



# METALSET A4™

Aluminum Filled Epoxy Resin Cement

## PRODUCT OVERVIEW

Metalset A4™ is a powerful epoxy adhesive that has been used for years by all branches of the U.S. Military as well as every major airline and auto manufacturer in the world. A4 is used for hundreds of industrial bonding applications and offers excellent adhesion to porous or non-porous surfaces. It can be applied to vertical surfaces without sagging and cures overnight with negligible shrinking. Once cured, A4 offers good machining qualities (sanding, drilling, tapping), and resists alkalis, dilute acids and solvents. Applications include stopping leaks in pipes, valves and tanks (i.e. car gas tanks), bonding like and unlike surfaces, filling metal joints, dents, etc., anchoring bolts in wood, concrete, and repairing metal surfaces.

## TECHNICAL OVERVIEW

**Key Values:** ~**Mixing Ratio:** One to One by volume or weight ~ **Pot Life:** 22 minutes (1/4 pint)  
 ~**Sag Resistance:** 1/4" ~**Color:** Metallic ~**Barcol 935 Hardness:** 71

<u>Properties</u>	<u>Viscosity</u>	<u>G/CC</u>	<u>Elongation At Break</u>	<u>Tensile Strength</u>
A+B Mixed	Paste-like	1.43	1.2%	3600 psi
Modulus of Elasticity in Tension . . . . .		165,000 psi	Compressive Strength . . .	7,500 psi F
Modulus of Elasticity in Compression . . .		160,000 psi	Heat Distortion Temp. . . . .	180° F / 83° C

## Adhesive Properties (Tensile Shear Adhesion – ASTM D1002)

<u>Substrate</u>	<u>Exposure</u>	<u>Test Temp.</u>	<u>Value(psi)</u>
AL 2024-T-3	None	-50C	2300
“	None	25C	2400
“	None	80C	800
“	30 days in tap water @25C	25C	3100
“	7 days in 100% RH @ 65C	25C	3100
Cold Rolled Steel	None	25C	4300

## Preparation Of Surfaces For Adhesive Bonding

Materials should be stored and used in a warm environment (72° F / 23° C). A clean, dry surface is essential for successful adhesive bonding. Porous materials are simple to bond, provided they are dry. The surface should be sanded till clean followed by wiping surface with solvent (acetone, MEK, mineral spirits). Let solvent evaporate fully before applying A4.

Non-porous surfaces (metals, plastics, coated woods) should be sanded, sandblasted or chemically etched. If sanding or sandblasting, follow with solvent wash. Let solvent evaporate fully before applying A4. Epoxy adhesives do not perform well on metals such as nickel, chromium, tin or zinc or on soft thermoplastics like polyethylene. An option would be to try a polyurethane adhesive (such as URE-BOND™).

## Mixing & Curing Metalset A4™

Metalset A4 is mixed one part A to one part B by weight or volume. If dispensing from tubes, squeeze out equal amounts from each tube. Try to be as accurate as possible. Mix thoroughly with clean stirring stick for at least three minutes until components are blended to a uniform light gray color – be sure to blend away any streaks. Apply to substrate surface.

Metalset A4 will cure in 16 hours at room temp. (70° F / 22° C). Applying mild heat will cure A4 faster – 150°F/65°C for 2 hours. **Post Curing** – After A4 has cured at room temperature, heating the epoxy to 150° F (65° C) for 4 to 8

hours will increase physical properties and performance. Let cool to room temp. before moving bonded substrates, machining, etc.

**Metalset A4™ Military And Other Specification Numbers:**

<b>MILITARY SPECIFICATION:</b>	MMM-A-1754 MMM-A-132 TYPE 3
<b>BELL HELICOPTER SPEC:</b>	299-947-099
<b>SYSTEM:</b>	B-212 ASW HELICOPTER SPARE PARTS.
<b>NATO STOCK NUMBERS:</b>	8040-01-298-2978 8040-00-944-7297
<b>FSCM:</b>	90414

***Safety First!*** ***Safety First!*** ***Safety First!***

*The Material Safety Data Sheet (MSDS) for this or any other product should be read prior to use and is available at [www.SCULPT.com](http://www.SCULPT.com). All Smooth-On products are safe to use if directions are read and followed carefully.*

***Be Careful!*** Metalset A4 Part-A is irritating to the eyes and skin. Avoid prolonged or repeated skin contact to prevent possible sensitization. Use only with adequate ventilation. If contaminated flush eyes with water for 15 minutes and seek medical attention. Remove from skin with waterless hand cleaner then soap and water. Refer to MSDS. Metalset A4 Part-B causes burns to the eyes. May burn the skin and cause sensitization. Vapors irritate the respiratory tract. If contaminated, flush eyes with water for 15 minutes and seek medical attention. Remove from skin with soap and water. Use only with adequate ventilation.

***Important!*** The information contained in this bulletin is considered accurate. However, no warranty is expressed or implied regarding this accuracy, the results to be obtained from the use thereof, or that any such will not infringe a patent. User shall determine beforehand the suitability of this product for the intended application and assume all risk and liability in connection therewith.

***Ask about our other industrial adhesives:***

**Super Instant 5 Minute, EA-40 Low Viscosity Clear, MT-13 Premium Performance, URE-BOND Urethane Adhesive.**

**Feel free to call or fax us any time with your questions.**

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