ISO 5659-2 TESTING
FOR
TAIYO AMERICA, INC.
ON
PSR-4000 SERIES
VTEC #100-8003
TESTED: MARCH 27, 2024

VTEC Laboratories Inc.

March 28, 2024

Client: Taiyo America, Inc
1717 Pinoak Lane
Carson City, NV 89703

Attention: Jesse Session

I. INTRODUCTION:

The following Scope, Summary of Method, Test Specimens, and Classification Criteria sections are abridged from the ISO 5659-2 Standard Test Method for Measuring Smoke Products of Combustion.

II. SCOPE:

The smoke generation test is conducted in accordance with ISO 5659 Part 2. The method of test covers a procedure for measuring the smoke generated by materials and assemblies in thickness up to and including one inch. The test is based on the attenuation of a light beam by smoke accumulating within a closed chamber. Specimens are mounted vertically within the chamber and exposed to thermal radiation on their upper surfaces at a constant irradiance of either: 25 kW/m^2, in either the flaming or non-flaming mode, or at 50 kW/m^2, in either the flaming and non-flaming mode. The mode of test is determined by the EN 45545-2 requirement.

Disclaimer:

This test result alone does not assess the fire hazard of the material, or a product made from this material, under actual fire conditions. Consequently, the results of this test alone are not to be quoted in support of claims with respect to the fire hazard of the material or product under actual fire conditions. The results when used alone are only to be used for research and development, quality control and material specifications. These results relate only to the behavior of the specimens of the product under the particular conditions of the test; they are not intended to be the sole criterion for assessing the potential smoke obscuration hazard of the product in use.

III. SUMMARY OF METHOD:

This method employs an electrically-heated radiant energy source mounted within an stainless-steel tube and positioned so as to produce the irradiance levels mentioned above. This exposure provides the non-flaming exposures of the test.

For the flaming condition, a pilot burner is used to apply a flame on the exposed specimen area. 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 non-flaming conditions within a closed 18 cubic foot chamber. A photometric system with a 36" vertical light path measure the continuous decrease in light transmission as smoke accumulates.

IV. TEST SPECIMENS:

The test sample is comprised of three specimens. A nominal 3" X 3" specimen is mounted within a holder, which exposes an area 2-9/16" X 2-9/16". The holder can accommodate specimens up to one inch thick, depending on the particular sample thickness. When coating substrates or cores as used in normal practice, including coating items such as paints and adhesives, the number of coats and type of substrate is included in the test report.

DATE: 3/27/2024
PROJECT #: 100-8003
SUPPLIED BY: Taiyo America, Inc.
CONDITIONING TEMP: 63.1 deg. F
SPECIAL PREPARATION: NONE
SPECIMEN COMPOSITION: Heterogeneous
SPECIMEN COLOR: Orange / Gold
DESCRIPTION OF MATERIAL: PSR-4000 Series

SMOKE TEST RESULTS SUMMARY

	25 kW Flaming			
SAMPLE #:	**1**	**2**	**3**	**Average D_m**
Weight (g):	18.9	19.4	19.2	
Thickness (in)	0.060	0.062	0.061	
T 100%:	1.000	1.000	1.000	
Tmin:	0.9035	0.9424	0.9164	
Tmin (%):	90.35	94.24	91.64	
D_m:	5.82	3.40	5.00	4.74
$D_s(4)$:	**3.83**	**1.25**	**2.11**	**2.40**
VOF_4:	**8.33**	**3.10**	**4.87**	**5.43**

OBSERVATIONS:
The samples did not ignite.

OBSERVATIONS:
No unusual observations

This material meets the requirements for EN 45545-2 R10 HL3.

Neil Schultz
Executive Director

A. Rahim
Amirudin Rahim
Technical Director