

JAMES CROPPER

TECNOFIRE®

Integrated Fire Protection For Composite Panels

Composite panels deliver the lightweight performance, design freedom and manufacturing efficiency demanded by modern construction and infrastructure projects. However, achieving fire-test requirements can be challenging, particularly when manufacturers need to balance fire performance with weight, thickness, aesthetics and established production processes.

TECNOFIRE is a flexible intumescent material designed to help composite panel manufacturers meet these challenges. When exposed to heat, it expands to form an insulating char that helps reduce heat transfer and protect the underlying laminate or structure.

Available in a range of formats, TECNOFIRE can be incorporated directly within the panel, utilised alongside existing fire-protection measures, or positioned strategically at critical joints, gaps and interfaces. This targeted approach allows protection to be placed where it is needed most, supporting application-specific fire performance without compromising design flexibility.

COMPLIANCE

ASTM E84 CLASS A PERFORMANCE ACHIEVED
BY SELECTED TECNOFIRE GRADES

APPLICATION-SPECIFIC TEST DATA AND
SUPPORTING DOCUMENTATION AVAILABLE



EFFECTIVE PROTECTION

HEAT-ACTIVATED INTUMESCENT TECHNOLOGY

EXPANDS TO FORM AN INSULATING CHAR
WHICH REDUCES HEAT TRANSFER AND DELAYS
BURN-THROUGH

CAN BE POSITIONED AT CRITICAL FIRE-RISK
AREAS WITHIN THE PANEL

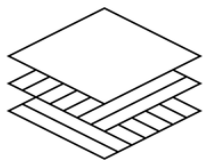


EASE OF INTEGRATION

COMPATIBLE WITH ESTABLISHED COMPOSITE
MANUFACTURING METHODS

CAN BE COMBINED WITH FIRE-RETARDANT
RESINS & OTHER FIRE PROTECTION MEASURES

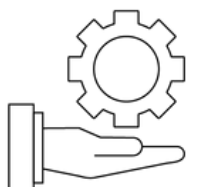
EASY-TO-HANDLE FORMATS DESIGNED FOR
EFFICIENT CONVERSION AND PROCESSING



DESIGN FLEXIBILITY

CAN BE INTEGRATED WITHIN THE LAMINATE
OR APPLIED AT JOINTS, GAPS AND
INTERFACES

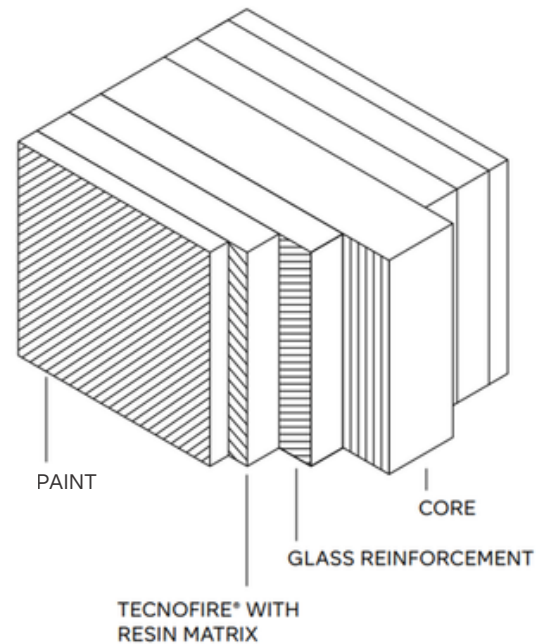
AVAILABLE AS SHEETS, STRIPS, CUT
SHAPES AND ADHESIVE-BACKED FORMATS
SUITABLE FOR A WIDE RANGE OF PANEL
DESIGNS



INCORPORATING TECNOFIRE

WITHIN THE PANEL LAMINATE

TECNOFIRE can be introduced as a dedicated layer within the composite construction, creating an intumescent response close to the area of fire exposure. This approach builds passive fire protection into the panel rather than adding a separate protection layer after manufacture. The material can be evaluated within manufacturing routes including vacuum infusion, resin transfer moulding, pultrusion, compression moulding, filament winding and hand lay-up.

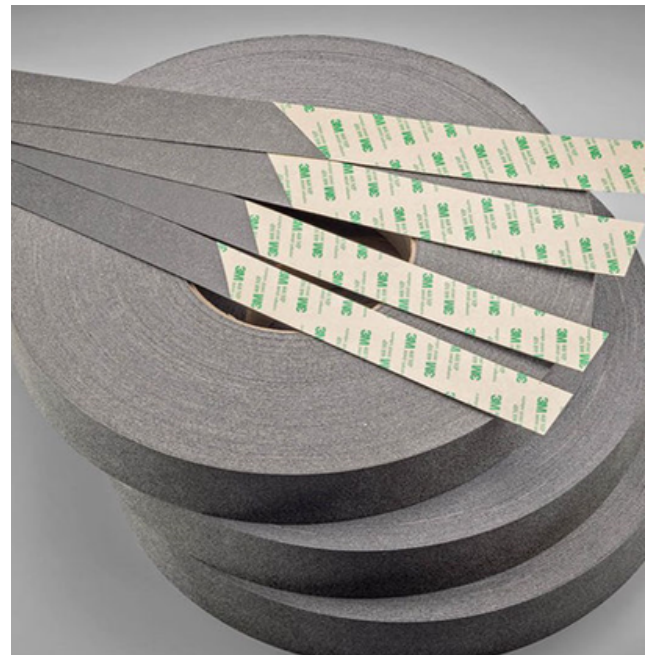


AS PART OF A HYBRID SYSTEM

TECNOFIRE can be considered alongside fire-retardant resin systems or other protection measures. This may be particularly relevant when an existing solution is close to the required result but additional protection is needed to address heat transfer, burn-through or another identified weakness.

