



TECHNICAL DATA BULLETIN

INSTAbond® NUWE-89-1 *Structural Epoxy for Underwater Application*

PRODUCT DESCRIPTION:

INSTAbond® NUWE-89-1 is one of several two-part, simple mix ratio, structural Epoxy systems developed by ACCRAbond Inc. that are designed for underwater application in addition to very humid as well as dry ambient conditions. INSTAbond® NUWE-89 cures at temperatures as low as 5°C. Typical bonding applications include, and are not limited to, chemical process equipment and the marine transportation industry. INSTAbond® NUWE-89-1 contains proprietary Nanotechnology that improves toughness beyond traditional formulating methodology. INSTAbond® NUWE-89-1 exhibits excellent adhesion to both ferrous and non-ferrous metal substrates, many plastics, including FRP and GRP composites.

INSTRUCTIONS FOR USE:

INSTAbond® NUWE-89-1 is formulated with a mix ratio of 1:1 by weight and volume. Combine the proper proportions of resin and hardener in a clean container. Mix both components thoroughly until a uniform color is achieved. The work life and cure of the mixture will vary with temperature and the quantity of material. Consult MSDS for safety precautions.

Properties of Materials As Supplied:

(All tests are conducted at 25° +/- 2°C, unless otherwise indicated.)

Part A Resin:

Property	Test Method	Unit	Value
Chemical Type	---	---	Epoxy
Appearance	Visual	---	White Paste
Density	ASTM D792	g /cc (lb/gal)	1.44 (11.9)
Brookfield Viscosity	ASTM D2393	cP	300,000 – 400,000

Part B Hardener:

Property	Test Method	Unit	Value
Chemical Type	---	---	Amine
Appearance	Visual	---	Lt Yellow Paste
Density	ASTM D792	g /cc (lb/gal)	1.44 (11.9)
Brookfield Viscosity	ASTM D2393	cP	70,000 – 90,000



Properties of Mixed Material:

Property	Test Method	Unit	Value
Chemical Type	---	---	Epoxy System
Appearance	Visual	---	Lt. Gray Paste
Density	ASTM D792	g /cc (lb/gal)	1.43 (11.9)
Brookfield Viscosity	ASTM D2393	cP	60,000 – 80,000
Mix Ratio	---	---	1:1 by Weight & Volume
Pot Life (100g mass @23°C)	---	minutes	25 - 35

Typical Cure Schedules:

Cure Temperature, °C(°F)	Cure Time (hr)
25(77)	24
66(151)	1

Properties of Cured Material:

Property	Test Method	Unit	Substrate(a)	Cure Cycle	Test (°C)	Value(b)
Lap Shear Strength	ASTM D-1002	psi	Cold Rolled Steel 18Ga	24hr@25°C	23	3,100
			Cold Rolled Steel 18Ga	7d@25°C	23	3,300
			Cold Rolled Steel 18Ga (bonded under water)	24hr@22°C	23	2,340
			Cold Rolled Steel 18Ga (bonded under water)	30d@25°C (submerged)	23	2,052
			Cold Rolled Steel 18Ga (bonded under water ^c)	3d@22°C	22	2020
			Cold Rolled Steel 18Ga (bonded under water ^d)	3d@22°C	22	1700
			Al 2024T3 FPL etch	24h@25°C	23	3,200
			Al 2024T3 FPL etch	24h@25°C+ 1hr@66°C	23	3,500
			Al 2024T3 FPL etch	7d@25°C	23	3,500
			Al 2024T3 PAA etch	24h@25°C	23	3,200
			Al 2024T3 PAA etch	24h@25°C+ 1hr@66°C	23	3,500
			Polyester Composite	5d@23°C	23	856
Tensile Strength	ASTM D-638	psi %E	---	7d@23°C	23	3,300 3%
Ultimate Compressive Strength	ASTM D-695	psi	---	7d@23°C	23	15,500
Compressive Modulus		ksi				460

- (a) Substrate Prep for CRS was: Wipe w/MEK, manual sanding with 120 grit paper, then Wipe w/MEK, Polyester Composite was sanded and wipes with IPA(99%)
- (b) Lap shear failure modes were all 100% cohesive and polyester composite had substrate failure
- (c) Prepped substrate as per (a), bonded in Seawater 35g NaCl/L Water
- (d) Unprepped "as is" substrate, bonded in Seawater 35g NaCl/L Water



Additional specific cured properties of INSTAbond® NUWE-89-1 may be evaluated upon request.

STORAGE AND HANDLING:

The shelf life of INSTAbond® NUWE-89-1 is 12 months at 25°C. For best results, store in original, tightly closed containers in a cool, dry place out of direct sunlight. Containers should be loosely covered during the heating process to avoid pressure buildup. Allow contents to return to room temperature before mixing resin and hardener.

PACKAGING:

INSTAbond® NUWE-89-1 is packaged in cartridge kits, pints, quarts, gallons, pails. The hardener is packaged according to the container size of the resin. Specialty packaging options are available on request. Contact customer service for additional information at 800-895-4480 or sales@accrabond.com

GENERAL INFORMATION:

Recommendations for the use of products are based upon tests believed by us to be reliable. However, since the handling and use of our products under user's conditions are beyond our control, no warranty, expressed or implied, including but not limited to merchantability or fitness for a particular use, is made concerning this product. The user assumes all risks of use or handling, whether or not in accordance with any directions or suggestions of the supplier. Seller shall not be liable to purchaser or any other person for loss or damage directly or indirectly arising from the use of our products, from breach of any warranty or any other cause, the exclusive remedy against the seller being to require replacement or repair of defective goods. If the purchaser does not accept products on such items, they are to be returned at once, unopened. **This material is for professional and industrial use only.**

PRODUCT INFORMATION CONTAINED HEREIN IS INTENDED FOR REFERENCE ONLY. MATERIAL SAFETY DATA INFORMATION AVAILABLE AT (662) 895-4480 OR IN WRITNG TO: ACCRAbond, Inc. 8848 Hacks Cross Road, Olive Branch, MS 38654, www.accrabond.com.