



Method of Assessing the Reduction Rate of Chemical Gases by a Room Air Cleaner

AHAM AC-4-2022



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PREFACE

The Association of Home Appliance Manufacturers (AHAM) develops standards in accordance with AHAM's "Policy and Procedures Governing Technical Standards" which states:

"AHAM Standards shall be in the best interest, mutually, of consumers who use appliances, the industries which provide and service appliances, and other interested parties. They shall relate to actual use conditions, be technically and scientifically sound."

Use or observance of AHAM standards is voluntary.

This standard contains test procedures which may be applied to any brand or model of portable household electric room **air cleaners** within the stated confines of the standard's limits of measurability for measuring performance. Results of tests in accordance with this standard may be publicly stated.

With regard to safety, AHAM recommends that all appliance products - both major and portable appliances - manufactured or marketed in the United States be submitted to an appropriate independent Nationally Recognized Testing Laboratory for inspection and listing in conformance with the safety standards and procedures followed by such laboratories. The relevant standards for portable household electric room **air cleaners** are UL 867, "Standard for Electrostatic Air Cleaners" and UL 507, "Standard for Fans." To conduct this AHAM AC-4 test, the product should operate via a consumer selectable mode and cannot circumvent any functions or operation levels that were used to achieve the safety certification.

Regarding energy, the manufacturer must follow all state, provincial and federal requirements. It is recommended that products be submitted to an appropriate independent Nationally Recognized Testing Laboratory for inspection and listing in conformance with the energy regulations. The relevant energy standards for portable air cleaners are AHAM AC-7 and CFR 430 Part B TBD. To run this AHAM AC-4 test, the product should operate via a consumer selectable mode and cannot circumvent any functions or operation levels that were used to achieve the certified energy ratings.

The annexes to this standard are included for informational purposes only unless the annexes are noted as normative.

AHAM welcomes comments and suggestions regarding this standard. Any standard may be reviewed and improved as needed. All standards must be updated or reconfirmed at least every five years. Any interested party, at any time, may request a change in an AHAM standard. Such request should be addressed to AHAM's President and should be accompanied by a statement of reason for the request and a suggested alternate proposal.

This standard may involve chemical materials, operations, and equipment. This standard does not purport to address all of the safety problems associated with its use. It is the responsibility of whoever uses this standard to consult and establish appropriate safety and health practices and determine the applicability of any regulatory limitations prior to use.

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1. PURPOSE

An indoor environment is important to the health of occupants, particularly with regard to increased time spent indoors.

Air cleaners are used to reduce the concentration of chemical gases in indoor air.

The efficiency of such **air cleaners** to reduce airborne chemical gases, including odorants, can be investigated in test chambers at constant temperature and relative air humidity.

The purpose of this document is to maintain a consistent test procedure and improve the reliability of test results by clearly defining the test procedure for the ability of reducing specific chemical gases by a room **air cleaner**.

2. SCOPE

This document specifies a method to evaluate the capability of a portable **air cleaner** to reduce the concentration of chemical gases in a specified chamber.

The test is applicable to portable **air cleaners** commonly used in single room spaces such as those based on mechanical filtration, ultraviolet (UV), ionizers, photocatalytic oxidation, and ozone generators in-unit technology.

This standard method includes definitions and performance characteristics of portable household electric room **air cleaners** of the types indicated.

This standard method measures the relative reduction by the **air cleaner** of the concentration of chemical gases suspended in the air in a specified test chamber in new condition.

In this standard, we do not suggest performance test methods to measure by-products of either the interaction between chemicals or between the **air cleaner** and the chemicals tested in this standard. The formation of by-products is an important subject. The subject of measuring by-products and chemicals is under study and AHAM will address this in future documents.

3. DEFINITIONS

3.1. Air Cleaner

Electrically powered household, or similar, appliance that employs one or multiple technologies to reduce one or more types of indoor air pollutants
[Source: IEC 63086-1 modified]