3M™ Marine Adhesive Sealant Fast Cure 4200:

Last Revision Date: October, 2014

Product Description

A fast curing, one-part polyurethane that chemically reacts with moisture to deliver strong, flexible bonds to wood, gelcoat and fiberglass. It forms watertight, weather-resistant seals on joints and boat hardware above and below the waterline. In addition, its flexibility allows for dissipation of stress caused by shock, vibration, swelling or shrinking.

Product Features

- Fast cure formula
- One component, moisture curing
- Allows for disassembly
- Bonds dissimilar materials
- Extended shelf life
- Adheres to a wide variety of substrates
- Non-sagging
- Permanently elastic

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 Physical Properties

Property	Values	Additional Information
Color	White Black	
Solids Content by Weight	100 %	

Typical Uncured Physical Properties

Property	Values	Additional Information
Density	9.75 lb/gal	
Consistency	Caulkable, non-sag paste	

Typical Mixed Physical Properties

Property	Values	Additional Information
Tack Free Time	2021-01-02 00:00:00 hr	View
Test Condition: Room Temperature		
Rate of Cure	4 mm per 24 hr (2021-03-16 00:00:00 in per 24 hr)	View
Test Condition: Room Temperature		
Rate of Cure	2021-03-16 00:00:00 in per 24 hr	View
Test Condition: Room Temperature		

Typical Cured Characteristics

Property	Values	Additional Information
Shore A Hardness	40	View
Test Method: ASTM C661		

Typical Performance Characteristics

Property	Values	Additional Information
Tensile Strength	1.24 MPa (180 lb/in²)	View
Test Method: ASTM D412		
Tensile Strength	180 lb/in²	View
Test Method: ASTM D412		
Elongation at Break	>400 %	View
Test Method: ASTM D412		
Long Term Temperature Resistance	90 °C (190 °F)	View
Test Condition: Long Term (day, weeks)		
Long Term Temperature Resistance	190 °F	View
Test Condition: Long Term (day, weeks)		
Minimum Long Term Temperature Resistance	-40 °C (-40 °F)	View
Test Condition: Long Term (day, weeks)		

Minimum Long Term Temperature Resistance	-40 °F	View

Test Condition: Long Term (day, weeks)

Overlap Shear Strength	11.6 kg/cm² (165 lb/in²)	View

Temp C: 23C
Temp F: 72F
Substrate: Fir
Failure Mode: Cohesive

Notes: One inch (2.54 cm) overlap specimens (0.093 inch [0.2362 cm] thickness) Cohesive – Adhesive/Sealant fails before adhesive/sealant releases from substrate. This is the desired mode. Adhesive Failure – Adhesive/Sealant releases from substrate. Desirable failure mode is cohesive.

Overlap Shear Strength	165 lb/in²	View

Temp C: 23C
Temp F: 72F
Substrate: Fir
Failure Mode: Cohesive

Notes: One inch (2.54 cm) overlap specimens (0.093 inch [0.2362 cm] thickness) Cohesive – Adhesive/Sealant fails before adhesive/sealant releases from substrate. This is the desired mode. Adhesive Failure – Adhesive/Sealant releases from substrate. Desirable failure mode is cohesive.

Overlap Shear Strength	7.2 kg/cm² (100 lb/in²)	View

Temp C: 23C
Temp F: 72F
Substrate: Stainless Steel
Failure Mode: Mixed Cohesive/Adhesive

Notes: One inch (2.54 cm) overlap specimens (0.093 inch [0.2362 cm] thickness) Cohesive – Adhesive/Sealant fails before adhesive/sealant releases from substrate. This is the desired mode. Adhesive Failure – Adhesive/Sealant releases from substrate. Desirable failure mode is cohesive.

Overlap Shear Strength	100 lb/in²	View

Temp C: 23C
Temp F: 72F
Substrate: Stainless Steel
Failure Mode: Mixed Cohesive/Adhesive

Notes: One inch (2.54 cm) overlap specimens (0.093 inch [0.2362 cm] thickness) Cohesive – Adhesive/Sealant fails before adhesive/sealant releases from substrate. This is the desired mode. Adhesive Failure – Adhesive/Sealant releases from substrate. Desirable failure mode is cohesive.

Overlap Shear Strength	7 kg/cm² (100 lb/in²)	View

Temp C: 23C
Temp F: 72F
Substrate: Aluminum
Failure Mode: Mixed Cohesive/Adhesive

Notes: One inch (2.54 cm) overlap specimens (0.093 inch [0.2362 cm] thickness) Cohesive – Adhesive/Sealant fails before adhesive/sealant releases from substrate. This is the desired mode. Adhesive Failure – Adhesive/Sealant releases from substrate. Desirable failure mode is cohesive.

