Product information

VESTAGON® BF 1321

CROSSLINKING AGENT FOR POLYURETHANE POWDER COATINGS

GENERAL DESCRIPTION

VESTAGON® BF 1321 is a polyisocyanate adduct used in combination with hydroxy functional resins. Because of an internal blocking mechanism, the product retains its processing stability up to the splitting temperature of approximately 160 °C. The crosslinker is delivered in the form of fine granules.

SPECIFICATION

Property	Value	Unit	Test method
NCO content (total)	14.0 - 15.5	% wt	according to DIN EN ISO 11 909
NCO content (free)	≤ 0,3	% wt	DIN EN ISO 11 909
Glass transition temperature	65 - 82	°C	DSC
Colour index	≤ 600	-	DIN EN ISO 6271

TYPICAL PROPERTIES

Property	Value	Unit	Test method
NCO-equivalent	~ 285	g/Eq	-
Density	1.12	g/cm^3	DIN EN ISO 1183
Bulk density	~ 570	kg/m^3	DIN EN ISO 60
Melting range	110 - 130	°C	DIN EN ISO 3146
Flashpoint	230	°C	DIN EN ISO 2592
Ignition temperature	390	°C	DIN 51 794

APPLICATIONS

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.

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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 BF 1321	14	21	12	19	parts
Polyol (OH number 30)	86	-	88	-	parts
Polyol (OH number 50)	-	79	-	81	parts

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

The use of a catalyst to accelerate the formation of urethane bonds is recommended. Bismuthcarboxylates (e. g. KOSMOS MB 16) has been proven to be a useful accelerator. The maximum suggested use level is 0.20 % by weight based on the total formulation.

CURING

The curing temperature for PUR powder coatings based on VESTAGON® BF 1321 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, 20 minutes up to 210 °C, 5 minutes total oven time, according to the following standard procedures.

· Premixing: MTI-Mixer 2' - 500 rpm

· Application: Manual spray gun 80 kV; steel panels 0.8 mm

· Curing: Air-circulated Heraeus oven; coating thickness 55-75 µm

EXTRUSION CONDITIONS

We recommend the extrusion conditions as follows:

Buss PLK 46
Barrel temperatures: Zone 1 + 2 - 120 °C
Screw temperature: cooled
Screw speed: 160 r.p.m.
Werner & Pfleiderer
Barrel temperatures: Zone 1+2 - 90 °C
Screw speed: 250 r.p.m.

The extrusion temperature must be selected to ensure that a mass temperature of minimum 130 °C is maintained. Otherwise, inadequate dispersion may result in reduced gloss and mechanical properties of the coatings.

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 20 kg. 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.

Marl, January 26, 2022; This data sheet replaces all former issues.

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