

# VENGUARD™

Clear Intumescent Fire-Retardant Coating for Engineered Timber — Technical Data Sheet



Ref: NI/26/VG-TDS Rev A (Pre-launch) | Date: 5 August 2026 | Issued by: Nautilus Innovation Pte Ltd

## 1. Product Description

VENGUARD is a clear intumescent fire-retardant coating system for engineered and solid timber, invented at Nanyang Technological University (NTU), Singapore, and commercialised by Nautilus Innovation under an exclusive licence through NTUitive. The coating is transparent, preserving the natural appearance and grain of the timber substrate. On exposure to fire it forms an insulating intumescent char that slows heat release and surface flame spread.

VENGUARD is manufactured under an exclusive arrangement by Epoxy Industries (Pvt) Ltd and is intended for factory application to timber elements ahead of installation, with site application possible under controlled conditions by trained applicators.

## 2. Fire Performance — Independently Tested

| Parameter                       | Result / Reference                                                                                                 |
|---------------------------------|--------------------------------------------------------------------------------------------------------------------|
| Reaction to fire classification | <b>B-s1, d0</b> in accordance with BS EN 13501-1:2018                                                              |
| Smoke production                | s1 (lowest smoke classification)                                                                                   |
| Flaming droplets / particles    | d0 (none)                                                                                                          |
| Test method                     | Single Burning Item (SBI), EN 13823:2020                                                                           |
| Test / classification reports   | TÜV SÜD PSB Test Report 7191306419-MEC23/01-FA and Classification Report 7191306419-MEC23/03-FA, dated 05 May 2023 |
| Tested substrate                | 27 mm spruce engineered timber panel (Metsä), 13.34 kg/m² area density, surface coated with VENGUARD               |

Classification applies to the tested substrate and configuration. Performance on other substrates or build-ups is confirmed by project-specific assessment.

## 3. Project Precedent

- Applied at Jurong Lake Gardens, Singapore — public-realm timber structures — with an SCDF performance-based waiver precedent.
- Deployment and evaluation programmes active with partners in Japan and Southeast Asia.

## 4. Supply Format

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- Multi-part kit: resin, hardener, dry fire-retardant powder components and thinner, factory-batched by the exclusive manufacturer to the NTU-verified benchmark formulation (7 August 2025).
- Components are blended immediately before application in accordance with the Nautilus method statement and batching protocol. Formulation and batching are proprietary and are not varied at site level.
- Application rate, number of coats and film build are specified per project by Nautilus Innovation.

## 5. Handling & Storage

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| Item           | Requirement                                                                                               |
|----------------|-----------------------------------------------------------------------------------------------------------|
| Storage        | Below 30°C in original sealed containers, away from direct sunlight                                       |
| Shelf life     | 3 months from supply, components unmixed and sealed                                                       |
| Mixing         | Mix immediately before use; do not store mixed material                                                   |
| PPE            | Gloves and goggles; ensure adequate ventilation during mixing and application                             |
| Hazard summary | May cause minor skin or eye irritation. Refer to the product SDS for full first-aid and handling measures |

## 6. Status & Limitations

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- Commercial launch is targeted for Q4 2026. Pre-launch supply is limited to evaluation and project programmes coordinated by Nautilus Innovation.
- Surfaces subject to standing water or persistent wetting require project-specific assessment; the exterior durability programme is in progress.
- This document supersedes no agreed formulation, method statement or batching protocol.

## 7. Contact

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