

Vertical system coatings Water-borne coating systems

Water-borne coatings are modern coating systems that are used today as primers and/or top coats. For example, primers and top coats in vertical water-borne coating systems are designed to match in terms of their properties, resistance or protective effects.



Water-borne coating system structures

Primer WE1932 & top coat WU1451

Primer WE1935 & top coat WU1488



Water-borne coatings are modern coating systems that are used today as primers and/or top coats. For example, primers and top coats in vertical water-borne coating systems are designed to match in terms of their properties, resistance or protective effects.

A wide range of equipment, machines and consumer goods can be coated with water-borne coatings wherever low-solvent, environmentally friendly coatings are required.

As with conventional coating systems, epoxy primers and PU top coats have also proven their worth in the water-borne coating field.

We present two vertical water-borne system coatings from the vehicle construction industry.

System structure Products

FREOPOX hydro primers
WE1932/WE1935

EFDEDUR hydro gloss coatings
WU1451/WU1488

The improvement of an existing FREOPOX-Hydro-Primer in relation to application properties, insensitivity to excessively low humidity and the improvement of overspray absorption led to the creation of WE1932.

EFDEDUR-Hydro-Topcoat WU1451 can now be applied to create flawless surfaces with a dry film thickness of up to 80 µm.

Additional requirements, including the need for a shorter flash-off period between the application of the primer and top coat, led to the development of WE1935.

Demands for a higher dry film thickness (DFT) to be applied in one coat to create a flawless free surface led to the development of WU1488.

System structure WE1932 & WU1451 properties

FREOPOX-Hydro-Primer
WE1932

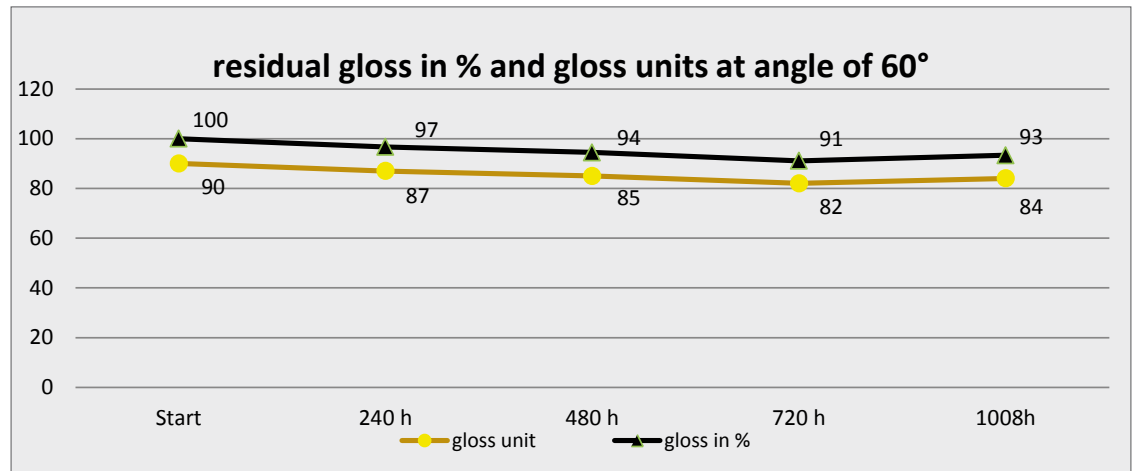
EFDEDUR-Hydro-Coating
WU1451

- Water-thinnable 2C epoxy primer
- Curing agent containing polyamine adducts
- Free from reactive thinners
- Solids content 55 +-0.5 % in mixture
- High-quality primer, e.g. for agricultural machinery (ploughs) and construction equipment (silos)
- High stability (up to 250 µm wet film thickness)
- Pot life max. 2 hours at room temperature
- Optimised for general and broad application (high-pressure, airless, air-assisted)
- Good overspray absorption in standard conditions
- Insensitivity to excessively low humidity
- Corresponding flash-off time before application of top coat required

