

VESTAGON® B 1400

Crosslinking agent for polyurethane powder coatings

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General description

VESTAGON B 1400 is a polyisocyanate adduct used in combination with hydroxy functional resins. Due to the ϵ -Caprolactam blocked NCO-groups it is stable during processing up to the unblocking temperature of more than 160 °C. The crosslinker is delivered in the form of pellets.

Specification

Property	Value	Unit	Test method
NCO content (total)	12.5 - 14.0	% wt	according to DIN EN ISO 11 909
NCO content (free)	< 1	% wt	DIN EN ISO 11 909
Glass transition temperature	45 - 58	°C	DSC

Typical properties

NCO-equivalent	~ 310	g/Eq	-
Density	1.14	g/cm ³	DIN 53 479
Bulk density	~ 670	kg/m ³	DIN 53 466
Melting range	75 - 100	°C	DIN 53 736
Flashpoint	180	°C	ISO 2592
Ignition temperature	400	°C	DIN 51 794

Application

Numerous OH-terminated polyester and acrylics can be used to achieve weather-resistant decorative powder coatings with excellent physical properties. These polyols have a determining influence on the performance of the coating.

Formulations

Crosslinker and polyester are used in equivalent amounts. Empirically determined “under indexing” (up to NCO:OH = 0.8 : 1) yields economical coatings which exhibit excellent physical properties meeting the required performance profile.

Examples of formulation for binder combinations

Crosslinking ratio (NCO:OH)	1 : 1		0.8 : 1		
VESTAGON B 1400	15	22	12	19	parts
Polyol (OH number 30)	85	-	88	-	parts
Polyol (OH number 50)	-	78	-	81	parts

Up to 1 % by weight degasser is often used in pigmented powder coatings to minimize surface imperfections.

Curing

The curing temperature for PUR powder coatings based on VESTAGON B 1400 lies above the splitting temperature of about 160 °C. A prerequisite for good physical properties of a coating is sufficient curing in the range of 170 °C 25 minutes up to 210 °C 6 minutes total oven time, according to the following standard procedures.

- Premixing: MTI-Mixer 2' - 500 rpm
- Extrusion: W&P ZSK 30 90 °C - 250 rpm
- Application: Manual spray gun 80 kV; steel panels 0.8 mm
- Curing: Air-circulated Heraeus oven; coating thickness 55-75 µm

Applications for Polyurethane Powder Coatings

PUR powder coatings have been successfully used for many years in both exterior and interior applications such as:

- motor vehicle parts
- fittings
- bicycle frames
- fork lift trucks
- exterior furniture and lawn equipment
- agricultural machinery
- appliances
- telephone booths

Storage and Packaging

The product is delivered in flat bags, net weight 25 kg (55 lbs). If kept cool (0 – 40 °C) and dry in closed bags the product can be stored for at least 1 year in accordance to the specification. All opened bags should be carefully resealed immediately after use.

Safety and Handling

Please refer to our Safety Data Sheet.

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