

Automotive Coatings

EU SF 5.3.

Aqueous white two-pack PU topcoat,
based on Bayhydrol A 145 and Bayhydur 304

Component 1

| Raw Material | Supplier | % by |
|---|----------|-------------|
| 1. Bayhydrol A 145, 46% | (1) | 40.2 |
| 2. Surfynol 104 BC | (2) | 0.9 |
| 3. Borch [®] Gel PW 25 | (3) | 0.1 |
| 4. Borch [®] Gol LA 200, 10% in butyl glycol | (3) | 1.0 |
| 5. Borch [®] Gen 0851 | (3) | 2.0 |
| 6. Sachtleben R-KB-4 | (4) | 24.9 |
| <i>Total</i> | | <i>69.1</i> |

Component 2

| | | |
|---------------------------|-----|--------------|
| 7. Bayhydur 304 | (1) | 12.6 |
| 8. Dipropylene glycol DME | (5) | 3.1 |
| <i>Total</i> | | <i>15.7</i> |
| Water (for thinning) | | 15.2 |
| <i>Total</i> | | <i>100.0</i> |

Indications

Formulation of topcoat comp. 1

Place const.1. in the mixing vessel. Stir in const. 2.-5.
(10 min at 2000 rpm). Add gradually const.6. (at 2000 rpm). Pre-
disperse for 10 min at 2000 rpm.
Disperse in bead mill for 60 min (discontinuous < = 30°C) Leave
to deaerate for one day.

Application

Compressed-air spraying, nozzle 1.3 mm
1 cross spraying, 5 min intermediate deaeration 1
cross spraying, 10 min final deaeration

Remarks

Light stabilizer to improve weather stability (add before component 2)
1% Tinuvin 292 (solid / solid resin)

Data

| | |
|---|----------|
| NCO :OH - ratio | 1.5 |
| Ratio comp. 1:2 | 4.52 : 1 |
| Flow time, DIN 53211-cup 4 mm, at 23 °C | 25 s |
| Cosolvent | 7.6 % |
| Density | 1.3 kg/l |
| VOC | 118 g/l |
| pH-value | 8.1 |
| Solids content on application | 58 % |

Technical properties

| | | |
|---|----------|----------|
| Viscosity increase: comp. (1+2) DIN 4 (s) / pH-value | 0 h | 25 / 8.1 |
| | 3 h | 31 / 7.2 |
| Drying 30 min 60 °C T1 / T3 (DIN 53150) | (0-5)* | 2 |
| | h | 1 / 7 |
| Pendulum hardness (s) DIN EN ISO 1522 (Substrate: glass) | 1d RT | 73 |
| | 7d RT | 121 |
| | 16h 50°C | 121 |
| Film thickness | µm | 50 |
| Gloss 20° angle / visually (DIN 67530 / ISO 2813) | | 78 / 1 |
| Haze (DIN 67530 / ISO 2813) | | 39 |

* Evaluation: 0 = no visible changes
5 = test surface was strongly changed respectively destroyed

Chemical resistance:

Paint system on car body panel + conv. two-pack-PU primer (+ conv. basecoat for Formulation A and B)

| | | |
|--------------------------------------|-------------|-------|
| H ₂ O (1h) | immediately | 4 |
| | 1d RT | 1 |
| | 7d RT | 1 |
| | 16h 50°C | 1 |
| 5' premium gas / MPA / Xylene | immediately | 4 4 4 |
| | 1d RT | 1 2 2 |
| | 7d RT | 1 1 1 |
| | 16h 50°C | 1 1 1 |
| Alkaline/acid** cleaning agent (1 h) | 7d RT | 0 / 0 |

* Evaluation: 0 = no visible changes
5 = test surface was strongly changed respectively destroyed

** Alkaline = 2% sodium hydroxide solution
Acid = 2% sulfuric acid

Suppliers

- (1) Covestro (www.covestro.com)
- (2) Air Products (www.airproducts.com)
- (3) Borchers (www.borchers.com)
- (4) Sachtleben (www.sachtleben.de)
- (5) Clariant (www.clariant.com)