

## **Fire Safety: Combustible content added by aminoplast masonry foam insulation.**

While in service, aminoplast masonry foam insulation is “life-of-structure” protected by the concrete elements of insulated concrete masonry wall assemblies. Even so, building codes require quantifying what, if any, combustible content is contributed by all of wall assembly components. Building codes reference a single appropriate test method for foam plastic insulating materials by which this important information must be quantified: **NFPA 259 [ASTM D5865]**.

NAVLAP accredited 3rd party testing demonstrates that Core Foam Masonry Foam Insulation by cfiFOAM, Inc. contributes less combustible content to concrete masonry wall assemblies than all others brand of aminoplast masonry foam insulation sold for installation in the US. **Testing per ASTM D5865 demonstrates that the Potential Heat of Core Foam Masonry Foam Insulation is < 80 Btu/lb. or ≈ 21 Btu/ft<sup>2</sup> in 8” CMU walls, and ≈ 32 Btu/ft<sup>2</sup> in 12” CMU walls.**

## **Foam Plastic Insulation: What does Section 2603 of building codes state?**

**2603.5.3 Potential heat.** The potential heat of foam plastic insulation in any portion of the wall or panel shall not exceed the potential heat expressed in Btu per square feet (mJ/m<sup>2</sup>) of the foam plastic insulation contained in the wall assembly tested in accordance with Section 2603.5.5. The potential heat of the foam plastic insulation shall be determined by tests conducted in accordance with NFPA 259 [ASTM D5865] and the results shall be expressed in Btu per square feet (mJ/m<sup>2</sup>).

**Exception:** One-story buildings complying with Section 2603.4.1.4. [Text taken from 2018 IBC.]

**Comments:** This section limits the combustible content of exterior walls based on the potential heat of the

foam plastic insulation. Potential heat is essentially the amount of energy potential a particular material contains in terms of its ability to burn. Generally, the higher the potential heat, 'the higher the fire hazard. The potential heat must not exceed that as found in the tested wall assembly as required in Section 2603.5.5.

**Note:** *NFPA 259 [ASTM D5865] results are typically expressed in Btu per square foot (mJ/m<sup>2</sup>). and Section 2603.5.3 requires expressing as BTU/ft<sup>2</sup> which varies depending upon the dimensions and shapes of the interior core-cell within concrete masonry wall assemblies.*

## **The Truth: No brand of aminoplast masonry foam is noncombustible.**

The claim that the Core-Fill 500 brand by Tailored Chemical Products, Inc. is noncombustible reflects results testing per ASTM E136-58, and is misleading because:

- 1) Section 2603 of building codes does not reference ASTM E136.
- 2) The testing was performed in 1990 per the obsolete 1958 protocol: ASTM E136-58.
- 3) The report’s signatory engineer’s caveat reads “under conditions of test.” e.g. 1958 test protocol was obsolete.
- 4) All subsequent protocols beginning with ASTM E136-65 rendered ASTM E136 inappropriate for testing foam plastic insulation. **Note:** The FTC sanctioned two aminoplast foam manufacturers for making noncombustible product claims that were based upon ASTM E136-65.
- 5) Section 2603.5.3 of building codes references NFPA 259 [ASTM D5865] as the only test method that appropriately measures the Potential Heat contributed by foam plastic insulation. **Published NFPA 259 results for Core-Fill 500 list the Potential Heat of Core-Fill 500 as 6,109 Btu/lb. or ≈ 1600 Btu/ft<sup>2</sup> in 8” CMU walls, and ≈ 2440 Btu/ft<sup>2</sup> in 12” CMU walls.**

