

Automotive Coatings

EU SF 5.2.

Aqueous two-pack PU clear coat,
based on Bayhydrol A 145 and Bayhydur 304

	Raw Material	Supplier	A clearcoat % by wt.	B clearcoat % by
Comp. 1	1. Bayhydrol A 145, 46%	(1)	48.35	48.35
	2. Surfynol 104 BC	(2)	1.10	1.10
	3. Borch ⁱ ® Gel PW 25	(3)	0.15	–
	4. Borch ⁱ ® Gel O621	(3)	–	0.12
	5. Borch ⁱ ® Gol LA 200 / Borch ⁱ ® Gol LA 50 (3/7), 10% in butyl glycol	(3)	1.00	1.00
	<i>Total</i>		50.60	50.60
Comp. 2	6. Bayhydur 304	(1)	15.10	15.10
	7. Dipropylene glycol DME	(4)	3.80	3.80
	<i>Total</i>		18.90	18.90
	8. Water (for thinning)		30.50	30.53
	<i>Total</i>		100.00	100.00

Indications

Formulation of clearcoat, comp. 1:

Place const. 1. in a dissolver. Add in const. 2.-4. under stirring (10 min at 2000 rpm). 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)

Clearcoat: 1% Tinuvin 292 (solid / solid resin)
2% Tinuvin 1130 (solid / solid resin)

Data

	A and B clearcoat
NCO :OH - ratio	1.5
Ratio comp. 1:2	2.7 : 1
Flow time, DIN 53211-cup 4 mm, at 23 °C	25 s
Cosolvent	9.2 %
Density	1.0 kg/l
VOC	194 g/l
pH-value	7.7
Solids content on application	38 %

Technical properties

		A and B clearcoat	
Viscosity increase: comp. (1 +2) DIN 4 (s) / pH-value	0 h	25 / 7.7	
	3 h	34 / 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	123	
	7d RT	174	
	16h 50°C	169	
Film thickness	µm	50	
Gloss 20° angle / visually (DIN 67530 / ISO 2813)		84 / 1	
Haze (DIN 67530 / ISO 2813)		24	

* 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)

		A and B clearcoat	
H ₂ O (1h)	immediately	4	
	1d RT	2	
	7d RT	1	
	16h 50°C	1	
5' premium gas / MPA / Xylene	immediately	4 3 4	
	1d RT	2 3 3	
	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) Clariant (www.clariant.com)

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