

# Product Information

## Alberdingk<sup>®</sup> LUX 286

### What is the resin's nature?

Solvent-free UV-curable polyurethane-acrylic copolymer dispersion.

### Technical data:

|                 |               |
|-----------------|---------------|
| Solids content: | 39 - 41%      |
| pH-value:       | 7.0 - 8.0     |
| Viscosity:      | 10 - 500 mPas |
| MFFT:           | approx. 14°C  |

### Why has the resin been developed?

For clear and pigmented furniture varnishes with very good resistances against stains like coffee, red wine and mustard. Strong physical drying before UV-curing. Dual curing with polyisocyanates possible.

### What is the suggested field of application?

- Clear and pigmented wood coatings
- General metal coatings
- General plastic coatings

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### Suitable raw materials

#### Defoamers:

Byk 024 (BYK Chemie)  
Byk 028 (BYK Chemie)

Tego Airex 902 W (Evonik Tego Chemie)  
Tego Foamex 822 (Evonik Tego Chemie)

#### Substrate wetting agents:

Byk 346 (BYK Chemie)  
Tego Wet 280 (Evonik Tego Chemie)

Dow Corning 67 (Dow Corning)

#### Photoinitiators:

Irgacure 184 (BASF)  
Irgacure 819 (BASF)

Irgacure 500 (BASF)

#### Matting agents:

Acematt TS 100 (Evonik)  
Ultralube D 816 (Keim Additec)

Ceraflour 920 (BYK Cera)

#### Rheology control additives:

DSX 1514 (BASF)  
DSX 3290 (BASF)

Tego ViscoPlus 3000 (Evonik Tego Chemie)  
Tego ViscoPlus 3030 (Evonik Tego Chemie)

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### Formulation Proposal

UV 286-1 single-pack, white pigmented

| Pos.         | Raw Materials                             | Amount        | Supplier                           |
|--------------|---|---------------|------------------------------------|
| <b>1</b>     | <b>ALBERDINGK<sup>®</sup> LUX 286</b>     | <b>61.30</b>  | <b>Alberdingk Boley</b>            |
| 2            | Tego Foamex 822                           | 0.60          | Evonik Tego Chemie                 |
| 3            | Tego Airex 902 W                          | 0.30          | Evonik Tego Chemie                 |
| 4            | Byk 346                                   | 0.30          | BYK Chemie                         |
| 5            | Pigment paste white<br>(see on next page) | 24.50         | quantity of TiO <sub>2</sub> : 18% |
| 6            | Dowanol DPM                               | 2.90          | Dow Chemical                       |
| 7            | Water (deion.)                            | 7.80          |                                    |
| 8            | Irgacure 500                              | 1.00          | BASF                               |
| 9            | Irgacure 819 DW                           | 1.20          | BASF                               |
| 10           | DSX 3290                                  | 0.10          | BASF                               |
| <b>Total</b> |   | <b>100.00</b> |                                    |

premix pos. 6 + 7 before use

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### Pigment Paste Formulation

UV 286-1 single-pack, white pigmented

| Pos.         | Raw Materials                | Amount        | Supplier          |
|--------------|------------------------------|---------------|-------------------|
| 1            | Water (deion.)               | 21.10         |                   |
| 2            | Surfynol CT-231              | 5.35          | Air Products      |
| 3            | Kronos 2190                  | 73.10         | Kronos Titan Inc. |
| 4            | DSX 3290 (1:1 in water)      | 0.20          | BASF              |
| 5            | Viscoatex 730 (1:1 in water) | 0.25          | Coatex            |
| <b>Total</b> |                              | <b>100.00</b> |                   |

### Crosslinking:

For additional crosslinking we suggest to add 10.0% of following blend of polyisocyanates on the total formulation: Bayhydur XP 2487/1 in MPA = 80:20 (pot life after addition: approx. 6h).

