

# VINNAPAS® EZ 3067

## The Optimum Cost-Performance Balance in Intumescent Coatings

When exposed to fire, unprotected steel skeletons in high-rise buildings bend and collapse within five to ten minutes. Intumescent fire protection coatings are used to protect such steel girders in order to gain time for evacuation. VINNAPAS® EZ 3067 is specifically designed for the requirements of intumescent coatings. The new binder combines high performance, such as good foam expansion and good foam stability, with low environmental impact.

### Extra Fire Protection for Tall Buildings

Many commercial and public buildings worldwide contain structural steelwork. The steel columns themselves are not flammable, but when the temperature reaches 500 °C, steel frames soften rapidly, and buildings can collapse. That is why fire safety is so crucial in steel-frame structures. An efficient solution is to boost the resistance of steel columns by painting them with intumescent coatings, which swell in the event of a fire and protect the steel girders from collapsing. The additional minutes of stability can thus provide the necessary time for evacuation.

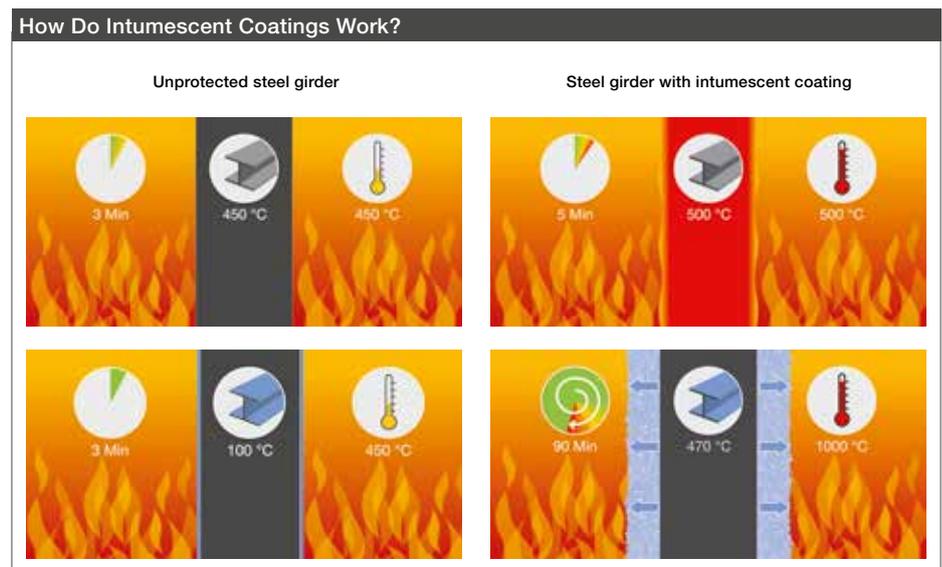
### A Few Millimeters for Longer Fire Safety

The coating is usually applied one to four millimeters thick and, when subjected to heat, foams to tens of hundreds of times its original thickness, thus protecting the steel girders from the heat of the fire for a longer time period. VINNAPAS® binders enable the needed foaming and expansion, as well as long-term foam stability. At the same time, the adhesion and strength of the intumescent coatings improve, so that the protective layer firmly adheres to the substrate and forms a heat barrier for a certain time. Without the binder, the foam layer would be too brittle, leading to insufficient adhesion to the steel substrate.

### Optimum Cost Performance

VINNAPAS® EZ 3067 provides good compatibility with standard intumescent raw materials like ammonium polyphosphate (APP) and melamine, as well as good adhesion to relevant substrates such as steel. These benefits also extend to the whole life cycle of the intumescent paint: from storage to the durability of the applied paint, VINNAPAS® EZ 3067 makes a positive contribution to the properties of the final intumescent paint formulation. Depending on the specific formulation, fire resistance classes of up to F120 (120 minutes of protection) can be reached.

Properties of VINNAPAS® EZ 3067	
Solids [wt%]	55
Tg [°C]	4–8
MFFT [°C]	1
Particle size [µm]	0.4
Viscosity [cPs]	2,000 – 7,000
pH	4.5–5.5



**High Safety and Low Environmental Impact**

Reducing VOC levels in intumescent coatings continues to become more and more important every year. Thus, a growing trend from solvent-based formulations toward water-based formulations has emerged over the last few years.

VINNAPAS® EZ 3067 supports this trend, as it can be used in formulations without coalescing solvents. In combination with low residual VAM monomer levels, moreover, it gives formulators the option of a very low VOC intumescent coating (VOC <1 g/l). Also, no raw materials containing APEOs are used in its production.

**Benefits of VINNAPAS® EZ 3067**

**Performance Benefits**

- Fire resistance classes up to F120 achievable (up to 120 minutes of protection, depending on formulation)
- Excellent adhesion to substrates such as structural steelwork
- Good foam development and expansion
- Good long-term foam stability
- Excellent anti-crack performance
- Good dry film thickness (DFT) efficiency
- Excellent compatibility with intumescent coating additives

**Environmental Benefits**

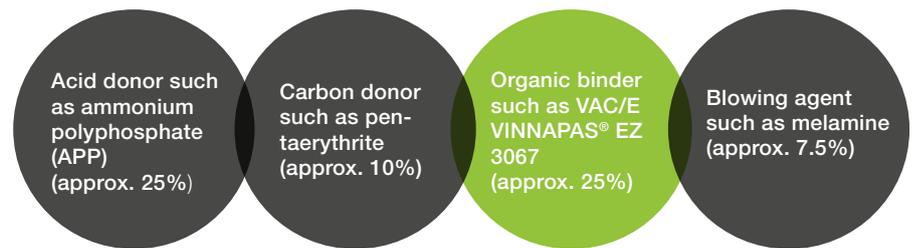
- No solvents or coalescents needed
- Produced without APEO surfactants
- Formulation of very low-VOC paints possible (<1 g/l)
- Formulation of low-odor paints possible

**Economical Benefits**

- Favorable cost-in-use ratio

**Typical Composition of Intumescent Coatings**

As a rough guideline, fire protection coatings consist of reactive parts and an organic binder:



Fire test with a model intumescent coating formulation containing VINNAPAS® binders