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Hot Odor Test for Insulation Materials

SAE Recommended Practice
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Submitted for Recognition as
an American National Standard

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MATERIALS PRACTICE

SAE J1351

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HOT ODOR TEST FOR INSULATION MATERIALS

1. SCOPE: This test applies to various materials used for insulation and other applications.

2. PURPOSE: The purpose of this test is to evaluate and compare the odor characteristics of various trim and insulation materials and composites. Odor is a difficult property to quantify. Therefore, the data from this test are probably most useful when compared to data obtained from samples with known odor characteristics.

3. APPARATUS:

3.1 Metallic Cans: The volume of the cans should be about 1 L (1 qt). The cans must be odorless, both at room temperature and at 65°C (150°F). The cans should have loose fitting lids which can be easily removed and replaced.

3.2 Oven: The oven should be an air-circulating type able to maintain a temperature of 65 ± 3°C (150 ± 5°F).

3.3 Odor Panel: To obtain consistent data, an odor panel should be carefully selected. Strong smokers, heavy users of aromatic cosmetics, habitual gum or tobacco users, or people with sinus problems may not be suitable. Once selected, the panel should remain as stable as possible.

3.4 Test Room: Tests should be conducted in an odor-free environment. Conditioned space is desirable, but not required.

4. TEST SPECIMENS AND CONDITIONING: Test specimens should be representative of the material or composite being evaluated. Test specimens should have surface area (including all surfaces) of 250 ± 25 cm^2 (0.27 ft^2). Test specimens can be cut to any dimension compatible to the dimensions of the can, provided the specimen surface area is maintained at 250 cm^2.

Prior to the test, the specimens should be conditioned for 24 h at 21 ± 1°C (70 ± 2°F) and 50 ± 5% RH.

5. PROCEDURE:

5.1 To avoid contamination, thoroughly clean the cans (including lids). Rinse the cans with hot water. Scrub the cans with a laboratory glassware detergent. Rinse thoroughly with cold water.

5.2 Samples are to be tested dry and in presence of moisture. For the dry test, place a test specimen in a can and cover with the lid. For the wet test, put 2 cc of distilled water and the test specimen in a can and cover with the lid. Include one empty can for control.

5.3 Place cans in an oven preheated to 65 ± 3°C (150 ± 5°F) for 1 h. This temperature was selected to be representative of automotive applications. However, at the discretion of the test engineer, the temperature can be modified to any temperature or set of temperatures.

CAUTION: This test should not be used to test materials that will release toxic fumes. The test engineer should be aware of the chemical composition of the materials being tested. In all cases, observers should be instructed to slowly inhale the air from the cans to minimize the risk of inhaling noxious fumes.

5.4 Remove the cans. The first panelist should position his head near the control can (about 15 cm away) and remove the lid. Then, with a cupped hand, he should draw the air from the can to his nose and slowly inhale. He should then immediately repeat the procedure for the first test specimen (dry) and record the appropriate rating listed in Section 6. Lids should not be off the cans longer than 5 s. Tests must be conducted in an environment free from drafts and contaminant odors.

5.5 Wait 2 min and repeat step 5.4 for the wet test specimens.

5.6 Repeat steps 5.4 and 5.5 for each sample.

5.7 Replace the cans in the oven for 15 min between observers and repeat steps 5.4, 5.5, and 5.6 for at least three panelists.

5.8 Report description of test samples, median and range of ratings, and any deviations from the test procedure.

6. ODOR SCALE:

Rating	Description
1	No noticeable odor
2	Slight, but noticeable odor
3	Definite odor, but not strong enough to be offensive
4	Strong offensive odor
5	Very strong offensive odor

Note that the scale is arbitrary. Since the test applies to a variety of materials and applications, it is not practical to assign a standard for each rating. The tester has the responsibility to establish the level of odor that applies to each scale rating depending on the particular application and materials being used.