

VINNAPAS® EZ 3112

The Preferred Choice for Low-VOC Intumescent Coatings

VINNAPAS® EZ 3112 from WACKER is a binder specifically designed to meet the needs of intumescent coatings. This product combines high performance, such as good foam expansion and good foam stability, with low environmental impact. It is the ideal solution for water-borne intumescent coatings suitable for structural steelwork.

VINNAPAS® EZ 3112: High Performance for Intumescent Coatings

VINNAPAS® EZ 3112 exhibits good compatibility with standard intumescent raw materials like ammonium polyphosphate (APP) and melamine, as well as good adhesion to substrates such as steel. Furthermore, coatings formulated with VINNAPAS® EZ 3112 demonstrate better

foam development and yield a foam that is finer and of more compact porosity. During storage of the formulated product, the dispersion contributes to improved properties in challenging conditions, such as hot climates. In comparison with standard products, the shelf life of the end product can be extended.

Properties of VINNAPAS® EZ 3112

Solids [wt%]	50 ± 1
T _g [°C]	3
MFFT [°C]	0
Particle size [µm]	0.4
Viscosity [cPs]	2,900 ± 1,100
pH	4.5–5.5

Recommended Substrates for VINNAPAS® EZ 3112

Structural steelwork ●●

●● Excellent

Intumescent Coatings for Protecting Public Buildings against Fire

Many public and commercial buildings worldwide contain structural steelwork that needs to be protected against fire to provide valuable time in an emergency. Regular steel loses its stability at around 500 °C and, if unprotected in the event of a fire, can reach this temperature within five minutes. Thus, protection with intumescent coatings is needed in architectural structures such as office buildings, sports stadiums and airports. The additional minutes of stability can provide the necessary time for evacuation.

Measurement of Expansion Factor after Fire Test



VINNAPAS® EZ 3112 supports significant foam development and high expansion factors.

Foam Development after Fire Test



VINNAPAS® EZ 3112 yields foam of fine, compact porosity.



Fire test with a model intumescent coating formulation containing VINNAPAS® EZ 3112.

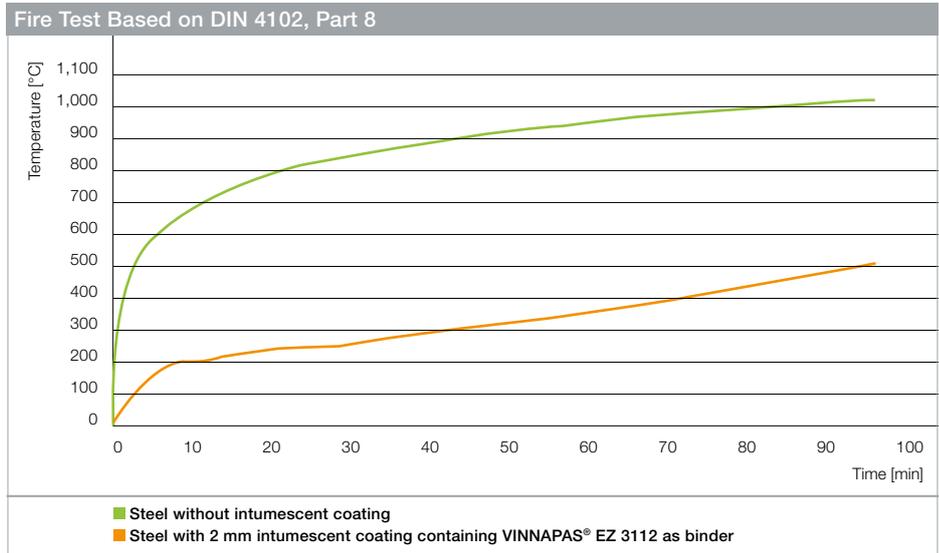
Its higher dry film thickness (DFT) efficiency produces the same application performance at a lower intumescent coating thickness. Depending upon the formulation, fire resistance classes of up to F120 (120 minutes of protection) are attainable. Due to its optimized aging properties, VINNAPAS® EZ 3112 will support the performance of the coating for decades.

VINNAPAS® EZ 3112: Environmental Benefits in Specialty Applications

The clear trend towards reducing VOC levels in intumescent coatings continues and is becoming increasingly important. As a consequence, wherever possible, more and more solutions are based on water-borne formulations instead of solvent-borne alternatives.

VINNAPAS® EZ 3112 supports this trend, as it can be used in formulations in which coalescing solvents are minimal or not required at all. Furthermore, no raw materials containing APEOs are used in its production and residual VAM levels are low. Consequently, very low VOC levels of less than 1 g/l are possible.

Diagram & pictures:
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The unprotected steel reaches the critical temperature of 500 °C in less than 5 minutes. In comparison, steel protected with the intumescent coating takes 95 minutes to reach this temperature, and so achieves a fire rating of F90.

At a Glance: Properties of VINNAPAS® EZ 3112

- Fire resistance classes up to F120 achievable
- Excellent adhesion to substrates such as structural steelwork
- Significant foam development and expansion
- Good long-term foam stability
- Very good shelf life in challenging storage conditions
- Higher hydrophobicity than standard VAEs
- Optimum aging properties
- High dry film thickness (DFT) efficiency
- Excellent compatibility with intumescent coating additives
- Supports formulations without coalescing solvents for low VOC levels
- Produced without the use of APEOs
- Low residual VAM (< 500 ppm)
- Low formaldehyde (< 20 ppm)
- Suitable for formulating very-low-VOC (< 1 g/l) intumescent coatings

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