



UNITED ONE GROUP, INC.

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Product Name : U-APS 201

Product Description Sheet (Technical Data Sheet) Methacrylate Structural Adhesive

U-APS 201 is a two-component, 100% reactive structural adhesive specifically formulated for bonding Thermoplastics, Thermosets, metals and Composite assemblies, Electrical assembly, Automotive Components

UNITED ONE GROUP, Methacrylic Adhesives 2-part (1:1 ratio) Adhesive System.

UNITED ONE GROUP, adhesives many attributes include the elimination of pre-drilling, thermo-rodents. Plus, they have a full range of work times and cure times; and we have a room temperature (@ 25 °C) cure as well. or can be accelerated with heat

Wide range of applications our adhesives are suitable for automotive applications such as choke and transformer bonding, DC motor assembly, alternators, and flywheel applications, tacking, unitizing, ruggedizing, sealing, shallow potting, rearview mirrors, fuel pumps and steel doors and steel furniture, Magnet and motor assembly industries. Our robust structural adhesive products are used in automotive, construction, electrical, transportation, industrial and marine market applications throughout America and Worldwide.

For wide variety of applications. are commonly used as structural adhesives due to their excellent strength, impact resistance, Thermal shock, fatigue resistance and peel strength. that give excellent structural properties to bond a wide - variety of durable substrates.

UNITED ONE GROUP, Adhesives are strong, rapid-curing structural adhesives used on plastic, metal, composites, and ceramic. Have excellent peel strength and offer superior resistance to abrasion. They require little surface preparation, which makes them ideal for high-volume production applications. adhesives are highly effective on plastics like ABS, PVC, thermoplastic, and polycarbonate in addition to metal substrates like aluminum and stainless steel ceramic, glass, and more.

Greatly increases the reliability of finished assemblies with exceptional flexibility, it's ability to with stand extreme temperature fluctuation and thermal cycling, and resistance to a wide range of chemicals and environmental conditions

Known for their exceptional bonding abilities, and Known for their resistance to temperature extremes, our high temperature adhesives can handle temperatures ranging from 40°F to 250°F They are low temperature resistant and high temperature resistant products

**** We can also custom engineer adhesive products using your company's engineering specifications or formulate an adhesive for your particular needs**

*** FEATURE:**

- Convenient 1:1 mix ratio, Non-sagging and thixotropic formulation
- Without primer or chemical wipes.
- Excellent impact, peel and shear resistance
- Superior bond strengths
- Dependable performance
- Excellent aging and weathering properties
- Good impact and vibration resistance
- Good resistance to high temps and humidity
- Versatile, bonds a wide range of similar and dissimilar materials
- non-sagging, Adhesive System
- Room temperature cured with extended open time,
- And can be accelerated with heat

*** BENEFITS:**

- Solvent free
- Wide range of products
- Improves finished product quality
- Replaces mechanical fastening devices

*** RESULTS:**

- Tough, durable bonds
- Stronger, lighter finished assemblies
- Temperature resistance -40°F/-40°C to 250°F/121°C

*** APPLICATIONS:**

Ideal for bonding all types of

Thermoplastic, PBT, PET, PPO's, ABS, FRP, Polyurethane, Polycarbonates, Epoxy, Wood, RIM, Nylon, Polyesters, Acrylics, Gelcoats, Styrene, PVC, Fiberglass, Aluminum, Stainless Steel, Steel, Cold Rolled Steel, Galvanized metal assemblies materials, Metal, Phenolics, Plastic, Thehermo Plastic, Hermo Plastic, Vinyl's, Rubber, Peek's, Styrene's, Vinyl Ester Materials, Thermo sets, Gel Coats, Liquid Molding Resins, PBT Blends, PET Blends, Construction, Drone, etc.

***** *protection against galvanic corrosion of dissimilar metallic parts joined together.etc***

Ideal for Automotive Components of

Marine Assemblies, Aerospace Parts, Electronics Enclosures, Appliances, Electrical Components, Furniture, Windmill Assemblies, Galvanized metal assemblies, Exterior Sign and display, Plastic & Metal Fabrication, Transportation, Industrial and marine market, Rearview mirrors, Fuel pumps, Coated Metals, Drone, etc.

