



Product Data

REN-WELD[®] 5169 POLYURETHANE ADHESIVE

DESCRIPTION: Ren-Weld[®] 5169 adhesive is an integral component of the RenShape[®] 5169 board system. The system is comprised of three specially formulated products; boards, adhesive and patch paste.

Ren-Weld[®] 5169 adhesive is formulated specifically to compliment RenShape[®] 5169 board. The adhesive is polyurethane based with similar performance characteristics to the RenShape[®] 5169 polyurethane boards.

Ren-Weld[®] 5169 adhesive closely matches the characteristics of RenShape[®] 5169 for color, machinability, and coefficient of thermal expansion. The resultant bondlines are virtually invisible with very little tendency to telegraph unlike other unmatched board-adhesive systems. Ren-Weld[®] 5169 bonds tenaciously to RenShape[®] 5169 boards resulting in durable blocks, patterns and tools.

APPLICATIONS: Ren-Weld[®] 5169 adhesive is useful for bonding small or large pieces of RenShape[®] 5169 polyurethane boards together to form rough shapes prior to machining to final shape. Ren-Weld[®] 5169 adhesive can also be used to bond or pot in modifications to existing tools. The adhesive, which can be hand-mixed or meter-mixed, cures thoroughly at room temperature and does not require a post-cure.

Ren-Weld[®] 5169 adhesive offers a good work life for assembly of large blocks. Adhesive strength builds quickly at room temperature so that bonds reach handling strength in about 8-10 hours.

MIX RATIO:

By weight:	100 to 92	Resin to Hardener
By volume:	100 to 100	Resin to Hardener

TYPICAL HANDLING PROPERTIES: Tested @ 77°F (25°C) unless otherwise noted.

Property	Criteria	ASTM Test Method	Test Value
Color	Resin Hardener Mixed	Visual	Transparent Red Red
Specific Gravity	Resin Hardener	D-792	1.20 1.11
Viscosity cP	Resin Hardener Mixed	D-2393	120-170 2,700-3,500 14,700
Gel Time, seconds	4 fl.oz.	D-2471	8-13

RECOMMENDED CURE SCHEDULE:

Temperature
77°F (25°C)

Red Strength Time
8-10 hours

Full Cure Time
24 hours

TYPICAL CURED PROPERTIES: Tested @ 77°F (25°C) unless otherwise noted.

Property	ASTM Test Method	Test Value
Hardness (Shore D)	D-2240	>80
Bond Strength, RenShape® 5169 board substrate	Vantico Method ¹	Substrate failure
Coefficient of Thermal Expansion In/in/°F (-22° to 86°) In/in°C (-30° to +30°)	D-3386	42.9 x 10 ⁻⁶ 77.2 x 10 ⁻⁶

¹ Butt-joint construction

NOTE: Typical Properties – These physical properties are reported as typical test values obtained by our test laboratory. If assistance is needed in establishing product specifications, please consult with our Quality Control Department.

BONDING RenShape® 5169 BOARDS: RenShape® 5169 polyurethane boards are manufactured to a bondable condition. If the boards have been contaminated with dirt, grease, oil, release agents or water the contaminants must be removed with solvent or detergent. Once cleaned and dried, the boards should be abraded with fresh 60-80 grit sandpaper. After sanding, remove any residual dust before bonding.

“Stir Ren-Weld® 5169 adhesive completely before use. The adhesive is polyurethane based and is protected from moisture with a moisture scavenger, which must be suspended for best results. This scavenger is present only in the green hardener component.”

Accurately weigh only enough adhesive to be used in about 15 minutes. Use only clean, dry utensils and mixing containers.

Spread a thin layer of adhesive on both board surfaces to be bonded. Make sure the entire surface is wet with at least 5 mils of adhesive. Press the surfaces to be bonded together firmly and hold with light clamp pressure. Some light squeeze-out of adhesive should occur at the edges. Avoid heavy clamp pressure, if no squeeze-out is present, reapply additional adhesive.

Heavy clamp pressure may stress the assembly resulting in unsatisfactory final results. Clamp only enough for firm contact.

Preferably wait about 12 hours before rough handling or machining (8-10 hours for light duty or positioning).

For small jobs, less than 50 square inches, consider the use of Ren-Weld® 5169 Patch Paste as an adhesive. Handling strength can be achieved in about 15 minutes.