Overlap Shear Strength	100 lb/in²	View

Temp C: 23C
Temp F: 72F
Substrate: Aluminum
Failure Mode: Mixed Cohesive/Adhesive

Notes: One inch (2.54 cm) overlap specimens (0.093 inch [0.2362 cm] thickness) Cohesive – Adhesive/Sealant fails before adhesive/sealant releases from substrate. This is the desired mode. Adhesive Failure – Adhesive/Sealant releases from substrate. Desirable failure mode is cohesive.

Overlap Shear Strength	3.9 kg/cm² (55 lb/in²)	View

Temp C: 23C
Temp F: 72F
Substrate: Acrylic (PMMA)

Failure Mode: Adhesive

Notes: One inch (2.54 cm) overlap specimens (0.093 inch [0.2362 cm] thickness) Cohesive – Adhesive/Sealant fails before adhesive/sealant releases from substrate. This is the desired mode. Adhesive Failure – Adhesive/Sealant releases from substrate. Desirable failure mode is cohesive.

Overlap Shear Strength	55 lb/in²	View

Temp C: 23C
Temp F: 72F
Substrate: Acrylic (PMMA)
Failure Mode: Adhesive

Notes: One inch (2.54 cm) overlap specimens (0.093 inch [0.2362 cm] thickness) Cohesive – Adhesive/Sealant fails before adhesive/sealant releases from substrate. This is the desired mode. Adhesive Failure – Adhesive/Sealant releases from substrate. Desirable failure mode is cohesive.

Overlap Shear Strength	6.6 kg/cm² (95 lb/in²)	View

Temp C: 23C
Temp F: 72F
Substrate: Nylon
Failure Mode: Adhesive

Notes: One inch (2.54 cm) overlap specimens (0.093 inch [0.2362 cm] thickness) Cohesive – Adhesive/Sealant fails before adhesive/sealant releases from substrate. This is the desired mode. Adhesive Failure – Adhesive/Sealant releases from substrate. Desirable failure mode is cohesive.

Overlap Shear Strength	95 lb/in²	View

Temp C: 23C
Temp F: 72F
Substrate: Nylon
Failure Mode: Adhesive

Notes: One inch (2.54 cm) overlap specimens (0.093 inch [0.2362 cm] thickness) Cohesive – Adhesive/Sealant fails before adhesive/sealant releases from substrate. This is the desired mode. Adhesive Failure – Adhesive/Sealant releases from substrate. Desirable failure mode is cohesive.

Overlap Shear Strength	7 kg/cm² (100 lb/in²)	View

Temp C: 23C
Temp F: 72F
Substrate: ABS
Failure Mode: Adhesive

Notes: One inch (2.54 cm) overlap specimens (0.093 inch [0.2362 cm] thickness) Cohesive – Adhesive/Sealant fails before adhesive/sealant releases from substrate. This is the desired mode. Adhesive Failure – Adhesive/Sealant releases from substrate. Desirable failure mode is cohesive.

Overlap Shear Strength	100 lb/in²	View

Temp C: 23C
Temp F: 72F
Substrate: ABS
Failure Mode: Adhesive

Notes: One inch (2.54 cm) overlap specimens (0.093 inch [0.2362 cm] thickness) Cohesive – Adhesive/Sealant fails before adhesive/sealant releases from substrate. This is the desired mode. Adhesive Failure – Adhesive/Sealant releases from substrate. Desirable failure mode is cohesive.

Overlap Shear Strength	2 kg/cm² (25 lb/in²)	View

Temp C: 23C
Temp F: 72F
Substrate: Polypropylene (PP)
Failure Mode: Adhesive

Notes: One inch (2.54 cm) overlap specimens (0.093 inch [0.2362 cm] thickness) Cohesive – Adhesive/Sealant fails before adhesive/sealant releases from substrate. This is the desired mode. Adhesive Failure – Adhesive/Sealant releases from substrate. Desirable failure mode is cohesive.

Overlap Shear Strength	25 lb/in²	View

Temp C: 23C
Temp F: 72F
Substrate: Polypropylene (PP)

Failure Mode: Adhesive

Notes: One inch (2.54 cm) overlap specimens (0.093 inch [0.2362 cm] thickness) Cohesive – Adhesive/Sealant fails before adhesive/sealant releases from substrate. This is the desired mode. Adhesive Failure – Adhesive/Sealant releases from substrate. Desirable failure mode is cohesive.

Overlap Shear Strength	8.8 kg/cm² (125 lb/in²)	View

Test Condition: Room Temperature
Substrate: Cold Rolled Steel
Failure Mode: Mixed Cohesive/Adhesive

Notes: One inch (2.54 cm) overlap specimens (0.093 inch [0.2362 cm] thickness) Cohesive – Adhesive/Sealant fails before adhesive/sealant releases from substrate. This is the desired mode. Adhesive Failure – Adhesive/Sealant releases from substrate. Desirable failure mode is cohesive.

