



# **Technical Data Sheet**

4000 UV

3M<sup>™</sup> Marine Adhesive/Sealant Fast Cure



Regulatory Info/SDS

Product Details

# **Product Description**

3M<sup>™</sup> Marine Adhesive/Sealant 4000 UV is a one-part adhesive sealant that cures to form a firm, rubbery waterproof seal. Its flexibility allows for the dissipation of stress caused by shock, vibration, swelling or shrinking. Designed for marine applications above and below the waterline. Its superior UV resistance properties makes this an ideal cosmetic adhesive sealant.

# **Product Features**

- Superior UV resistance.Exceptional sealing properties.
- <1% VOC's
- · Low odor.
- Non-shrinking.
- Non-sagging.
- Non-corrosive.
- Non-cracking.
- Caulkable at low temperatures (>40°F [4°C]).
- Fast curing.
- Paintable (test for suitability).

# **Technical Information Note**

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

# **Typical Uncured Physical Properties**

Attribute Name	Value
Density	11.7 lb/gal
Consistency	Medium Paste
Base	Polyether

# **Typical Physical Properties**

Attribute Name	Value
Color	White
	Black
	10 fl. oz. cartridge (295 ml)
Product Construction	3 fl. oz. tube (90 ml)
	400 ml Flex Pack (13.5 fl. oz.)
Approximate Coverage 36.6 lineal m (120 LF) <sup>1</sup>	

<sup>1</sup> 10.5 oz. [310 mm Cartridge]; 1/8 in (3 mm) bead

# **Typical Cured Characteristics**

Attribute Name	Test Method	Value
Shore A Hardness	ASTM C661	39

# **Typical Performance Characteristics**

## 180° Peel Adhesion

Temperature: 22 °C (72 °F)

Substrate	Value
Aluminum	70 oz/in (Cohesive) 1
Fiberglass	57 oz/in (Cohesive ) 1
Gelcoat	60 oz/in (Cohesive) 1
Mahogany	50 oz/in (Cohesive) 1

<sup>1</sup> One inch (2.54 cm) wide specimens on canvas. Cohesive – Adhesive/Sealant fails before adhesive/sealant releases from substrate. This is the desired mode. Adhesive Failure – Adhesive/Sealant releases from substrate.

# **Overlap Shear Strength**

Temperature: 22 °C (72 °F)

Substrate	Value
Oak	13.385/15 kg/cm <sup>2</sup> (19085/15 lb/in <sup>2</sup> ) (Cohesive/Adhesive ) $_{1}$
Maple	14.880/20 kg/cm <sup>2</sup> (21080/20 lb/in <sup>2</sup> ) (Cohesive/Adhesive ) 1
Fir	13.370/30 kg/cm <sup>2</sup> (19070/30 lb/in <sup>2</sup> ) (Cohesive/Adhesive ) 1
Mahogany	11.260/40 kg/cm <sup>2</sup> (16060/40 lb/in <sup>2</sup> ) (Cohesive/Adhesive ) $^{1}$
Aluminum	15.880/20 kg/cm <sup>2</sup> (22580/20 lb/in <sup>2</sup> ) (Cohesive/Adhesive ) $^{1}$
Fiberglass	14.0 kg/cm <sup>2</sup> (200 lb/in <sup>2</sup> ) (Cohesive ) <sup>1</sup>
Gelcoat	17.6 kg/cm <sup>2</sup> (250 lb/in <sup>2</sup> ) (Cohesive ) <sup>1</sup>

<sup>1</sup> 1in overlap specimens 0.093in thick. Cohesive – Adhesive/Sealant fails before adhesive/sealant releases from substrate. Desired failure mode. Adhesive Failure – Adhesive/Sealant releases from substrate.

Attribute Name	Temperature	Substrate	Value
Application Temperature			4 to 38 °C (40 to 100 °F)
Long Term Temperature			90 °C (190 °F) <sup>1</sup>
Resistance			90 C (190 F) -
Minimum Long Term			-40 °C (-40 °F) 1
Temperature Resistance			-40 C (-40 P) -
			17.655/45 kg/cm <sup>2</sup>
Temperature Resistance	22 °C (72 °F)	Fir	(25055/45 lb/in <sup>2</sup> )
			(Cohesive/Adhesive) <sup>2</sup>
			28.195/5 kg/cm <sup>2</sup> (40095/5
Temperature Resistance	22 °C (72 °F)	Aluminum	lb/in <sup>2</sup> ) (Cohesive/Adhesive )
			2

