



CASE STUDY

Enabling Fire-Resistant ePVC Decking with nGrain® Technology for Regulated Building Markets

Customer

Global Building Products Manufacturer

End Use

Premium PVC composite decking designed for residential and commercial applications requiring enhanced fire performance, weatherability, and natural woodgrain aesthetics.

Customer Challenge

A global building products manufacturer sought to develop a premium composite decking platform capable of entering fire-regulated markets without sacrificing the appearance or production consistency expected of a high-end outdoor product.

The decking system needed to achieve ASTM E84 Class A fire performance and satisfy California Wildland-Urban Interface (WUI) ignition requirements while maintaining a low-gloss, variegated woodgrain appearance. The capstock also had to withstand long-term outdoor exposure, process consistently during extended production runs, and provide a foundation for future product expansion through additional colors.

Meeting those objectives required more than a fire-resistant formulation. Fire performance, weatherability, color consistency, molded appearance, and manufacturing stability all needed to perform together within a single capstock system. Any compromise could delay commercialization or limit the product's ability to compete in regulated building markets.

Americhem Solution

Americhem partnered with the customer to develop a custom fire-resistant ePVC capstock formulation engineered specifically for the decking application. The solution combined a fire-resistant ePVC capstock with weatherable color technology and nGrain® streaker formulations to produce a realistic, low-gloss woodgrain appearance while supporting the performance requirements of the finished decking system. Americhem also provided custom color development, laboratory evaluation, production sampling, and on-site technical support throughout commercialization.

By developing the capstock formulation, color system, and streaker technology together, Americhem helped the customer balance regulatory compliance, outdoor durability, premium aesthetics, and production consistency within a commercially viable decking platform.

Value Proposition

Outdoor building products must satisfy multiple performance requirements simultaneously. Fire resistance alone is not enough if appearance, weatherability, or manufacturing consistency limit commercial success.

Americhem develops custom polymer solutions around complete application requirements rather than individual material properties. By integrating formulation development, color technology, processing expertise, and technical collaboration, Americhem helps manufacturers reduce development risk while creating products that satisfy regulatory requirements and market expectations.

That approach extends across building and construction applications where compliance, durability, aesthetics, and production efficiency must perform together to support successful product launches.



Customer Success Story

The completed decking platform successfully achieved Class A fire performance and California WUI compliance while delivering the premium low-gloss, variegated woodgrain appearance enabled by nGrain® technology.

Following commercialization, the customer successfully launched the product and expanded the platform through additional color offerings and broader market availability. Americhem's collaborative development process helped establish a production-ready solution capable of supporting consistent manufacturing and long-term product growth.



Fast Facts

End Application

Premium PVC composite decking

Materials used

Custom fire-resistant ePVC capstock, weatherable color system, nGrain® streaker technology

Fire Performance

ASTM E84 Class A and California WUI compliant finished decking platform*

**Performance based on the finished decking system.*

Visual Performance

Low-gloss, variegated woodgrain appearance with nGrain® technology

Processing

Stable production with repeatable long-run processing

Commercial Outcome

Successful product launch with expanded color offerings and broader market availability



This material may include AI-generated or digitally rendered images or visuals for illustrative purposes only. Such images or visuals do not depict actual products, applications, facilities, customers, employees, installations, or test results.