

ASTM E-84 Classification for KYDEX® Thermoplastic Sheet

For information applicable to KYDEX® FST please refer to 300 series technical briefs.

TB - 111-E

ASTM E-84 Classification

KYDEX® sheet is often used as a building material and must therefore be subjected to the surface burning specification as outlined in ASTM E-84: Surface Burning Characteristics of Building Materials. Note: UL 723 and NFPA 255 are fundamentally the same test method as ASTM E-84 and are all often referred to as the "Tunnel Test".

The purpose of the test is to determine the comparative burning characteristics of a material by evaluating the spread of flame over its surface and the density of the smoke developed when exposed to a test fire, and consequently establish a basis on which surface burning characteristics of different materials may be compared without specific considerations of all the end-use parameters that might affect the surface burning characteristics.

The Flame-Spread Index (FSI) and Smoke-Developed Index (SDI) are numerical classifications based upon a standard surface burning test such as ASTM E-84. Flame spread is the ability for a flame to travel along the surface of a material away from the fire source while smoke developed is a measure of the concentration of smoke given off as a material burns. A low FSI indicates a low burn rate and a low SDI indicates a low smoke development rate.

The building, fire, and life safety codes (IBC, IFB, NFPA 5000, NFPA 101, and NFPA 1/IFC) all contain requirements that limit interior wall and ceiling finishes to 3 classes. The FSI and SDI obtained during the 10-minute test are used to classify materials from best (Class A or I), to moderate (Class B or II), to least (Class C or III), see details below.

Code Classification	Flame Spread Index	Smoke Developed Index
I or A	0-25	450
II or B	26-75	450
III or C	76-200	450

The following is a list of qualified KYDEX® sheet products. The classification is good for the tested thickness and below.

Product	KYDEX® 152 WG	KYDEX® 110	KYDEX® 150	KYDEX® 160	KYDEX® 115	KYDEX® 150
Classification	Class I/A	Class I/A	Class I/A	Class I/A	Class I/A	Class II/B
Thickness	1.02mm (0.040")	1.52mm (0.060")	1.52mm (0.060")	3.18mm (0.125")	2.03mm (0.080")	2.36mm (0.093")

For detailed information or results on KYDEX® sheet products, please contact the KYDEX, LLC.

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