

N109 W13300 ELLSWORTH DRIVE GERMANTOWN, WI 53022
262-253-5900 FAX 262-253-5919

DESCRIPTION:

ResinLab[®] Armstrong[™] A-12T is a two-part epoxy exhibiting a wide range of properties and applications. It has a convenient and non-critical mixing ratio. High strength, permanent bonds are obtained by curing this adhesive either at room temperature or slightly elevated temperatures.

Armstrong[™] A-12T can be used at several ratios. The most frequently used ratio is equal parts by weight. This is changed to vary the flexibility of the cured adhesive, with a ratio of 2A:3B most common for flexible materials, or extreme vibration applications. In cryogenic applications the ratio may be as high as 1A:4B. A rigid glue line results from a mixture of 3A:2B. This also provides the highest strength in the 5 °C - 75 °C range and is recommended where maximum chemical and solvent resistance is required or where high compressive forces exist.

Armstrong[™] A-12T provides the same basic properties as the A-12 system but is a thixotropic paste, useful where a non-flowing adhesive is required. At 1A:1B ratio, *Armstrong[™] A-12T* can be obtained certified to the following Military Specifications:

- A-A-56105 A
- HMIS 16-1720 H

Armstrong[™] A-12T has an extremely broad range of applications. Low shrinkage, combined with excellent wetting characteristics, result in high strength bonding of almost all rigid to semi-flexible materials -- including ceramics, glass, plastic laminates, hard rubber, all metals, wood, thermosetting plastics, many thermoplastics, etc.

Case histories indicate there is no deterioration of the bond strength of the adhesive from aging. A few applications, representative of its versatility, are as follows:

- Aluminum structural bonding on trailers
- Hermetic sealing of switch contacts
- Bonding and sealing PVC to copper for liquid nitrogen lines
- Ceramic and stone to concrete (architecture)
- Polyester glass laminates to aluminum in missile & rocket cases
- Sealing solid fuel fuses
- Phenolic wear plates to cast iron ways
- Sealing food conveyors in processing plants

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TYPICAL PROPERTIES:

All properties given are at 25 °C unless otherwise noted.

Property:	Value: 3A:2B	Value: 1A:1B	Value:2A:3B	Test Method or Source:
Color – Part A	Dark Brown	Dark Brown	Dark Brown	Visual
Color – Part B	Light Gray	Light Gray	Light Gray	
Color – mixed	Light brown	Light brown	Light brown	
Mix Ratio	Part A to Part B	Part A to Part B	Part A to Part B	Calculated
By weight	3 to 2	1 to 1	2 to 3	
By volume	3 to 2	1 to 1	2 to 3	
Optimum Cure	7 days @ 25 °C	7 days @ 25 °C	14 days @ 25 °C	
Schedule	30 min @ 100 °C	1 hour @ 100 °C	2 hours @ 75 °C	
Fast Cure Schedule	24 hours @ 25 °C	24 hours @ 25 °C	24 hours @ 25 °C	
	5 min @ 150 °C	5 min @ 150 °C	20 min @ 150 °C	

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Viscosity – Part A	5,180,000 cps @1/s	5,180,000 cps @1/s	5,180,000 cps @1/s	Rheometer parallel plate 25mm
Viscosity – Part B	485,000 cps @1/s	485,000 cps @1/s	485,000 cps @1/s	455300006291
Viscosity - Mixed	2,400,000 cps @1/s	1,450,000 cps @1/s	767,000 cps @1/s	
SG – Part A	1.47	1.47	1.47	Calculated
SG – Part B	1.13	1.13	1.13	
SG – Mixed	1.30	1.30	1.30	
Hardness	75 Shore D	75 Shore D	75 Shore D	455300006287/ASTM D2240
Lap Shear Strength				Extrapolated from Henkel LDS
0.0050" bond line	No data	4,130 psi	4,380 psi	1A:1B/cured 2 hrs@ 74 °C
Al to Al				2A:3B/cured 2 hrs@ 74 °C
Operating Temperature Range	-40 to 150 °C**	-40 to 150 °C**	-40 to 150 °C**	
Relative Thermal Index (RTI)	90 °C **	90 °C **	90 °C **	UL746B, Table 7.1 Generic Value Based on Composition

** Operating Temperature Range is based on average design requirements and is not intended as a guarantee of suitability for all applications operating at that temperature.

INSTRUCTIONS:

1. Bring both components to room temperature prior to mixing.
2. Cartridge format: Mixer should be attached keeping the cartridge vertical and any air pocket purged this way. After the mixer contains material, the mixer tip can be dropped to dispense pre-bleed amount. Attach a new static mixer with each cartridge, then pre-bleed the first 3 inches of dispensed material or until a uniform color is obtained. Maintain adequate velocity during dispensing to ensure complete mixing.
3. Bulk format: weigh and mix parts A and B accurately and thoroughly, scraping sides of container often. Do not pour from mixing container, transfer to a new container as residual unmixed material may cause a tacky spot on the surface of the casting. Maintain adequate velocity during dispensing to ensure complete mixing.
4. Allow to cure undisturbed until product is fully gelled or tack-free to the touch.
5. Clean up uncured resin with suitable organic solvent such as MEK, acetone or other organic solvent.

SHELF LIFE AND STORAGE:

12 months at 25 °C
Specialty packaging may be less.

Many epoxy resin systems are prone to crystallization as epoxy resin is a super-cooled fluid. This condition may give the product a gritty or grainy appearance (or hazy in clear products). Products in this state will not usually cure to normal and expected properties. In extreme cases it may appear solid and cured. Fluctuating temperatures (within 5 to 50 °C) aggravate this phenomenon. Heating the individual component to 50 to 60 °C while stirring can usually restore products to original state. Storage at 25 +/- 10 °C is optimum for most products.