AT JOINTS, GAPS AND INTERFACES

The main panel body may not be the most vulnerable part of the system. Panel-to-panel joints, locking profiles, perimeter details, penetrations and compartmentation interfaces can become critical during fire testing. Converted TECNOFIRE strips, sheets and adhesive-backed formats can be evaluated for targeted protection at these locations.



CASE STUDY: COMPOSITE PANEL DEVELOPMENT

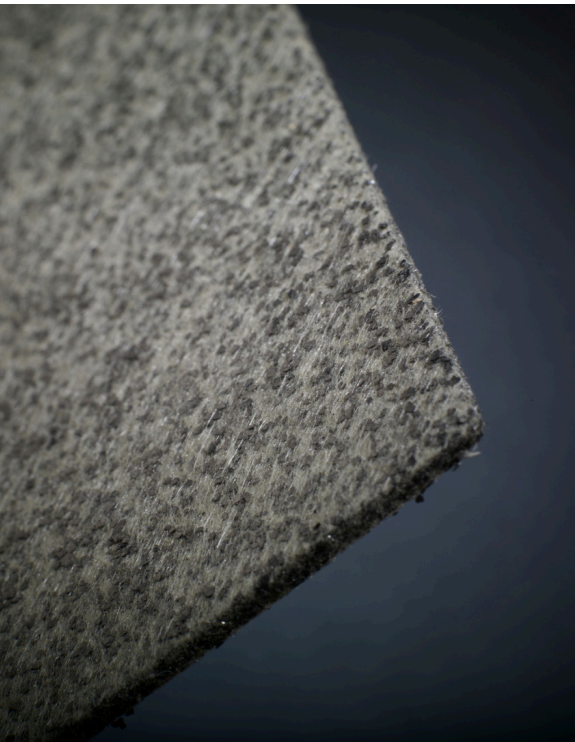
A large-format composite wall panel required improved fire performance while retaining its vinyl ester infusion process, smooth architectural finish and scalable manufacturing route. TECNOFIRE® materials were incorporated within the laminate as part of an iterative panel-development programme. The final tested construction used a combination of 60152C and 60172B and completed the customer's required fire-test milestone.

The programme demonstrates the importance of developing and testing TECNOFIRE® as part of the complete panel construction. The resulting evidence applies only to the configuration tested and should not be treated as transferable certification for other panel systems.

THE CHALLENGE

Fire performance is determined by the complete panel system, not by one material in isolation. The customer may need to reduce heat transfer, delay burn-through, improve performance at joints or address the outcome of a previous fire test. At the same time, the panel may need to remain lightweight, thin and compatible with an established manufacturing process. Changes to the skins, core, resin, adhesive, layer sequence, joints, fixings or panel thickness can all affect the final result. This makes application-specific development and testing essential.

WATCH TECNOFIRE®
IN ACTION



THE SOLUTION - TECNOFIRE

TECNOFIRE introduces a dedicated intumescent layer within the panel system. Under heat exposure, the material expands to form an insulating char that helps protect the underlying composite construction. Depending on the application, TECNOFIRE can be:

- Integrated into the composite panel lay-up
- Used alongside fire-retardant resins or other protection measures
- Positioned at panel-to-panel joints, perimeter details and interfaces
- Converted into strips, sheets, shapes or adhesive-backed formats

Placing protection close to the identified fire risk allows the panel designer to target vulnerable areas while managing weight, thickness and process impact. The correct grade, format and position must be established through application-specific design and evaluation.

FIRE-TESTING & EVALUATION

ASTM E84

Selected TECNOFIRE grades achieved Class A-level performance when tested as standalone material components, supporting applications where low flame spread and smoke are required. Results apply only to the tested grades and configurations.

ASTM E119

In a tested composite wall-panel construction, TECNOFIRE contributed to a one-hour fire-resistance rating by forming a protective char, helping to keep backside temperatures lower for longer and protecting the exposed laminate. This result applies to the specific wall-panel construction tested.

APPLICATION-SPECIFIC TESTING

Results from one panel construction cannot automatically be transferred to another. Final performance must be established using the customer's complete panel system and intended test configuration.

BENEFITS FOR COMPOSITE PANEL MANUFACTURERS

BUILT IN FIRE PROTECTION

TECNOFIRE can be incorporated within the laminate, positioning the heat-activated protection close to the identified fire risk.

FACILITATES LIGHTWEIGHT PANEL DESIGN

A thin, targeted layer can be evaluated where manufacturers need to manage overall panel weight and thickness.

MANUFACTURING COMPATABILITY

Available formats can be assessed within established composite processes, potentially avoiding a separate post-applied fire-protection stage.

FLEXIBLE FORMATS

Sheets, strips, custom-cut shapes and adhesive-backed options can be developed around the panel geometry and intended placement.

TARGETED PROTECTION

TECNOFIRE can be positioned at joints, gaps, locking profiles and other vulnerable points rather than necessarily covering the entire panel.

APPLICATION-SPECIFIC DEVELOPMENT SUPPORT

James Cropper can support material selection, conversion discussions and trial planning around the customer's panel construction and intended test programme.

TYPICAL APPLICATIONS

TECNOFIRE® can be evaluated for composite construction systems including:

- Exterior façade and building-envelope panels
- Structural and non-structural composite wall panels
- Modular and prefabricated building systems
- Roofing and architectural panel systems
- Infrastructure and utility structures
- Panel-to-panel joints and locking systems
- Perimeter details and compartmentation interfaces
- Complex gaps and project-specific geometries

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