Overlap Shear Strength	125 lb/in²	View

Test Condition: Room Temperature
Substrate: Cold Rolled Steel
Failure Mode: Mixed Cohesive/Adhesive

Notes: One inch (2.54 cm) overlap specimens (0.093 inch [0.2362 cm] thickness) Cohesive – Adhesive/Sealant fails before adhesive/sealant releases from substrate. This is the desired mode. Adhesive Failure – Adhesive/Sealant releases from substrate. Desirable failure mode is cohesive.

Overlap Shear Strength	7 kg/cm² (100 lb/in²)	View

Test Condition: Room Temperature
Substrate: Polycarbonate (PC)
Failure Mode: Mixed Cohesive/Adhesive

Notes: One inch (2.54 cm) overlap specimens (0.093 inch [0.2362 cm] thickness) Cohesive – Adhesive/Sealant fails before adhesive/sealant releases from substrate. This is the desired mode. Adhesive Failure – Adhesive/Sealant releases from substrate. Desirable failure mode is cohesive.

Overlap Shear Strength	100 lb/in²	View

Test Condition: Room Temperature
Substrate: Polycarbonate (PC)
Failure Mode: Mixed Cohesive/Adhesive

Notes: One inch (2.54 cm) overlap specimens (0.093 inch [0.2362 cm] thickness) Cohesive – Adhesive/Sealant fails before adhesive/sealant releases from substrate. This is the desired mode. Adhesive Failure – Adhesive/Sealant releases from substrate. Desirable failure mode is cohesive.

Overlap Shear Strength	11.6 kg/cm² (165 lb/in²)	View

Test Condition: Room Temperature
Substrate: Fiber-Reinforced Plastic
Failure Mode: Cohesive

Notes: One inch (2.54 cm) overlap specimens (0.093 inch [0.2362 cm] thickness) Cohesive – Adhesive/Sealant fails before adhesive/sealant releases from substrate. This is the desired mode. Adhesive Failure – Adhesive/Sealant releases from substrate. Desirable failure mode is cohesive.

Overlap Shear Strength	165 lb/in²	View

Test Condition: Room Temperature
Substrate: Fiber-Reinforced Plastic
Failure Mode: Cohesive

Notes: One inch (2.54 cm) overlap specimens (0.093 inch [0.2362 cm] thickness) Cohesive – Adhesive/Sealant fails before adhesive/sealant releases from substrate. This is the desired mode. Adhesive Failure – Adhesive/Sealant releases from substrate. Desirable failure mode is cohesive.

Overlap Shear Strength	1.5 kg/cm² (20 lb/in²)	View

Test Condition: Room Temperature
Substrate: Low Density Polyethylene (LDPE)
Failure Mode: Adhesive

Notes: One inch (2.54 cm) overlap specimens (0.093 inch [0.2362 cm] thickness) Cohesive – Adhesive/Sealant fails before adhesive/sealant releases from substrate. This is the desired mode. Adhesive Failure – Adhesive/Sealant releases from substrate. Desirable failure mode is cohesive.

Overlap Shear Strength	20 lb/in²	

View

Test Condition: Room Temperature
Substrate: Low Density Polyethylene (LDPE)
Failure Mode: Adhesive

Notes: One inch (2.54 cm) overlap specimens (0.093 inch [0.2362 cm] thickness) Cohesive – Adhesive/Sealant fails before adhesive/sealant releases from substrate. This is the desired mode. Adhesive Failure – Adhesive/Sealant releases from substrate. Desirable failure mode is cohesive.

Overlap Shear Strength	5.5 kg/cm² (75 lb/in²)	View

Test Condition: Room Temperature
Substrate: Polyvinyl chloride (PVC)
Failure Mode: Adhesive

Notes: One inch (2.54 cm) overlap specimens (0.093 inch [0.2362 cm] thickness) Cohesive – Adhesive/Sealant fails before adhesive/sealant releases from substrate. This is the desired mode. Adhesive Failure – Adhesive/Sealant releases from substrate. Desirable failure mode is cohesive.

Overlap Shear Strength	75 lb/in²	View

Test Condition: Room Temperature
Substrate: Polyvinyl chloride (PVC)
Failure Mode: Adhesive

Notes: One inch (2.54 cm) overlap specimens (0.093 inch [0.2362 cm] thickness) Cohesive – Adhesive/Sealant fails before adhesive/sealant releases from substrate. This is the desired mode. Adhesive Failure – Adhesive/Sealant releases from substrate. Desirable failure mode is cohesive.

Storage and Shelf Life

Polyurethane sealants and adhesive sealants must be stored in a controlled environment to maximize shelf life. Store the products in the original unopened containers below 77°F (25C).
When stored at recommended conditions, the shelf life of cartridges and sausage packs is 15 months from the date of manufacture. For 5 and 55 gallon containers, the shelf life is 6 months from date of manufacture.

