

ALLERGEN BARRIER TESTING SERVICE

Test Code	Test Name	(Allergen*)
403011	Use Simulation Test	Der f1
403010	Airflow Device Test	Der f1 & Fel d1

*By special request, other allergens can be tested.

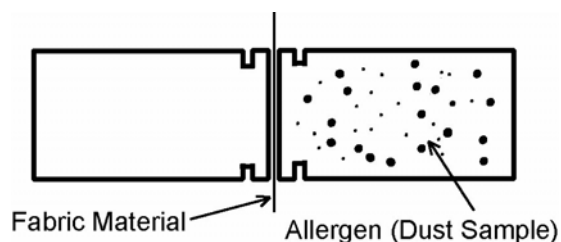
Background:

Two protocols have been developed to test the barrier properties of fabric-type materials with respect to the transfer of indoor allergens. The method has been applied to the study of special cloth fabrics used for bedding-type materials (e.g. mattress encasings, pillow covers, and other special-use fabrics.)

Description of Test Methods:

Allergen Barrier Use Simulation Test: A reference dust material containing a known quantity of allergen is loaded into one side of an open-ended glass chamber. The fabric material to be tested is placed over the open end and this is connected to another glass chamber (see Figure 1 and Reference 1). The surface area between the vials (i.e. the barrier surface) is 1.13 cm². The dual chamber device is rotated overnight at room temperature. Two 1/8" steel bearings are added to the allergen vial to simulate the pressure of normal use. The amount of allergen transferred across the fabric barrier is then determined by a sensitive immunoassay method (ELISA). The transfer experiment is set up in duplicate and each run includes positive and negative controls. With the use simulation method, the transfer of 3.9 X 10⁻⁹ grams of dust mite allergen (limit of detection) can be detected.

Figure 1. Dual Chamber Device for Use in Simulation Testing



Allergen Barrier Testing With Airflow Device: This method uses an apparatus based on the design reported by Vaughan et al (2). This design uses controlled air pressure to force the allergen material through the fabric barrier. A dust sample with a known amount of allergen is pulled across the fabric. A filter cassette mounted downstream from the fabric collects any allergen that is able to penetrate the fabric being tested. These filters are then extracted and the resulting extracts are assayed the following day with a sensitive ELISA.

Sample Requirements: 64 inches²; samples received by the 15th will be run during the first full week of the following month.

Set Up Schedule: First full week of each month. Reports are usually available by fax 3 days after test set up.

References:

- (1) Ransom JH and Halsey JF. Allergen transfer chamber: A new method for testing allergen barriers. *J Allergy Clin Immunol* 1996; 97:223.
- (2) Vaughan JW et al. Evaluation of materials used for bedding encasement: Effect of pore size in blocking cat and dust mite allergen. *J Allergy Clin Immunol* 1999; 103: 227 – 231.

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