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FREE Users Guide to Adhesives brochure

Part 1 Assessment of Bonding

Part 2 Essential stages of the Pretreatment Process

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ADHESIVE FOCUS

On-Hand Adhesives, Inc.
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Mount Prospect, IL 60056

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Spring 2005 Issue

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ADHESIVE FOCUS

Volume X1 Issue

Spring 2005

ITW Plexus Structural Adhesives-METAL BONDING

Plexus® MA820 is a two part methacrylate adhesive designed for structural bonding of metals without primers. [In addition MA820 does a superb job of bonding thermoplastic and composite assemblies with no surface preparation]

Combined at a 10:1 ratio, MA820 has a working time of 4 to 6 minutes and achieves 75% of ultimate strength in 15 to 18 minutes. This product provides a unique combination of high strength, excellent fatigue endurance, impact resistance and toughness.

MA820 is available in gray and is supplied in ready to use cartridges, 5 gallon pails or 50 gallon drums. The product can be dispensed as a non-sagging gel using standard meter-mix equipment.

Physical Properties (Uncured) Room Temperature

	Adhesive	Activator
Viscosity,cps	90,000-120,000	50,000-80,000
Color	Off-White	Gray
Density,lbs/gal(g/cc)	8.26(0.99)	8.95(1.07)
Mix Ratio by Volume	10.0	1.0
Mix Ratio by weight	9.2	1.0

Mechanical Properties (Cured) Room Temperature Tensile (ASTM D638)

Strength, psi	3,300-3,700
Modulus, psi	75,000-100,000
Strain to failure(%)	75-100
Lap Shear (ASTM D1002)	
Cohesive Strength, psi	2,000-2,400

Benefits

No primer required on metal
High Toughness
Non-Sagging
Available with glass beads for fixed bond line gap.

Characteristics

Room temperature cure
Working time 4-6 minutes
Fixture time 18-25 minutes
51F Flash Point
Operating temperature -40F to 250F
Gap filling to 0.5 inch
Mixed density 8.33 lbs/gal(1.00g/cc)

Chemical Resistance

Excellent resistance to

- Hydrocarbons
- Acids and bases (3-10 pH)
- Salt Solutions

Susceptible to:

- Polar solvents
- Strong acids and bases

Recommended for:

ABS
Acrylics
Aluminum
FRP
Gelcoats
PVC
Polyesters (including DCPD modified)
Steel, Carbon
Steel, Stainless
Styrenics
Urethanes (General)
Vinyl Esters

Contact 1-800-323-5158 or
gluguru@on-hand.com
For more information or to order.

SIKAFAST® -3000 Series ELASTIC ADHESIVES

Methyl Methacrylate Structural Elastic Adhesives Description: Flexible, High Strength, two-component acrylic adhesive designed to transfer high loads and evenly distribute stresses. Applications: As a replacement for, or a complement to welding, riveting, clinching and other mechanical fastening methods. Suitable for bonding sidewall panels, roofs, floors, stiffener panels, cladding materials. Substrates: Aluminum, stainless or galvanized steel, some painted steels, and fiber reinforced polymers. Advantages: Excellent adhesion to a wide variety of substrates with no or reduced surface preparation. High Strength, Fast setting and curing, high elongation, high ductility, good damping properties, techniques.

Key properties: Mix Ratio A/B 10:1, Open time 6-8 minutes, Gel time 7-10 minutes, Peak Exotherm Temperature 180 - 220 F, Peak exotherm time 15-20 minutes, Fixture time 25 - 40 minutes, Tensile Strength 1100-1600 psi. Lap Shear 1100-1700 psi (dependent on substrates)

SikaFast® 3131 offers a faster cure. Sikafast 3141 offers a slower cure.

