ADINOX®
METAL BONDING SOLUTIONS

Technical Data Sheet
ADINOX® M330
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Description
ADINOX® M330 is an advanced, two-part (1:1) toughened structural adhesive specially designed for the high-strength bonding of various metals, including exceptional performance on galvanized (G60, G70, G90) and other zinc-coated metals. It provides excellent toughness, fatigue and impact resistance with a low odor profile compared to similar systems. Its formulation allows for high bond strength on most reference surfaces with minimal to no surface preparation.

Features:
- Direct adhesion on galvanized and coated metals.
- Low odor and excellent fatigue toughness.
- Minimal to no surface preparation required.
- 1:1 mix ratio and room temperature cure.

Applications
ADINOX® M330 is suitable for galvanized metal structures, HVAC ductwork, agricultural equipment, and coated sheet metal assemblies where zinc compatibility is essential.

Physical Properties - Liquid

Property	Resin (A)	Activator (B)
Appearance	White	Gray
Viscosity @ 77 °F, cP	63,000-132,000	45,000-110,000
Flash Point (TCC)	50 °F	50 °F
Density	8.2 lbs/gal	8.0 lbs/gal

Mixing	Value
Mix ratio by volume	1 : 1
Mix ratio by weight	1 : 1
Color (mixed)	Gray / White-Green
Mixed density	8.1 lbs/gal

Physical Properties - Cured

Property	Value
Open time	4–6 min
Working time	10–12 min
Full cure	24 hours @ 77 °F
Gap filling capacity	Up to 0.29 in
Elongation (ASTM D 638)	22–28%
Tensile Modulus (ASTM D 638)	75,000-100,000 PSI
Shore Hardness (ASTM D 2240)	71–74
Service temperature	-40 to 180 °F

Lap Shear Strength (ASTM D 1002)

Substrates	Shear Strength (PSI)	Failure Mode
Steel & SS	\>2,321	Cohesive failure
Al / Al	\>2,321	Cohesive failure
Galvanized (G70)	\>1,886	Cohesive failure

Composites and plastics show substrate failure; metals (including galvanized steel G60/G70/G90) show cohesive failure — bond strength exceeds the adhesive's internal strength.

Material Compatibility

Substrate	Compatibility
Metals	
Stainless steel	✓
Aluminum Series 1000-6000	✓
Aluminum 7000 Series (Al-Zn)	✓
Carbon steel / cold rolled steel	✓
Galvanized steel* / zinc-coated	✓
Copper / Brass / Bronze	✗
Thermoset Plastics	
Phenolics	✓
Gelcoat	✓
Epoxies	✓
Polyurethane (PU rigid / elastomer)	✓
Polyurethane (RIM / SRIM)	✓
Liquid molding resin	✓
Bakelite	✓
Thermoplastics	
ABS	✓
Polyamides (Nylon)	✓
Acrylic (PMMA)	✓
PET	✓
EVA	✓
Polycarbonate (PC)	✓
PE / PP (polyolefins)	✗
PTFE (Teflon)	✗
Silicone	✗
Composites	
Fiberglass (FRP / FRT)	✓
Polyester composites	✓
Kevlar	✓

Other	
Wood	✓
Porcelain	✓
Ferrites	✓

Legend: ✓ = Compatible ✗ = Not recommended

Cleavage Peel Strength (ASTM D 3807)

Substrates	Measurement	Strength (pli)
Stainless Steel / Stainless Steel	Initial peel strength	>18 pli
	Average peel strength	>17 pli

**Galvanized steel compatibility has been evaluated on G60, G70, and G90 grades. Due to variations in coating thickness, surface treatment, oiling, passivation, and storage conditions, the user must verify performance on their specific substrate.*

Initial value: force to initiate joint separation. Average value: resistance during propagation.

Environmental Resistance

Condition	Lap Shear Strength (PSI)	Failure Mode
Initial (baseline)	>3,191	Cohesive failure
Environmental cycle - 30 days	>3,481	Cohesive failure

Lap Shear Strength per ASTM D 1002 - Stainless Steel / Stainless Steel. Environmental Cycle = 8 hours at -22 °F, 8 hours at 185 °F, 8 hours at 86 °F at 100% RH.