Ideal for Electrical assembly Components of

Electrical assembly, Electrical, Computer, Mobil phone, Transformer bonding, DC motor assembly, Magnet and motor assembly industries, Provision of electrical and thermal insulation, Alternators, electrical of Drone, etc

***ADHESIVE PROPERTIES:**

Liquid

	Adhesive	Activator
Appearance	Off-White	Amber
Viscosity @ 25 °C, Spindle TD 25 rpm	40,000 – 60,000	40,000 – 60,000
Flash Point (TCC), °F	52	52
Density (lbs/gal)	8.06	8.0
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Mix Ratio (weight & Volume)	1	1

***Cure Characteristics**

Mixed Viscosity, cps	40,000 - 80,000
Working Time	10 – 15 minutes @ 25 °C
Fixture Time	30 – 35 minutes @ 25 °C For 80% Overall Strength
Full Cure	24 hours @ 25 °C For 100% Overall Strength

or Can be Accelerated with Heat

Coverage/lb Service Temperature	190 sq.in @ .007” -40 °F to 250 °F
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***Cured Adhesive Properties**

Gap Filling	up to 0.375 inches
Shore Hardness	79 D ASTM D 2240
Elongation	7 - 18%
Tensile Shear Strength	3,950 psi DIN 53283
Impact Resistance	18 ft.lb./in.

***Lap Shear Strength Data**

U-APS-201 formulated to bond wide variety of substrates. Lap shear strength data according to ASTM D 1002 reported for the most common substrates:

**All values measured after 7 days at 77°F/25°C

Substrates	Shear Strength & Failure Mode
Stainless Steel / Stainless Steel	3,550 psi – Cohesive Failure
Aluminum / Aluminum	3,350 psi – Cohesive Failure
ABS / ABS	3,200 psi – Substrate Failure
FRP / FRP	3,600 psi – Fiber Tear
Aluminum / ABS	3,250 psi – Substrate Failure

***Result**

Lap shear strength figures are lower for the plastic surfaces due to substrate failure which means substrate is failing before the adhesive bond.

**All values measured after 7 days at 77°F/25°C

***Cleavage Peel Data**

U-APS 201 have the ability to withstand at high level of peel stresses. Following are the results of Cleavage Peel strength based on ASTM D 3807:

Stainless Steel / Stainless Steel	Initial Strength – 24 pli Average Strength – 21 pli
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***Result**

The above results shows the strength required for the joint to begin to peel and joint resistant with average strength.

***Chemical Resistance Data**

The chemical resistance of **U-APS 201** was studied by bonding the Aluminum / Aluminum as per specification and cured for 7 days @ 25° C then kept immersed in the media listed here and tested for lap shear strength.

MEDIA	Effect of immersion in different media. (Immersion for 1 month in various media) LAP SHEAR Strength, in PSI	ASTM D 1002
Gasoline	3290	
Acetic acid(10%)	3150	
Xylene	3350	
Lubricating oil-HD30	3350	
Paraffin	3300	
Water@23C	3350	
Water@90C	3350	

***Environmental Resistance**

U-APS 201 has excellent resistance to harsh environment conditions. The testing data is as follows:

Condition	Lap Shear Strength & Mode of Failure
Initial	3,370 psi – Cohesive Failure
Environmental Cycle – 30 days	3,650 psi – Cohesive Failure

Lap Shear Strength ASTM D 1002 – Stainless Steel / Stainless Steel
Environmental Cycle = 8 hours @ -30 °C, 8 hours @ 85 °C, 8 hours @ 30 °C @ 100% Relative Humidity

***Result**

The lap shear strength has increased after environmental cycle. **U-APS 201** perform better under these conditions compare to the substrates bonded. Substrates may have less resistance to these conditions compare to adhesive.

**All values measured after 7 days at 77°F/25°C

HANDLING AND SAFETY and PRECAUTIONS:

Read Material Safety Data Sheet before handling or using this product. Adhesive components contain methyl methacrylate monomer and are flammable. Always use in a well-ventilated area. Floor-level extraction and large quantities of moving air greatly facilitate ventilation. Both materials must be stored in a cool place away from sources of heat and open flames or sparks. Keep containers closed when not in use. Prevent contact with skin and eyes. In case of skin contact, wash with soap and water. In case of eye contact, flush with water for 15 minutes and seek immediate medical attention. Harmful if swallowed. Keep out of reach of children

Note: The chemical curing reaction that occurs when components A and B are mixed generates heat. The amount of heat generated is controlled by the mass and thickness of the mixed product. Large masses over 1/2 inch thick can develop heat in excess of 250°F/121°C and can generate harmful, flammable vapors. Large curing masses should be carefully moved to a well-ventilated area where the chance of personal contact is minimized.

DISPENSING EQUIPMENT: Dispensing directly from disposable cartridges or meter-mix-dispensing equipment is strongly recommended. Both methods employ convenient static motionless mixer technology. Product supplied in pre-measured cartridges is dispensed from approved manual or pneumatic powered guns. When meter-mix dispense systems are used, care must be taken to assure compatibility between the adhesive components and the materials in the equipment that they contact. All wetted metal components should be constructed of stainless steel or aluminum or have a sufficient thickness of chemically resistant material that prevents contact between the adhesive components and the base metal. All non-metallic seals and gaskets should be fabricated from Teflon® or polyethylene based materials.