SikaFast® Products	SikaFast®3121	SikaFast®3131	SikaFast®3131S	SikaFast®3141
Adhesive Color Part A Activator Color Part B	Charcoal Gray Natural & Black	Off White Natural & Black	Off White Natural & Black	Off White Natural & Black
Mixing/Dispensing Color w/Natural B Mixing/Dispensing Color w/Black B	Light Gray Black	Natural/Straw Black	Natural/Straw Black	Natural/Straw Black
Cure Color w/Natural B Cure Color w/Black B	Dark Green Black	Tan Black	Tan Black	Tan Black
Open Time@ 72F Peak Exotherm Time (Typical) Fixture Time (Typical)	5 Minutes 10 Minutes 13 Minutes	7 Minutes 13 Minutes 30 Minutes	7 Minutes 13 Minutes 30 Minutes	20 Minutes 30 Minutes 45 Minutes
Lap Shear @ 72 F (ASTM D1002) Galvanized (Typical Value) Aluminum (Typical Value) FRP-to FRP*	>1300 psi cohesive failure >1400 psi cohesive failure FRP Failure	>1300 psi cohesive failure >1400psi cohesive failure FRP Failure	>1300 psi cohesive failure >1400psi cohesive failure FRP Failure	>1200 psi >1200 psi FRP Failure
Shelf Life	Six Months	Six Months	Six Months	Six Months
Packaging	490ML Cartridge 4.5 gal. Pail 45 gal. Drum	490ML Cartridge 4.5 gal. Pail 45 gal. Drum	490ML Cartridge 4.5 gal. Pail 45 gal. Drum	490ML Cartridge 4.5 gal. Pail

BULK DISPENSING All SikaFast®3000 Series products are used on a 10:1 basis. When using bulk materials in pails and drums this requires one 45 gal drum of Adhesive material (Part A) to one 4.5 pail of Activator (Part B) material. This product is compatible with most dispensing systems.

All dispensing applications should be reviewed with Sika application engineers. 1-800-323-5158

TYPICAL APPLICATIONS:

- Truck Trailer-Bonding Sidewalls, Roofs, Floors-Reduces or eliminates welds, rivet, clinching.
- Bus and Rail-Eliminates mechanical fasteners.
- Recreational Vehicles- Speeds up assembly time
- Utility Truck Bodies- Eliminates mechanical fastners
- Appliances and Electronics- Speeds up assembly time

Araldite Methacrylate 2024 For Metals

Formulated specifically for bonding thermoset composites and rigid plastics, Araldite 2024 methacrylate can also be used on a broad range of metals. It's a gap-filling system (up to 300 mils) and sets fast with a four-minute gel time. The versatile adhesive cures after 15 minutes at room temperature or 10 minutes at 104°F (40°C). In addition to its speed and easy handling, Araldite 2024 features high impact resistance and peel strength and produces tough, resilient bonds. The methacrylate is ideal for assemblies that will be exposed to dynamic environments. It can also withstand exposure to paint-baking temperatures after curing and maintains bond strength even when exposed to chemicals and water.

Typical Properties of Araldite 2024 Methacrylate

Work Life - 4 Minutes
 Mixed Viscosity, cps @ 77°F* -180,000
 Mix Ratio, pbv - 10:1
 Min. Cure Time, Hrs. @ 77°F* (Min. @ 104°F*) - 15 (10)
 Peel Strength, pli -29
 Lap Shear Strength, psi @ 77°F* - 2,300
 Max. Service Temperature, °F (°C)- 212 (100)

2024 is Blue
 Elongation is 35-50%

ITW METHACRYLATES ALL PURPOSE ADHESIVES

ITW PLEXUS, manufacturers of PLEXUS Methacrylate Adhesives, reports that the methacrylate technology of today represents "a quantum leap over the past performance of the more traditional acrylic technology" and was developed to fill the shortcomings such as the brittleness, gap filling and less than reliable cures of the early acrylics

Product	Description and Potential Substrates	Color	Mix Ratio by Vol	Viscosity cP	Working Time min	Fixture Time min	Tensile Strength / psi	Tensile Elongation / %	Shear Strength / psi
MA300	All Purpose Adhesive High Strength	Cream	1:1	A: 40,000-60,000 B: 40,000-	4-6	12-15	3000-3500	15 -25	3000-3500
AO420	All Purpose Adhesive High Toughness	Blue, Black or Yellow	10:1	A: 100,000-125,000 B: 50,000-70,000	4-6	15-18	2700-3000	100-125	1750-2250
MA420 FS	All Purpose Adhesive Very Fast Curing	Off-White	10:1	A: 80,000-100,000 B: 50,000-80,000	1-2	3-4	1250-1500	5-15	1300-1600
MA422	All Purpose Adhesive Medium Open Time	Blue	10:1	A: 100,000-125,000 B: 10,000-20,000	17-24	35-40	2000-2500	75-100	1500-1800
MA425	All Purpose Adhesive Long Open Time	Blue	10:1	A: 100,000-125,000 B: 10,000-	30-35	80-90	2000-2500	120-140	1500-1800