Chemical Resistance

Media	Lap Shear Strength (PSI)
Gasoline	>3,191
Acetic acid (10%)	>3,191
Xylene	>3,191
Lubricating oil HD30	>3,336
Paraffin	>3,191
Water @ 73 °F	>3,046
Water @ 194 °F	>2,901

Lap Shear Strength per ASTM D 1002 - Aluminum / Aluminum. Specimens cured for 7 days at 77 °F and immersed for 1 month in the listed media.

Storage and Shelf Life

Component	Shelf Life	Conditions
Resin (Part A)	12 months from date of manufacture	Store between 55 - 75 °F. Refrigeration (45 - 55 °F) extends shelf life.
Activator (Part B)	12 months from date of manufacture	

- Sustained exposure above 75 °F shortens shelf life progressively.
- Prolonged storage above 100 °F can reduce shelf life to less than one month.
- Do not freeze.
- Bring the adhesive to room temperature for at least 24 hours before use to ensure proper cure and viscosity.
- Keep containers tightly sealed when not in use.
- Date of manufacture is printed on each container label.

Packaging

Packaging	Volume	Description
Dual cartridge 1:1	50 ml	
Dual cartridge 1:1	200 ml	
Dual cartridge 1:1	400 ml	
5 Gallon Pail	~18.9 L / 5 gal	

Application

Surface Preparation

Bonding surfaces must be clean, dry, and free of oil, grease, dust, and loose particulates.

Wipe both surfaces with isopropyl alcohol (IPA) or acetone. Remove rust or mill scale by abrasion before solvent cleaning.

Light scuff-sanding immediately before bonding improves surface wetting and maximizes joint strength. Most metals, including galvanized steel, can be bonded directly after a solvent wipe without primer.

Mixing and Dispensing

Purge the dual cartridge before and after attaching the static mixing nozzle until a uniform color with no streaks is achieved.

For previously opened or aged cartridges, allow a small amount of purged adhesive to cure to confirm proper reactivity.

Apply enough adhesive to completely fill the bond gap; plan for controlled squeeze-out at joint edges.

Mix ratio is 1:1 by volume (1:1 by weight). Use only 1:1 cartridges and the corresponding mixing nozzles.

Assembly

Position and align parts, then dispense the adhesive. Repositioning is possible within the open time (4–6 min).

Clamp or fixture parts firmly during initial cure. Avoid excessive clamping pressure that thins the bond line.

Check adhesive hardness at joint edges with a fingernail before releasing fixtures.

Parts can typically be moved within 10 to 12 minutes at 77 °F. Full mechanical properties develop over 24 hours.

Temperature Conditions

Optimal bonding between 65 - 85 °F. Below 65 °F, cure slows noticeably and viscosity increases. Above 85 °F, cure accelerates and open time shortens; plan the assembly sequence accordingly. The viscosity of both components is temperature-sensitive.

Cleanup

Condition	Method
Uncured adhesive	Wipe away with acetone, MEK, or a compatible industrial solvent before polymerization begins.
Cured adhesive	Mechanical removal required. Soaking in a strong solvent or paint stripper may soften the cured material.
Mixing nozzles	Single-use and disposable; replace after each application session.

Dispensing Equipment

Recommended: disposable 1:1 dual cartridges with static mixing nozzles, or volumetric meter-mix-dispense systems.

Dispense from approved manual or pneumatic applicator guns for 1:1 cartridges.

For meter-mix systems, verify chemical compatibility between the adhesive components and all wetted surfaces.

Wetted metal parts should be stainless steel or aluminum, or lined with chemically resistant materials.

Avoid adhesive contact with copper, zinc, brass, or alloys in dispensing equipment (causes premature polymerization); does not affect adhesion to galvanized substrates.

Non-metallic seals and gaskets: Teflon (PTFE) or UHMW polyethylene are recommended.

Precautions

⚠ Comp A contains reactive monomer — use in well-ventilated areas.

- ADINOX® M330 is flammable (flash point 50 °F). Keep away from heat sources, sparks, and open flames.
- Mixing large amounts at once can result in boiling monomer and heat/gas release
- Industrial use only.

Limitations and Recommendations

- **Not suitable for polyolefins (PE, PP), PTFE or silicone.**
- Structural gap filling up to 0.29 in. Maximum safe thickness 1/2 in.
- Susceptible to super strong acids and bases.

Legal Information and Disclaimer

Limitation of Warranty

The technical data and guidance contained in this Technical Data Sheet are derived from controlled laboratory testing and are provided solely for informational reference. They are not intended as design specifications. Given the inherent variability in storage conditions, handling practices, application techniques, substrate types, surface preparation, and end-use environments, ADINOX provides no representations or warranties, whether express or implied, regarding this information, including any implied warranties of merchantability or suitability for a particular purpose.