PACKAGING:

<u>Unit</u>		<u>Weight</u>	<u>Coverage</u>
1 Quart Kit	<i>Resin</i>	2 lb.	
	<i>Hardener</i>	1.84 lb.	
6 Quarts	<i>Resin</i>	12 lb.	
	<i>Hardener</i>	11.04 lb.	
Pail	<i>Resin</i>	45 lb.	~20 sq.ft/lb.
	<i>Hardener</i>	41.4 lb.	@0.005" thickness

Please call Customer Service (800) 367-8793 for price and availability.

STORAGE: Store at 70-90°F. This product is moisture-sensitive and packaged under a blanket of dry nitrogen. Maintain factory seal. After use, reblanket with dry nitrogen and tightly reseal.

CONDITIONING:

Ren-Weld® 5169 Resin

This product may crystallize upon storage. If crystallized, vent container and heat to 125-145°F until crystals dissolve. Stir well after product has liquefied.

Ren-Weld® 5169 Hardener

Stir well before use. This material will separate.

Ren Patch™ 5169 System

If heating of product in plastic packaging is necessary, heat in a ventilated oven to 145°F maximum. Before heating, loosen the container lid slightly to relieve any pressure buildup and place container to be heated into a metal bucket of sufficient volume to contain the product, should the container tip over or leak.

HANDLING: Work in a well ventilated area and use clean, dry tools for mixing and applying. For two component system, combine the resin and hardener according to mix ratio. Mix together thoroughly and use immediately after mixing. Material temperature should not be below 65°F (18°C) when mixing.

SHELF LIFE: Provided materials are stored under the recommended storage conditions in their original containers, they will remain in useable condition for at least one year from date of shipping.

SAFETY/HANDLING PRECAUTIONS: Do not use or handle this product until the Material Safety Data Sheet has been read and understood.

Ren-Weld® 5169 Resin

WARNING! Harmful if inhaled. Causes skin and eye irritation. Causes allergic skin and respiratory reaction.

- Avoid contact with eyes, skin, and clothing.
- Avoid breathing vapor or mist.
- Avoid prolonged or repeated contact with skin.
- Keep container closed
- Use with adequate ventilation.
- Wash thoroughly after handling.

Ren-Weld® 5169 Hardener

DANGER! CORROSIVE. Causes skin burns. Causes eye and respiratory irritations. May cause allergic skin reaction. Harmful if absorbed through skin.

Do not get in eyes, on skin, or on clothing.
Avoid breathing vapor or mist.
Keep container closed. Use with adequate ventilation.
Wash thoroughly after handling.

NOTICE! Overexposure may cause liver damage.

FIRST AID: In case of contact with:

Skin: Immediately wash with soap and water. Remove contaminated clothing and launder before reuse. Destroy contaminated shoes.

Eyes: Immediately flush with water for at least 15 minutes. Call a physician.

Ingestion: If conscious, give plenty of water to drink. Do not induce vomiting. Call a physician.

Inhalation: Remove to fresh air. Administer oxygen or artificial respiration if necessary. Call a physician.

Other: Referral to physician is recommended if there is any question about the seriousness of any injury.

PRECAUTIONARY NOTE: Thermosetting systems generate heat when curing. The amount of heat and the period of time in which heat is released vary significantly between systems. Additionally, ambient or compound temperature, amount of material mixed, and construction and shape of the mold or container can also be factors in the temperature profile of a mixed system. In some cases, the thermosetting reaction can be vigorous, generating heat sufficient to cause decomposition of the system with subsequent liberation of large volumes of acrid smoke.

A good rule of thumb is never mix more material than can be applied during the stated pot life or gel time. Also take care when using materials in applications other than stated on the Product Data Sheet, i.e., a laminating resin for casting.

Please feel welcome to call our Product Information Department or your local Ren representative for instructions before you start your job.

IMPORTANT: The following supersedes Buyer's documents. SELLER MAKES NO REPRESENTATION OR WARRANTY, EXPRESS OR IMPLIED, INCLUDING WARRANTIES AND CONDITIONS OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. No statements herein are to be construed as inducements to infringe any relevant patent. Under no circumstances shall Seller be liable for incidental, consequential, or indirect damages for alleged negligence, breach of warranty, strict liability, tort, or contract arising in connection with the product(s). Buyer's sole remedy and Seller's sole liability for any claims shall be Buyer's purchase price. Data and results are based on controlled or lab work and must be confirmed by Buyer by testing for its intended conditions of use. The product(s) has not been tested for, and is therefore not recommended for, uses for which prolonged contact with mucous membranes, abraded skin, or blood is intended; or for uses for which implantation within the human body is intended.

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