MIXING AND APPLICATION:

All surfaces must be clean, dry, dust and grease free. Best result will be achieved with surfaces that have been lightly abraded immediately prior to bonding. Always dispense a quantity of adhesive at start-up to assure that the adhesive exiting the tip of the mixer is the proper color and is uniform, without streaks. If previously opened or aged material is being used, allow the purged material to cure to assure quality before proceeding. Carefully dispense a sufficient quantity of adhesive on the substrate to assure that the bond gap will be completely filled when the parts are joined. Allow for squeeze-out at the edges of the bond to assure filling. Carefully secure or clamp parts to prevent joint movement while the adhesive sets. Do not apply excessive pressure that can cause excessively thin gaps and starve the bond line. Test the curing adhesive at the edges for fingernail hardness before removing clamps or fixtures.

CURING: Open working time is the approximate time after mixing components A and B, depending on bonding conditions, that the adhesive remains fluid and bendable. Fixture time is the approximate time after mixing components A and B required for the adhesive to react the partial state of cure necessary to allow careful movement, unclamping or de-molding of assembled parts. Parts can generally be put in service when 80 percent of full strength is developed. The time to achieve 80% cure is approximately 2-3 times that required for fixturing. The working and fixture times presented in this bulletin are based on laboratory tests performed at 77°F/25°C. Higher temperatures speed the curing reaction and reduce open working time. The reverse is true for lower temperatures., ..

CLEAN UP: Adhesive components and mixed adhesive should be removed from surfaces with a suitable industrial solvent or cleaner before the mixed adhesive cures.

Once the adhesive cures, soaking in a strong solvent or paint remover will be required to soften the adhesive for removal.

.Any clean-up of the bonded assembly using industrial solvents is not recommended as it could affect the cure.

SURFACE PREPARATION:

The need for surface preparation must be determined by comparative testing of prepared and unprepared substrates to assure that unprepared bonding is equivalent to or acceptable for the application relative to prepared bonding. Initial bonding tests must be followed up with simulated or actual durability tests to assure that surface conditions do not lead to degradation of the bond over time under service conditions. Subsequent changes in substrates or bonding conditions will require re-testing. Prepare metals for bonding by removing dust, loose scale, rust, and other surface residue including oil and grease. For maximum bond strength on steel, abrade surface prior to bonding.

APPLICATION:

Follow instructions provided preparation of dispensing equipment and substrates prior to starting the bonding process.

Always dispense a quantity of adhesive at start-up to assure that the adhesive exiting the tip of the mixer is the proper color and is uniform, without streaks.

If aged material is being used, allow the purged material to cure to assure quality before proceeding.

Carefully dispense a sufficient quantity of adhesive on the substrate to assure that the bond gap will be completely filled when the parts are mated.

Allow for squeeze-out at the edges of the bond to assure filling.

Carefully secure or clamp parts to prevent joint movement while the adhesive sets.

Do not apply excessive pressure that can cause excessively thin gaps and starve the bond line.

If in doubt, use shims or spacers to set the gap.

A minimum gap of 20 mils (0.02 inch) is recommended for all other adhesives.

Test the curing adhesive at the edges for fingernail hardness before removing clamps or fixtures.

If clean up of the adhesive from the bonded area is required, we recommend that it is carefully performed using alcohol or other preferred industrial solvent while the adhesive is still wet or soft.

Partially cured adhesive can be carefully removed with a sharp knife. Cured adhesive must be sanded or scraped, using a suitable solvent to remove remaining traces.

STORAGE AND SHELF LIFE:

The shelf life of components A and B in unopened containers is approximately 18 months from the date the product is shipped from Associated Technologies facility.

Shelf life is based on steady-state storage between 55°F and 80°F (13°C and 27°C).

Exposure intermittent or prolonged, above 80°F (27°C) will result in a reduction of the stated shelf life.

Prolonged exposure of activators, including cartridges which contain activators, above 100°F quickly diminishes the product's reactivity and should be avoided.

These products should never be frozen.

Exposures above 100°F (38°C) during shipping or storage can quickly degrade component A and B in cartridges or bulk containers, and must be prevented.

Shelf life of both components can be extended by air-conditioned or refrigerated storage between 50°F and 65°F (10°C and 18°C).

KEEP FROM FREEZING..

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** The contents of this manual are subject to change from time to time and are not communicated in advance