The end user assumes full responsibility for evaluating the fitness of ADINOX® M330 for any proposed application under the anticipated service conditions. All products acquired from or supplied by ADINOX are governed by the terms and conditions of the applicable purchase agreement.

In no event shall the total liability of ADINOX, whether arising in contract, tort, or on any other basis, exceed the purchase price of the specific product that is the subject of the claim.

Test Methods Applied

Standard	Description
ASTM D 1002	Standard test method for apparent shear strength of single-lap-joint adhesively bonded metal specimens by tension loading (lap shear). The primary test for structural adhesive bond strength.
ASTM D 2240	Standard test method for rubber property - durometer hardness. Used to measure Shore D hardness of the cured adhesive.
ASTM D 3807	Standard test method for strength properties of adhesives in cleavage peel by tension loading. Measures resistance to peel forces in structural joints.

Validation Recommendation

ADINOX® M330 performance has been tested and approved by the brand under controlled laboratory conditions. Actual project conditions may differ from test conditions, including factors that are not always visible — surface treatments, passivation, oils, or coatings that affect adhesion. The end user must validate performance on the actual substrates and process conditions before full-scale use.

Units of Measurement and Glossary

SI / Imperial Equivalencies

SI Unit	Imperial Equivalent
1 MPa	= 145.04 PSI
1 PSI (lb/in²)	= 0.00689 MPa
1 N/mm²	= 1 MPa = 145.04 PSI
1 kg/cm²	= 14.22 PSI = 0.098 MPa
1 mm	= 0.0394 in
1 in	= 25.4 mm
1 ml	= 0.0338 fl oz
1 fl oz	= 29.57 ml
1 g/mL	= 8.345 lb/gal
1 pli	= 0.175 N/mm
°C to °F	°F = (°C × 9/5) + 32

Glossary of Abbreviations

Abbreviation	Meaning
PSI	Pounds per Square Inch
MPa	Megapascal (SI pressure unit)
cP / mPa·s	Centipoise / Millipascal-second (viscosity)
UHMW	Ultra-High Molecular Weight (polyethylene)
PTFE	Polytetrafluoroethylene (Teflon®)
TCC	Tag Closed Cup (flash point test)
FRP	Fiber Reinforced Plastic
PBT	Polybutylene Terephthalate
IPA	Isopropyl Alcohol
ASTM	American Society for Testing and Materials
SDS	Safety Data Sheet
UV	Ultraviolet
pli	Pounds per Linear Inch (peel strength)

Technical Terms

Term	Definition
Open time	Period after combining components A and B during which the adhesive remains fluid and parts can be positioned or repositioned. For ADINOX® M330: 4–6 minutes at 77 °F.
Working time	Elapsed time after mixing needed to develop initial handling strength, allowing clamps or fixtures to be removed and parts to be moved carefully. For ADINOX® M330: 10–12 minutes at 77 °F.
Full cure	Time to reach maximum mechanical properties. Typically 24 hours at 77 °F. ADINOX Series M adhesives cure exclusively by chemical reaction between components; elevated temperature accelerates cure, reduced temperature slows it. Assemblies can enter service at approximately 80% strength (roughly 2 to 3 times the working time).
Elongation	Percentage of stretch a material undergoes before fracture, expressed as a proportion of original length.
Modulus	Ratio of stress to strain in the elastic region of a material. Higher modulus indicates a stiffer bond. Reported in PSI or MPa.
Cohesive failure	Fracture occurs within the adhesive layer itself, demonstrating that adhesion to both substrates exceeds the internal strength of the adhesive.
Substrate failure	Fracture occurs in the bonded material rather than in the adhesive, indicating the bond is stronger than the substrate.
Cleavage peel	Test measuring resistance to peeling forces applied at one edge of a bonded joint, reported in pli (pounds per linear inch). High peel strength indicates a tough adhesive that resists crack propagation.
Thixotropic	Non-sagging at rest but flows readily under applied force (during dispensing). Prevents dripping on vertical and overhead surfaces.
Exothermic reaction	Chemical reaction that generates heat. In ADINOX Series M adhesives, large confined masses can reach temperatures above 250 °F and release flammable vapors.
Static mixing nozzle	Disposable tube containing internal helical elements that homogeneously blend the two adhesive components as they are dispensed.