

**CROSSLINKING AGENT FOR POLYURETHANE POWDER COATINGS****GENERAL DESCRIPTION**

VESTAGON BF 1320 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 (blocked)        | 13.5 - 15.0 | % 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       | ~ 295     | g/Eq              | -               |
| Density              | 1.12      | g/cm <sup>3</sup> | DIN EN ISO 1183 |
| Bulk density         | ~ 570     | kg/m <sup>3</sup> | DIN EN ISO 60   |
| Melting range        | 105 - 125 | °C                | DIN EN ISO 3146 |
| Flashpoint           | 230       | °C                | DIN EN ISO 2592 |
| Ignition temperature | 390       | °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 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 1320 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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