### Curing Conditions:

Pre-drying: 5-10 min. at 50°C, convection dryer  
Feed: 5 m / min.  
UV-curing: 1 x Ga-doped lamp per 120 W / cm  
1x Ga-doped + Hg-doped lamp, each 120 W / cm

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### Chemical Resistance\*

UV 286-1          white pigmented

| Test Chemicals                        | Test Duration | Test Results** (only UV-cured) | Test Results** (dual-cured) |
|---------------------------------------|---------------|--------------------------------|-----------------------------|
| Ethanol (48%)                         | 1h            | 5                              | 5                           |
| NH <sub>4</sub> OH (10%)              | 1min          | 5                              | 5                           |
| Water (deion.)                        | 16h           | 5                              | 5                           |
| Coffee (4%)                           | 16h           | 4                              | 4                           |
| Tea (1%)                              | 16h           | 5                              | 5                           |
| Red wine                              | 5h            | 5                              | 5                           |
| Cola                                  | 16h           | 5                              | 5                           |
| Na <sub>2</sub> CO <sub>3</sub> (10%) | 2min          | 5                              | 5                           |
| Fatty acid                            | 1h            | 5                              | 5                           |
|                                       | 5h            | 5                              | 5                           |
|                                       | 16h           | 5                              | 5                           |

\*\*5 = best / 0 = worst

### Test features

| Feature     | Test Conditions               | Test Results | Test Results |
|-------------|-------------------------------|--------------|--------------|
| Gloss (60°) | 300µm wet film on leneta foil | 55           | 52           |

### Pendulum hardness according to König:

|                   | <u>Only UV-cured</u> | <u>Dual-cured</u> |
|-------------------|----------------------|-------------------|
| Before UV-curing: | approx. 27 s         | approx. 27 s      |
| After UV-curing:  | approx. 61 s         | approx. 55 s      |

\*tested according to EN 12720

the fatty acid test simulates the resistance of the film to human hand fat or hand lotions

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### Formulation Proposal

UV 286-9          transparent, wood coatings

| Pos.         | Raw Material                          | Amount        | Supplier                |
|--------------|---------------------------------------|---------------|-------------------------|
| <b>1</b>     | <b>ALBERDINGK<sup>®</sup> LUX 286</b> | <b>97.30</b>  | <b>Alberdingk Boley</b> |
| 2            | BYK 028                               | 0.60          | BYK Chemie              |
| 3            | Byk 094                               | 0.20          | BYK Chemie              |
| 4            | Byk 333                               | 0.40          | BYK Chemie              |
| 5            | Dow Corning 67                        | 0.50          | Dow Corning             |
| 6            | Irgacure 500                          | 1.00          | BASF                    |
| <b>Total</b> |                                       | <b>100.00</b> |                         |

### Pendulum hardness according to König:

Before UV-curing:          approx. 42 s

After UV-curing:          approx. 87 s

### Curing conditions

Pre-drying:          5 - 10 min. at 50°C, convection dryer

Feed:          5 - 10 m/min.

UV-curing:          1 x Hg-lamp, 80 W / cm

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### Chemical Resistance\*

UV 286-9          transparent, wood coatings

| Test Chemicals                        | Test Duration | Test Results** |
|---------------------------------------|---------------|----------------|
| Ethanol (48%)                         | 1h            | 5              |
| NH <sub>4</sub> OH (10%)              | 1min          | 5              |
| Water (deion.)                        | 16h           | 5              |
| Coffee (4%)                           | 16h           | 5              |
| Tea (1%)                              | 16h           | 5              |
| Red wine                              | 5h            | 5              |
| Cola                                  | 16h           | 5              |
| Na <sub>2</sub> CO <sub>3</sub> (10%) | 2min          | 5              |
| Fatty acid                            | 1h            | 5              |
|                                       | 5h            | 5              |
|                                       | 16h           | 5              |

\*\*5 = best / 0 = worst

### Test features

| Feature     | Test Conditions               | Test Results |
|-------------|-------------------------------|--------------|
| Gloss (60°) | 300µm wet film on leneta foil | 34           |

\*tested according to EN 12720

the fatty acid test simulates the resistance of the film to human hand fat or hand lotions