roll-in cabinets (that is, refrigerated cabinets that are designed to be loaded with trolleys with shelves which are designed to be introduced into the cabinet as such);
- pass through cabinets (that is, refrigerated cabinets that are designed to be accessible from both sides);

- (f) appliances that are intended for short-time or intermittent normal operation during the full day;
- (h) RDCs that have an indirect refrigeration system within the meaning of ISO 23953-2 (that is, refrigerated cabinets in which a secondary refrigerant circulating system is installed between a central refrigerating system and the cabinet).

Families of model

The updated regulation specifies the circumstances in which two or more models in that product class are in the same family of models.

To clarify which models can be registered as a 'family of models', a revised definition has been developed. The least efficient product in a family must undergo certified performance testing and be registered on the energy rating website - this is the 'parent model'. All other models (with physically identifiable model number variations) in the family must also be listed, must be of the same or higher efficiency and have the 'parent model' test documentation uploaded at the point of registration. A maximum of 25 family member models are permitted in a family registration (an increase from 10 in current regulation).

In addition, family member models must have an identical or warmer product temperature range (M-package temperature) than the parent model, and family member models must be of an identical cabinet type and use the same method of access to products being displayed or stored as the parent model (for example either all open or all closed cabinets).

To assist in determining the model to be selected as the 'parent' of a family of self-contained cabinet models or remote cabinet models, criteria (available on <http://www.energyrating.gov.au/>) can be applied to identify the model that will produce the highest allowable maximum energy consumption and thus be the least energy efficient.

Low volume/bespoke cabinet registration channel

A new feature is a channel that provides an alternative method of demonstrating compliance for registration purposes. This new channel is for cabinets that are produced in low quantities (that is one-offs, bespoke/custom or built in) and/or that cannot be tested in a standard testing facility. The Energy Efficiency Index (EEI) of a cabinet using the low volume/bespoke registration channel is found by comparing the energy usage of the cabinet as 'measured in practice' with that of a cabinet fitted with a 'reference low efficiency set' of components. For a successful application, it is necessary to demonstrate that a cabinet betters the minimum efficiency levels of a similar class of product by approximately 15 per cent. A printout from the software package used by the manufacturer (in lieu of a test report) will need to be uploaded at time of registration.

A maximum of 10 unit sales will be permitted for single model registrations, and a maximum of 25 unit sales for family registrations using this new registration channel. Due to this sales threshold, the submission of annual sales data for such registrations will be required in both Australia and New Zealand. Registrants would be required to

undertake the full test procedure and update the registration accordingly if these sales volume limits are exceeded, and further compliance action may also be possible.

Registration

To minimise disruption to the NZ market and contain compliance costs, EECA are using a version of the Australian registration system to pre-register refrigerated cabinet models to the updated regulation requirements. All accepted pre-registrations models will retain validity when the regulations come into force.

EEI (MEPS) Requirements

For a cabinet to meet the new regulatory requirements it must be tested to the appropriate test standard and meet the following maximum EEI thresholds. To register a refrigerated cabinet you will need a complete test report to enter the cabinet's performance data (the registration system calculates the EEI from the data entered) and upload the complete test report at point of registration.

Item	For:	the EEI must be:
1	(a) an RDC; (b) a scooping cabinet; (c) an ice cream freezer cabinet	< 130
2	a heavy duty RSC	< 115
3	light duty or normal duty RSC	< 95

Product classes and calculations

The EEI calculation is dependent on product class. The table below shows the types of product classes and the cabinet coefficients that are used as part of the EEI calculation.

Kind of product	Product class	Characteristics (code)	Coefficient	
			M	N
Integral, horizontal cabinets:	1	RDC—chiller (IRH)	3.7	3.5
Any of the following:	2	RDC—freezer (IFH)	4.2	9.8
(a) RDCs that are integral and horizontal;	3	RSC—chiller (SRH)	2.555	1790
(b) RSCs that are horizontal;	4	RSC—freezer (SFH)	5.84	2380
(c) ice cream freezer cabinets;	5	Ice cream freezer cabinet (IFH-5)	1	0.009
(d) scooping cabinets	6	Scooping cabinet (GSC or ISC)	10.4	30.4
Integral, vertical cabinets—general:	7	RDC—chiller (IRV)	9.1	9.1
Any of the following:	8	RDC—freezer (IFV)	1.6	19.1
(a) RDCs that are integral and vertical, other than refrigerated drinks cabinets;	9	RSC—chiller (SRV)	1.643	609
(b) RSCs that are vertical	10	RSC—freezer (SFV)	4.928	1472

Kind of product	Product class	Characteristics (code)	Coefficient	
			M	N
Integral, vertical cabinets—other: Refrigerated drinks cabinets	11	RDC—chiller (IRV-4)	0.69	5.97
Remote, horizontal cabinets:	12	RDC—chiller (RRH)	3.7	3.5
RDCs that are remote and horizontal	13	RDC—freezer (RFH)	4.2	9.8
Remote, vertical cabinets:	14	RDC—chiller (RRV or RRV-2)	9.1	9.1
RDCs that are remote and vertical	15	RDC—freezer (RFV)	1.6	19.1