Attribute Name	Temperature	Substrate	Value
	Gelcoat	19.3 kg/cm <sup>2</sup> (275 lb/in <sup>2</sup> )	
Temperature Resistance	22 °C (72 °F)	Geicoat	(Cohesive) <sup>2</sup>
			22.880/20 kg/cm <sup>2</sup>
Temperature Resistance	22 °C (72 °F)	Fiberglass	(32580/20 lb/in <sup>2</sup> )
			(Cohesive/Adhesive) <sup>2</sup>

<sup>1</sup> Long Term (day, weeks)

1in overlap specimens 0.093in thick. Aged 500 hours @ 190°F (90°C).

Cohesive – Adhesive/Sealant fails before adhesive/sealant releases from substrate. Desired failure mode. Adhesive Failure – Adhesive/Sealant releases from substrate.

Attribute Name	Temperature	Value
Elongation		>300 % 1
Tensile Strength	22 °C (72 °F)	28.1 kg/cm <sup>2</sup> (>400 lb/in <sup>2</sup> ) <sup>1</sup>

<sup>1</sup> A 1/8 inch (0.3175 cm) dumbbell specimen with a 1/8 inch (0.3175 cm) square cross section was tested at 2.0 inches/minute (5.08 cm/minute).

## **Product Uses**

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3M Marine Adhesive Sealant 4000 UV may be used in typical bedding and sealing applications including fiberglass hull, wood to fiberglass, porthole frames, deck fittings, moldings, thru hull and deck hardware.

## Handling/Application Information

## **Directions for Use**

1. Surface Preparation

Surface should be clean, dry and free of contaminants. New surfaces should be solvent wiped with 3M<sup>™</sup> General Purpose Adhesive Cleaner 08984\*, or equivalent. Other than new surfaces should be sanded with a fine grade abrasive to enhance bond strength.

2. Sealing and bedding application

Apply 3M<sup>™</sup> Marine Adhesive/Sealant 4000 UV to the seam or part to be bonded. Position parts. Tool and squeeze out material to desired appearance. Remove excess with 3M general purpose adhesive cleaner 08984.\*

3. Cleanup

For cleaning 3M marine adhesive/sealant 4000 UV before it is cured, use a dry cloth to remove the majority, followed by a cloth damp with 3M general purpose adhesive cleaner, toluene, acetone, or other good cleaning solvent.\* Cured 3M marine adhesive/sealant 4000 UV can be removed mechanically with a knife, razor blade, piano wire or by sanding.

\*Note: When using solvents, extinguish all ignition sources, including pilot lights, and follow the manufacturer's precautions and directions for use.

#### Cure:

Cure	Relative Humidit	Temperature	Time	Cure Depth
Tack Free	50%	70 <b>F</b> (21°C)	22 minutes	N/A
Full Cure	50%	70∓ (21℃)	24 hours	1/8 inch (0.3175 cm)

\*Higher temperature and humidity conditions will accelerate the tack free time and cure. Please plan accordingly.

### **Application Examples**

### **Typical Marine Adhesive Sealant Applications:**

Portlights Hatches Thru-hulls Rails Metal Hardware Moldings Wood Teak Fiberglass Gelcoat Porthole Frames

## **Storage and Shelf Life**

Store product at 60-80°F (16-27°C) for maximum storage life. Higher temperatures can reduce normal storage life. Lower temperatures can cause increased viscosity of a temporary nature. Rotate stock on a "first in-first out" basis. When stored at the recommended conditions in the original, unopened container this product has a shelf life of 15 months from date of manufacture for cartridges and sausage packs. When stored at recommended conditions, the shelf life is 15 months from date of manufacture for 3 ounce tubes.

#### **Precautionary Information**

Refer to Product Label and Material Safety Data Sheet for health and safety information before using this product. For additional health and safety information, call 1-800-364-3577 or (651) 737-6501.

## **Automotive Disclaimer**

Select Automotive Applications: This product is an industrial product and has not been designed or tested for use in certain automotive applications, such as automotive electric powertrain battery or high voltage applications, which may require the product to be manufactured in a IATF certified facility, meet a Ppk of 1.33 for all properties, undergo an automotive production part approval process (PPAP), or fully adhere to automotive design or quality system requirements (e.g., IATF 16949 or VDA 6.3). Customer assumes all responsibility and risk if customer chooses to use this product in these applications.

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### **ISO Statement**

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