

VESTOSINT® – Polyamide Powder for Polyurethane and Polyester Coating Systems

For more than 25 years, manufacturers of coating systems that must meet high requirements in regard to elasticity, surface hardness, and abrasion resistance have placed their confidence in VESTOSINT®, a polyamide 12 powder which, when added to the system, decisively improves coating quality in respect to these properties.

The chemical structure of polyamide 12 brings about these improvements: The carbonamide groups (-CO-NH-) form hydrogen bridge bonds between the chains of the macromolecules, thereby substantially promoting crystallinity and increasing strength and chemical resistance. During the stoving process, carboxyl end groups integrate the powders into the coating system not only physically, but also chemically.

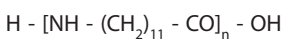


Table 1 shows how the polymer properties affect coating quality:

Property of polyamide 12	Coating property
High toughness	Improvement of elasticity
Very good resistance against alkalis, salt solutions and many solvents	No swelling, good resistance to washing
Low coefficient of sliding friction	Good sliding properties
High abrasion resistance	Low wear
Impact resistance	Improvement of impact strength
High physical strength	Reduction of crack formation
High surface hardness	Increase in scratch resistance
Conforms to requirements regarding food legislation	Can be used in the food industry

VESTOSINT® is produced in a globally unique process. This manufacturing process results in compact particles with nearly round surfaces and high crystallinity. Coil coatings are an example of how VESTOSINT® fine powders can be successfully used. Table 2 clearly shows

how the addition of polyamide powder improves the mechanical values of polyurethane and polyester coatings.

Table 2: Property profiles of diverse coil coating systems

Properties	SP	PUR	PUR-PA/SP-PA
Gloss	10...80	10...80	10...40
Surface hardness	B	C	A
Heat resistance up to a max. °C	80	80	80
Formability/bending (T-bend)	C	B	B
Roll forming	B	B	B
Abrasion resistance	D	E	B
Weathering resistance, UV resistance	D	D	D
Weathering resistance, corrosion resistance to Zn	C	C	C

A = excellent B = very good C = good D = satisfactory
E = adequate F = not applicable

The PUR-PA or SP-PA systems are used, among other things, for rolling shutters, facades, and rolling gates. The wide range of particle-size distributions that is offered makes it possible to satisfy many different requirements. Powders having an average particle diameter of 5 or 10 micrometers are exceptionally good for matting.

The coarser particles having particle diameters of 20 to 100 micrometers are used as structuring agents. Lightly to strongly structured surfaces can be achieved, depending on the dry layer thickness. Figure 2 provides an overview of the powder grades that are available.

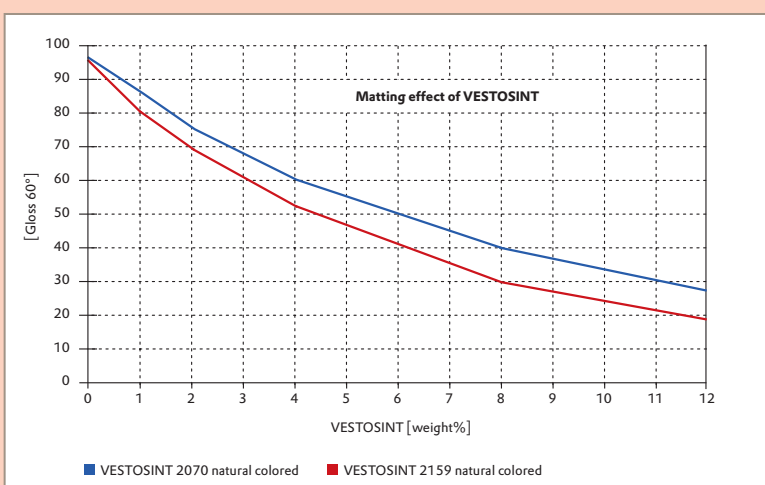


Figure 1: Degree of gloss as a function of VESTOSINT® concentration.

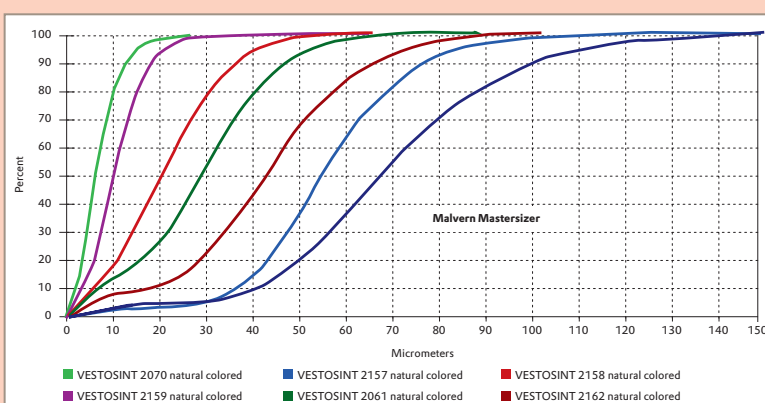
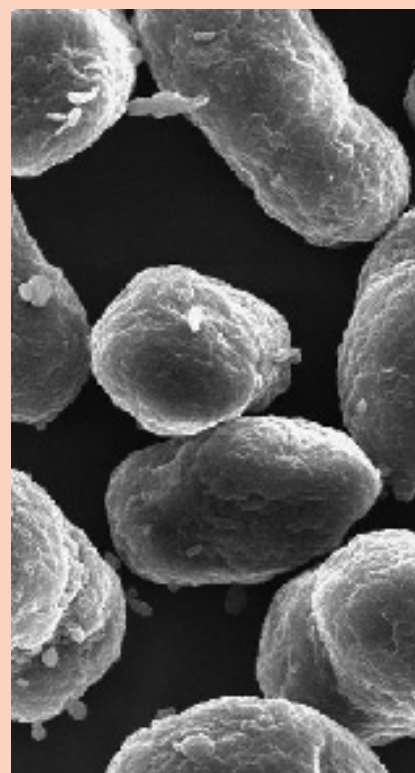


Figure 2: Overview of VESTOSINT® fine powders



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