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The test report attached verifies the fire performance for Armstrong Sheet Flooring. The product tested is representative of, but may not be identical to the product you are purchasing. Changes in product formulation that occur for a variety of reasons may cause fluctuations in results. The above referenced data is representative of the current formulation of these products. Specifications and interpretation of fire test methods are subject to ongoing development. To assure that the information continues to be current, it is suggested that you request product certification for a specific project. The certification will reference the current applicable independent laboratory test reports.

Report On
Smoke Density Characteristics
As Determined By
ASTM E 662 Test Method

PREPARED FOR:

Armstrong World Industries, Inc. Innovation Center

Lancaster, PA

TEST NUMBER: S-2091

Armstrong Homogeneous Sheet Flooring (Medintone)

Date of Issue:
3/15/2016

ACCREDITED
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I. INTRODUCTION

The following Scope, Summary of Test Method, Test Specimens, and Specimen Conditioning sections are abridged from the Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials ASTM E662.

II. SCOPE

This fire-test response standard covers determination of the specific optical density of smoke generated by solid materials and assemblies mounted in the vertical position in thicknesses up to and including one inch. The test is based on the attenuation of a light beam by smoke accumulating within a closed chamber due to nonflaming pyrolytic decomposition and flaming combustion. Results are expressed in terms of specific optical density which is derived from a geometrical factor and the measured optical density, a measurement characteristic of the concentration of smoke.

The test is intended for use in research and development and not as a basis for ratings for regulatory purposes. At the present time, no means are provided for predicting the density of smoke which may be generated by the materials exposed to heat and flame under other fire conditions.

III. SUMMARY OF TEST METHOD

This method employs an electrically-heated radiant energy source mounted within an insulated ceramic tube and positioned so as to produce an irradiance level of 2.2 BTU/ft2 sec. (2.5W/cm2) averaged over the central 1.5 inch diameter area of a vertically mounted specimen facing the radiant heater. The nominal 3 by 3 inch specimen is mounted within a holder which exposes an area measuring 2 9/16 by 2 9/16 inch. The holder can accommodate specimens up to one inch thick. This exposure provides the nonflaming condition of the test.

For the flaming condition, a six-tube burner is used to apply a row of air-propane flamelets across the lower edge of the exposed specimen area and into the specimen holder trough. The application of flame in addition to the specified irradiance level from the heating element constitutes the flaming combustion exposure.

The test specimens are exposed to the flaming and nonflaming conditions within a closed 18 ft3 chamber. A photometric system with a 36 inch vertical light path measures the decrease in light transmission as smoke accumulates.

IV. TEST SPECIMENS

The test specimens are 3 by 3 +/- .03 inch by the intended installation thickness up to and including 1 inch thickness. Materials in thicknesses in excess of 1 inch are sliced to 1 inch and the original (uncut) surface tested. Multi-layer materials thicker than 1 inch with surface facings of different materials are sliced to 1 inch thickness, and each original (uncut) surface tested separately, if both surface facings are exposed to fire.

V. SPECIMEN CONDITIONING

Specimens are predried for 24 hours at 140 ± 5°F (60 ± 3°C) and then conditioned to equilibrium (constant weight) at an ambient temperature of 73 ± 5°F (23 ± 3°C) and a relative humidity of 50 ± 5 percent.

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Report on Smoke Density Characteristics as Determined by: ASTM E 662 Test Method

Test Number: S-2091	Test Date: 03/01/16

Report Prepared For:	Armstrong World Industries, Inc. Innovation Center Lancaster, PA
Material Tested:	Armstrong Homogeneous Sheet Flooring (Medintone)

Sample Information:

Detailed Product Description:	Armstrong Homogeneous Sheet Flooring. Product Lines with Similar Construction: Medintech, Medintech Plus.
Sample Preparation:	The material was adhered to a 1/4" cement board backer using Armstrong S-599 adhesive. Samples were selected and prepared by Armstrong.

Sample Selection By:	Manufacturer	Sample Color:	Grey
Number of Specimens:	6	Conditioning Days:	18

Test Conditions:

Radiometer Reading (mV):	7.74	Irradiance (W/cm2):	2.5
Furnace Temp. (°F):	1444	Specimen Holder Used:	Trough

Test Data (Non- Flaming Exposure Mode):

	Burn 1	Burn 2	Burn 3	Average
Thickness (in.):	0.334	0.336	0.336	0.335
Weight (g):	68.68	69.24	68.00	68.64
Chamber Pressure:	3	3	3	3
Chamber Temp. (°F):	94	96	96	95
Smoke Color:	Grey	Grey	Grey	Grey
90 Second Ds:	12	7	17	**12**
4 Minute Ds:	127	142	133	**134**
Max Dm:	414	433	421	423
Time to Max Dm (minutes):	19.88	16.10	19.65	18.54
Corrected Dm:	405	421	406	**411**

Test Data (Flaming Exposure Mode):

	Burn 1	Burn 2	Burn 3	Average
Thickness (in.):	0.333	0.334	0.333	0.333
Weight (g):	68.56	69.03	68.29	68.63
Chamber Pressure:	3	3	3	3
Chamber Temp. (°F):	94	98	98	97
Smoke Color:	Grey	Grey	Grey	Grey
90 Second Ds:	64	54	60	**59**
4 Minute Ds:	252	231	197	**227**
Max Dm:	549	495	453	499
Time to Max Dm (minutes):	11.90	14.03	14.70	13.54
Corrected Dm:	542	486	446	**491**

Observations:	Expansion toward the furnace during the non-flaming mode.	
Remarks:	Weights and thicknesses include the 1/4" cement board backer.	
Test Operator	CP	Note: Ds = Specific Optical Density; Dm = Max Specific Optical Density

Report Prepared By:

Manager of Fire Testing – Engineer

Report Reviewed By:

Director – HPVA Laboratories