

Hong Kong Green Label Scheme

Product Environmental Criteria for

Air Cleaners (GL-007-008)



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 air cleaners will be required to meet in order to be licensed to use the HKGLS label. The requirements include product characteristics and environmental criteria and testing may be needed to verify conformance with the criteria.

POTENTIAL ENVIRONMENTAL IMPACTS

Air cleaners come as portable, stand-alone appliances, or as filters or cleaners in a central air system. This set of criteria refers to portable units for single rooms.

Air cleaners can be helpful solving indoor pollution problems when used along with source reduction and ventilation. However, most air cleaning devices will remove some of the particles from the indoor air but will not effectively remove certain types of pollutants, such as carbon monoxide, radon, odors, lead dust, and allergens from mold and dust mites. Most air cleaners remove particles, a few remove gases (and odors), and some do both.

Air cleaner that deliberately produces ozone (ozone generators) should not be used. It has been shown by studies including those by the U.S. Environmental Protection Agency that these devices at low levels of ozone do not effectively destroy microbes, remove odor sources, or reduce indoor pollutants enough to provide any health benefits. Ozone in air must reach hazardous levels (50-100 times the outdoor air quality standards) to effectively kill microbes. On the other hand, ozone also reacts with certain indoor pollutants to produce toxic byproducts, such as formaldehyde.

Regarding electronic air cleaners, there are three types in common use: electrostatic precipitators (ESPs), ionizers, and mechanical-electronic hybrids. Both ESPs and ionizers produce ozone as a by-product.

Photocatalytic air cleaners composed of a photocatalyst, e.g. nano-TiO₂, and an ultraviolet light source has emerged in recent years. The photocatalyst absorbs the ultraviolet light to drive reaction, which reportedly convert organic pollutants to carbon dioxide and water. Test reports indicate that toxic components of tobacco smoke such as formaldehyde and benzene are destroyed. The packaging of air cleaners may also contribute to solid waste generation.

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LABEL OBJECTIVE

The aim of the environmental criteria developed for air cleaners is to:

- Minimize unhealthful impact of ozone from air cleaners to an acceptable level.
- Limit toxicity of component materials as well as packaging.

PRODUCT DEFINITION

This document and all product performance and environmental criteria therein apply to all types of air cleaners.

PRODUCT ENVIRONMENTAL CRITERIA

The table below sets out the product environmental criteria for air cleaners (GL-007-008) under the HKGLS.

Product Environmental Criteria	Verification Method(s)*										
<p>Performance Criteria</p> <p>1. The removal rate of dust or specified target pollutant shall not be less than 80%.</p>	✓ Review of supporting information ¹										
<p>2. The product shall comply with safety requirements for electrical products under the Hong Kong Electricity Ordinance or equivalent regulations.</p>	✓ Review of supporting information ²										
<p>Environmental Criteria</p> <p>3. Ozone generators shall not be used as air cleaners.</p>	✓ Review of supporting information ²										
<p>4. The ozone emission of the product shall not exceed 0.02mg/m (0.01ppm).</p>	✓ Review of laboratory test report(s). ³										
<p>5. Noise sound pressure level shall satisfy the following requirements:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tbody> <tr> <td style="text-align: center;">Air flow 「m³/min」</td> <td style="text-align: center;"><5</td> <td style="text-align: center;">5-10</td> <td style="text-align: center;">10-20</td> <td style="text-align: center;"><20</td> </tr> <tr> <td style="text-align: center;">Sound Pressure Level dB(A)</td> <td style="text-align: center;"><45</td> <td style="text-align: center;"><50</td> <td style="text-align: center;"><55</td> <td style="text-align: center;"><60</td> </tr> </tbody> </table>	Air flow 「m ³ /min」	<5	5-10	10-20	<20	Sound Pressure Level dB(A)	<45	<50	<55	<60	✓ Review of laboratory test report(s). ⁴
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Product Environmental Criteria	Verification Method(s)*
<p>6. For plastic parts weighing more than 25 grams, the following requirements shall be met:</p> <p>a. Halogenated compounds such as PVC shall not be used. However, organic fluorine additives of no more than 0.5 weights % in content is allowed.</p> <p>b. It 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.</p>	<p>✓ Inspection of product samples; AND</p> <p>✓ Review of supporting information⁵</p> <p>✓ Review of laboratory test report(s).⁶</p>
<p>7. General packaging requirements : Packaging materials shall not contain chlorine-based plastics. <u>Optional</u> requirement: The plastics shall carry a plastic resin identification code.</p>	<p>✓ Inspection of product samples; AND</p> <p>✓ Review of supporting information; AND</p> <p>✓ Interview with relevant personnel.</p>
<p>8. Information for Consumers: The following information shall be provided either on the package, or in a manual in such a way to be clearly visible for consumers.</p> <ul style="list-style-type: none"> • Proper procedure for use and maintenance, including filter cleansing and replacement. • Post-sale service for consumers and contact numbers (optional) 	<p>✓ Inspection of product samples; AND</p> <p>✓ Review of supporting information; AND</p> <p>✓ Interview with relevant personnel.</p>

*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 report according to international, national or industrial standards* and/or appropriate documentation indicating compliance shall be provided.
2. A declaration with authorized person signature of compliance and other supporting documents showing compliance with the requirement shall be provided.
3. **Test Method:** Korea Eco-label Programme EL407 section 4.2 or equivalent
4. Test Method: KS C9314 or equivalent

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5. A declaration with authorized person signature of compliance, ingredient of plastic additives and other supporting documents showing compliance with the requirement shall be provided
6. **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
7. The applicant shall prove compliance with these requirements by submitting a copy of the relevant pages of the user's manual or equivalent document