Trademarks

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Handling/Application Information

Directions for Use

Surface Preparation:

Abrading the surface with 180- to 200-grit abrasive will enhance the bond strength. Cut the plastic nozzle tip to the desired bead size. Puncture the seal in nozzle end of the cartridge and screw the plastic nozzle in place. Remove the bottom end seal of cartridge and place the cartridge in a caulk gun dispenser. Apply Fast Cure 4200 to the seam or part to be bonded. Position parts and tool material to desired appearance. Tooling of adhesive can be accomplished by using a tongue depressor. If a finger is used, rubber gloves are recommended. Remove excess with General Purpose Adhesive Cleaner 08984 or suitable solvent.

*When using solvents, use in a well ventilated area. Extinguish all sources of ignition in the work area and observe product directions for use and precautionary measures. Refer to product label and MSDS for further precautions. Always pre-test solvent to ensure it is compatible with substrates.

Local and federal air quality regulations may regulate or prohibit the use of these products or surface preparation and cleanup materials. Consult local and federal air quality regulations before using these products.

Note: Alcohol will interfere with the curing process and extra care must be taken when using alcohol as a cleaning solvent to prevent any contact with the sealant.

Primer:

Use of a primer is an extra step and cost and will depend on substrates and the final end use. Using primer can improve the corrosion resistance of certain metals as well as improve the durability of the bond when exposed to high humidity conditions. For most applications, high strength bonds on metal can be achieved without the use of a primer. Pre-testing for adhesion is suggested to determine if a primer is needed. Contact your 3M Technical Service representative for primer recommendation and application advice.

Applications:

3MTM Adhesive Sealant Fast Cure 4200 is designed to allow disassembly of wood and fiberglass parts bonded together. If a permanent bond is desired, use 3MTM Marine Adhesive Sealant 5200 or Marine Adhesive Sealant Fast Cure 5200.

Typical bonding applications include:

- Fiberglass deck to fiberglass hull

- Wood to fiberglass

- Portholes

- Deck fittings

- Moldings

- Trunk joints

- Between struts and planking

- Stern joints

Typical sealing applications include:

- Some plastics (test before assembly)

- Glass

- Metals (priming may be required)

Limitations :

- Alcohol should not be used in preparation for bonding as it will interfere with the curing process, causing the adhesive to fail.

- Due to the decreased value in bond strength at elevated temperatures use of this product is not recommended above 190°F (88°C).

- Do not apply at temperatures below 40°F (4°C) or on frost covered surfaces. Do not apply at surface temperatures above 100°F (38°C).

- Sealant should be used within 24 hours after inner seal is punctured, as product will start to cure in the cartridge and nozzle.

- At 90o F (32o C) and 90% relative humidity, bonds should be made within 15 minutes.

- Some one part solvent-based Marine paints may not cure on top of cured Fast Cure 4200. It is strongly recommended to test all desired paints for suitability.

- Fast Cure 4200 has an elongation much greater than most paints. Most paints will not elongate to this extent before cracking or losing adhesion to the sealant. If the sealant is used in an application where it will elongate or flex to a high degree, it is best not to paint.

- Fast Cure 4200 is not recommended for use as a teak deck seam sealer. Extended exposure to chemicals (teak cleaners, oxalic acid, gasoline, strong solvents and other harsh chemicals) may cause permanent softening of the sealant.

- Fast Cure 4200 is not recommended for the installation of glass, polycarbonate or acrylic windows that are not also mechanically fastened. Inconsistent adhesion of these unprimed substrates, specific design of the window and movement due to thermal expansion and flexing may cause application failure.

- When using 3MTM Marine Adhesive Sealant Fast Cure 4200 with metals it may be necessary to prime the surface to achieve adequate adhesion and durability of the bond. 3M Metal Primer P592 may be used for priming of most metals.

Cleanup:

For cleaning 3MTM Marine Adhesive Sealant Fast Cure 4200 before it is cured, use a dry cloth to remove the majority of sealant, followed by a cloth damp with 3MTM General Purpose Adhesive Cleaner 08984. Cured material can be removed mechanically with a knife, razor blade, piano wire, sanding device.

References

Property	Values
3m.com Product Page	https://www.3m.com/3M/en_US/company-us/all-3m-products/~/3M-Marine-Adhesive-Sealant-Fast-Cure-4200FC/?N=5002385+3291170224&rt=rud
Safety Data Sheet SDS	https://www.3m.com/3M/en_US/company-us/SDS-search/results/?gsaAction=msdsSRA&msdsLocale=en_US&co=ptn&q=4200

ISO Statement

This Industrial Adhesives and Tapes Division product was manufactured under a 3M quality system registered to ISO 9001 standards.

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.

Information

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