

3M™ Wind Blade Protection Coating W4600

Product Description

3M™ Wind Blade Protection Coating W4600 is designed for application in OEM facilities to help protect wind turbine blade leading edges from damage caused by sand and rain erosion and minor impact.

3M Wind Blade Protection Coating W4600 is a two-component polyurethane coating that provides excellent erosion protection in a single layer with static mixing option for easy application.

Note: The following technical information and data should be considered representative or typical only and should not be used for specification purposes.

Precautionary Information

Refer to Material Safety Data Sheet for health and safety information before using this product. For additional health and safety information, visit www.3M.com/msds.

Typical Physical Properties

Material	Test Method	Typical Values
Recommended Applied Thickness	Dry Film	250-350 microns (0.010-0.014 inches)
Pot Life	DIN EN ISO 9514	See table
Viscosity Part A	Rheom. cone-plate C35/1°H, D=35 mm	4.1±0.6 Pas @ 10/s 4.0±0.6 Pas @ 100/s
Viscosity Part B	Rheom. cone-plate C35/1°H, D=35 mm	7.0±1.0 Pas @ 10/s 2.4±0.6 Pas @ 100/s
Density Part A	DIN EN ISO 2811	1.09 g/cm ³
Density Part B	DIN EN ISO 2811	1.38 g/cm ³

Performance	Test Method	Typical Values
Rain Erosion Resistance	ASTM G-73 Whirling Arm	
UDRI, U.S.A.	135 m/s	>10 hrs
Polytech, Denmark	123-151 m/s	>9 hrs
Sand Erosion, Initial (Breakthrough in g/cm ²)	UDRI, 170-240 microns	>30 g/cm ²
Tensile Strength @ Break MPa, Initial	ASTM D882	37
Tensile Strength @ Break MPa, Aged	ASTM D882 QUV A, 1400 h	35
Elongation % @ Break Initial	ASTM D882	730
Elongation % @ Break Aged	ASTM D882 QUV A, 1400 h	760
Flexibility	ASTM D522 0.5 in diam cyl at RT 2.5 in diam cyl at -40°C	No cracks No blistering
Condensing H ₂ O Power Washer Test, Adhesion, Blistering	ASTM D4585	No Blistering
Pull-off Adhesion	ISO 4624	10-12 MPa
Adhesion (Tape) Cross-cut	ASTM D3359	5A
Surface Roughness	DIN EN ISO 4287	Ra=0,1 Rmax=1,5 Rz=1,0 Rt=2,1
Taber Abrasion (Loss in Grams)	ASTM D4060 CS17,1000 g wt CS10,1000 g wt	1000 cycles <30 mg Loss

Color

W4600 is available in RAL7035 Gray or RAL9018 White

Coverage

Thickness: 300 +/- 50 microns **Coats:** One

If multiple coats are desired, contact your 3M Technical Service Engineer to discuss.

Theoretical Coverage Rate

	250 μ	300 μ	350 μ
Per Liter	4 m ²	3.3 m ²	2.4 m ²
Per 250 ml Cartridge	1 m ²	0.8 m ²	0.6 m ²

Mix Ratio

	W4600 Part A	W4600 Part B
Per Volume	150 parts	100 parts
Per Weight	100 parts	84.5 parts

Pot Life/Temperature

	23°C	40°C
Pot Life when mixed in container or hose (DIN EN ISO 9514)	90 sec	45 sec
Work life when applied directly to blade surface (DIN EN ISO 9514)	6 min	2.5 min

Application & Curing Conditions

The optimum temperature range for application is 20°C – 25°C with relative humidity levels below 50%.

Application Conditions: 15°C – 35°C

Curing Conditions: 15°C – 50°C

Shelf Life

These products have a shelf life of 12 months from date of manufacture when stored in the original, unopened container under the suggested storage conditions.

Storage

Store in original sealed containers between 5°C (40°F) to 30°C (86°F).

At storage or transportation conditions below 23°C Part B may appear waxy due to crystallization of components. This is not a quality concern. Heating is necessary to fluidize the crystallized material.



For more information on our wind energy product line, contact 3M Renewable Energy at 800-755-2654 or visit us at www.3M.com/wind.

Technical Information: The technical information, recommendations and other statements contained in this document are based upon tests or experience that 3M believes are reliable, but the accuracy or completeness of such information is not guaranteed.

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