- Water-thinnable 2C PUR coating
- Solids content 50 +-2 % in mixture
- Use of standard curing agent HU0150
- High-quality top coat, e.g. for agricultural machinery (ploughs) and construction equipment (silos)
- Wide application range (high-pressure, air-assisted)
- Airless application possible to a limited extent
- Glossy >60° 80-90 GU
- Single and RAL colour shades available for delivery in small quantities
- Good resistance values
- Good overspray absorption in standard conditions
- Pot life max. 4 hours at room temperature

Water-borne coating system structure Primer WE1932 & top coat WU1451

Artificial weathering
according to
DIN EN ISO 11507
process 1A
(UVB-313 test)



Hydro-Topcoat WU1451GRA320 I MR 5: 1 with curing agent HU0150

Dry film thickness: 70 µm



2C water-borne coating system structure WE1932 I HE0937 & WU1451 I HU0150

Salt spray test
according to
DIN EN ISO 9227 NSS

Load period	120 h	240 h	504 h	744 h
	Delamination at cut edge			
Substrate steel, blasted	1.0 mm	1.5 mm	2.5 mm	3.0 mm
Substrate steel, smooth	3.0 mm	3.0 mm	3.5 mm	>10 mm
Substrate steel, iron phosphate coating	1.5 mm	2.0 mm	5.0 mm	5.0 mm

Dry film thickness: >100 µm

Condensed water test
in accordance with
DIN EN ISO 6270-2 CH

Load period	120 h	240 h	504 h	744 h
	Degree of blistering, surface			
Substrate steel, blasted	0 S(0)	3 S(3)	-	-
Substrate steel, smooth	0 S(0)	0 S(0)	0 S(0)	2 S(4)
Substrate steel, iron phosphate coating	0 S(0)	0 S(0)	0 S(0)	0 S(0)

Dry film thickness: >100 µm



Water-borne coating system structure

Primer WE1935 & top coat WU1488

System structure
WE1935 & WU1488
properties

**FREOPOX-Hydro-Primer
WE1935**

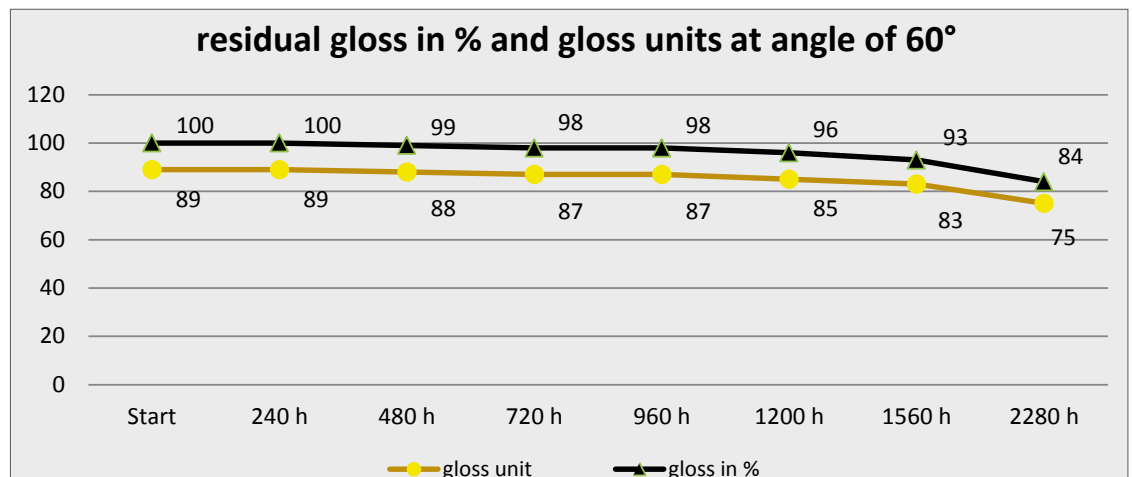
- Water-thinnable 2C epoxy primer
- Curing agent containing polyamine adducts
- Free from reactive thinners
- Solids content 57 +/-0.5 % in mixture
- High-quality primer, e.g. for agricultural machinery (telescopic handlers) and construction machinery (excavators).
- High stability (up to 300 µm wet film thickness)
- Pot life max. 5 hours at room temperature
- Optimised for general and broad application (high-pressure, airless, air-assisted)
- Good overspray absorption in standard conditions
- Fast drying with accelerated curing agent HE0041 possible
- Short intermediate flash-off time prior to application of WU1488 top coat when using HE0041 curing agent



