

Hong Kong Green Label Scheme

Product Environmental Criteria for Refrigeration Appliances (GL-007-005)



BACKGROUND

The Hong Kong Green Label Scheme (HKGLS) is an independent and voluntary scheme, which aims to identify products that are, based on life cycle analysis consideration, more environmentally preferable than other similar products with the same function. The Scheme is organized by the Green Council (GC) with contributions from the HKGLS Advisory Committee and a number of supporting organizations.

The prime objectives of HKGLS are:

- For Consumers: assist in making purchases of products that are less harmful to the environment;
- For Industry: stimulate development and production of environmentally preferable alternatives.

This specification sets out the requirements that refrigeration appliances will be required to meet in order to be licensed to use the HKGLS label. The requirements include environmental criteria and product characteristics. The specification also defines the testing and other means to be used to verify conformance with the environmental criteria and product characteristics.

POTENTIAL ENVIRONMENTAL IMPACTS

Energy consumption is the key environmental impact for refrigeration appliances at all stages of the product life cycle. Other environmental impacts include noise emission, the use of chemicals in production and in product use as refrigerants and foaming agents for insulation. The packaging materials of refrigerators burden our environment through the generation of solid waste.

Chlorinated fluorocarbons (CFCs), also known as Freon, were used in the past both as refrigerants and as foaming agents. They are replaced by incompletely halogenated chlorinated fluorocarbons (HCFCs), also known as soft Freons. Both CFCs and HCFCs are ozone-depleting substances. Freons are currently being replaced with non-halogenated fluorocarbons (HFCs) or with pure hydrocarbons (HCs). The HFC refrigerants are stable and accumulate in the atmosphere thus contributing to the greenhouse effect. Hydrocarbon also contributes to photo-oxidant formation and causes damage to forests, crops and human health.

LABEL OBJECTIVE

The aim of the environmental criteria developed for refrigeration appliances is to:

- Reduce energy consumption and promote energy-saving refrigeration appliances;
- Reduce the use of environmentally harmful substances; and
- Minimize waste production by reducing the amount of primary packaging and promoting its reusability and/or recyclability.

Hong Kong Green Label Scheme
Product Environmental Criteria for
Refrigeration Appliances (GL-007-005)



PRODUCT DEFINITION

This document and all product environmental criteria therein apply to electrically powered refrigerators, freezers, and combinations of the two either freestanding with valid volume of 500L or less.

PRODUCT ENVIRONMENTAL CRITERIA

The table below sets out the product environmental criteria for refrigeration appliances (GL-007-005) under the HKGLS.

Product Environmental Criteria	Verification Method(s)*
1. The Energy Consumption Index of the product shall meet the HKSAR EMSD Code of Practice on Energy Labelling of Product grade 3 requirement or better.	✓ Review of laboratory test report(s). ¹
2. Noise Emission: Airborne noise emission from the appliance, measured as sound power level, shall not exceed 42 dB(A).	✓ Review of laboratory test report(s). ²
3. Plastic parts shall have no lead or cadmium added by the manufacturer and plastic parts weighing over 25g shall not contain flame retardants containing polybrominated biphenyls (PBBs), polybrominated diphenylethers (PBDEs) and chloroparaffins with 10-13 carbon atoms per molecule and chlorine content of greater than 50% by weight.	✓ Review of laboratory test report(s). ³
4. The product and its manufacturing process shall not contain or use substances controlled by the Montreal Protocol.	✓ Review of supporting information ⁴
5. Surface Treatment: Paints shall not contain pigments or additives based on cadmium, lead, chromium, mercury or their compounds. Metals shall not be coated with cadmium, chromium, nickel or their compounds.	✓ Review of laboratory test report(s). ^{3 or 5}
6. Packing requirements : <ul style="list-style-type: none"> • Packaging materials shall not contain chlorine-based plastics; • General packaging requirements (refer to criteria for packaging materials: GL-Packaging). 	✓ Inspection of product samples; AND ✓ Review of supporting information; AND ✓ Interview with relevant personnel.

Hong Kong Green Label Scheme
Product Environmental Criteria for
Refrigeration Appliances (GL-007-005)



*Analytical testing should be accredited and performed by laboratories that meet the requirement laid out in the IEC/ISO 17025 or EN45001 standards or any equivalent systems e.g. HOKLAS, CNAS. Under special situation and with the approval from GC, test can be performed by in-house method by the accredited laboratory or manufacturer.

Note:

1. **Test Method:** HKSAR EMSD Code of Practice on Energy Labelling of Product or equivalent
2. **Test Method:** EN28960 or equivalent
3. **Test Method for cadmium, lead, hexavalent chromium and mercury:** US EPA 3050B/3051A/3052/3060A or equivalent with detection limits shall be no greater than 2 ppm.
Test Method for PBBs and PBDEs: US EPA 3540C/8081A/8082A/8270D or equivalent with detection limits shall be no greater than 5 ppm.
Test Method for chloroparaffins: US EPA 8270D/3540C/GC-MSD or equivalent with detection limits shall be no greater than 5 ppm
4. A declaration with authorized person signature showing complies with the requirement with list of chemical used in the product and its manufacturing process shall be submitted.
5. **Test Method for cadmium, lead, chromium (VI), mercury in paints:** ASTM D3335/ASTM D3624/ISO 3856 or equivalent
Test Method for cadmium, nickel and chromium in metal coating: ASTM C810/C872/D5723 or equivalent