**EFDEDUR-Hydro-Coating
WU1488**

- Water-thinnable 2C PUR coating
- Solids content 51 +/-2% in mixture
- Use of standard curing agent HU0448
- High-quality top coat, e.g. for agricultural machinery (telescopic handlers) and construction machinery (excavators)
- Flawless surfaces with dry film thicknesses of up to 120 µm possible
- High stability (250 µm wet film thickness)
- Wide application range (high-pressure and air-assisted)
- Airless application possible to a limited extent
- Glossy >60° 85-95 GU
- High brilliance (haze <100)
- Single and RAL colour shades available for delivery in small quantities
- Good resistance values (corrosion, creepage, chemicals, etc.)
- Good overspray absorption in standard conditions
- Pot life max. 4 hours at room temperature
- Excellent QUV and outdoor durability (2,300 hours WOM, residual gloss >80%).

Artificial weathering
according to
DIN EN ISO 11341
process 1A
(Xenon test/
WOM test)



Hydro-Topcoat WU1488GRG300 | MR: 3.3: 1 with curing agent HU00448
Dry film thickness: 60 µm

Modern, environmentally friendly coating systems

2C water-borne coating system structure WE1935 | HE0037 & WU1488 | HU0448

Salt spray test
according to
DIN EN ISO 9227 NSS

Load period	204 h	504 h	744 h	1008 h
	Delamination at cut edge			
Substrate steel, blasted	0 mm	0 mm	0.5 mm	1.0 mm
Substrate steel, hot-dip galvanised	0 mm	0 mm	0.5 mm	1.0 mm
Substrate aluminium, ground	0 mm	0 mm	0 mm	0 mm

Dry film thickness: >100 µm

Condensed water test
in accordance with
DIN EN ISO 6270-2 CH

Load period	240 h	504 h	744 h	1008 h
	Degree of blistering, surface			
Substrate steel, blasted	0 S(0)	0 S(0)	2 S(2)	2 S(2)
Substrate steel, hot-dip galvanised	0 S(0)	0 S(0)	0 S(0)	0 S(0)
Substrate aluminium, ground	0 S(0)	0 S(0)	0 S(0)	0 S(0)

Dry film thickness: >100 µm



Comparison of technical data for both 2C water-borne coating system structures

	FREOPOX Primer WE1932	EFDEDUR Topcoat WU1451	FREOPOX Primer WE1935	EFDEDUR Topcoat WU1488
MR	5.5: 1	5: 1	8: 1	3.3: 1
Curing agents	HE0937	HU0150	HE0037	HU0448
Pot life	2 hours	4 hours	5 hours	4 hours
Solids content*	55 +- 0.5%	50% +- 2	57 % +- 0.5	51 % +- 2
Density*	1.30 g/ml	1.10 g/ml	1.30 g/ml	1.10 g/ml
Consumption* 60 µm DFT*	190 - 200 g/m ²	145 - 160 g/m ²	175 - 185 g/m ²	155 - 170 g/m ²
Solids content volume*	310 ml/kg	390 ml/kg	333 ml/kg	370 ml/kg

*after addition of curing agent, theoretical determination

DFT = dry film thickness

- Wheels
- Vehicles
- Mechanical engineering
- Job coaters
- Functional furniture and storage technology
- Construction and sanitary



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