ARON ALPHA Type CA-241

FEATURES

ARON ALPHA TYPE CA-241 is a one component (requires no mixing) humidity cure instant adhesive technology. It is a general-purpose adhesive for multiple bonding applications.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Formula	CA-241
Appearance	Colorless, Transparent
Base Monomer	Ethyl 2-Cyanoacrylate
Viscosity (cps)	40
Specific Gravity (d^{20})	1.050
Flash Point (Closed cup, ˚C/˚F)	83/181
Freezing Point (˚C/˚F)	-22/-8

TYPICAL CURING PERFORMANCE

Under normal conditions, the atmospheric moisture initiates the curing process. Although full functional strength is developed in a relatively short time, curing continues for at least 24 hours before full chemical/solvent resistance is developed.

Cure Speed vs. Substrate

Material	Setting Time (sec)
PVC (rigid)	10
Polymethylmethacrylate (PMMA)	20
ABS	50
Polycarbonate (PC)	60
Natural Rubber	10
Steel	40
Copper	5
Phenolic Resin	10
Rigid PVC/Steel	30
Aluminum/ABS	60
Phenolic Resin/Copper	10
Neoprene Rubber/Steel	60
Neoprene Rubber/ABS	40

Cure Speed vs. Bond Gap:

The rate of cure will depend on the bond line gap. Thin bond lines result in faster cure speeds, increasing the bond gap will slow the rate of cure.

Cure Speed vs. Humidity:

The rate of cure will depend on the ambient relative humidity. High humidity result in faster cure speeds, lower humidity result in slower rate of cure.

Cure Speed vs. Accelerator:

Where cure speed is unacceptably long due to large gaps or low humidity, applying accelerator chemistry to the surface will improve cure speed. However, this can reduce the ultimate strength of the bond and therefore testing is strongly recommended to confirm effect.

TYPICAL PROPERTIES OF CURED MATERIAL

Appearance	Colorless, Transparent
Specific Gravity (d^{20})	1.248
Hardness (Rockwell M)	85
Softening Point (Vicat: ˚C/˚F)	145/293

Adhesive Properties:

Tensile Strength

Material	Tensile Strength (psi)
PVC (rigid)	5000
Polymethylmethacrylate (PMMA)	5000*
ABS	3600*
Polycarbonate (PC)	5000
Natural Rubber	360*
Steel	4600
Copper	5000
Phenolic Resin	5000*
Rigid PVC/Steel	2600
Aluminum/ABS	2100
Phenolic Resin/Copper	3600
Neoprene Rubber/Steel	360*
Neoprene Rubber/ABS	360*

* Material Failure

Lap Shear Strength

Material	Shear Strength (psi)
PVC (rigid)	1000*
Polymethylmethacrylate (PMMA)	710*
ABS	710*
Polycarbonate (PC)	1000*
Natural Rubber	70*
Steel	2840
Copper	3000
Phenolic Resin	1000*
Rigid PVC/Steel	1000*
Aluminum/ABS	710*
Phenolic Resin/Copper	1000*
Neoprene Rubber/Steel	70*
Neoprene Rubber/ABS	70*

* Material Failure

Test conditions—Test specimen

Tensile strength:	0.5 x 0.5 x 1.5 inch; bonded area 0.25 sq. inch
Lap shear strength:	For plastic/rubber 0.1 x 1.0 x 4.0 inch; Bonded area 0.5 sq. inch
	For metal 0.064 x 1.0 x 4.0 inch; Bonded area 0.5 sq. inch
Bonding atmosphere:	72-75°F, 58-62% relative humidity
Test Methods:	ASTM D2095, D3164, D1002

REGULATION

Military Specification: Mill-A-46050C Type II Class 1
Medical assembly: US Plastics Class VI

GENERAL INFORMATION

Directions for Use

Clean the surfaces to be bonded, and then apply ARON ALPHA. Be sure to apply ARON ALPHA to only one of the surfaces to be bonded, preferably the smaller surface or the surface on which the ARON ALPHA cure time is slowest or on the substrate surface facing upwards.

Common errors in applying ARON ALPHA include applying an excessive amount of ARON ALPHA or applying too little of ARON ALPHA in a wide, thin film.

Dispensing an excess is a waste of ARON ALPHA and potentially damaging to the appearance of the bonded materials due to chlorosis (blooming) and/or solvent cracks.

Not dispensing enough ARON ALPHA may result in the monomer hardening before actual bonding starts; this will greatly reduce the bond strength. This is especially the case with rubber materials due to catalysts on the surface.

Make sure that the nozzle of the ARON ALPHA container is in direct contact of the material surface to be bonded so that you can apply an optimum quantity of ARON ALPHA from the container. Immediately after dispensing adhesive, mate the two surfaces and let the ARON ALPHA monomer spread between the two surfaces. It is not necessary to spread the monomer using a rubbing motion.

ARON ALPHA monomer, if kept in the form of a mound or fillet on the substrate surface, typically does not cure for 5 to 10 minutes and retains sufficient bond strength.

Optimum Quantity of ARON ALPHA

The thinner the film of the ARON ALPHA monomer on the surface to be bonded, the greater the resulting bond strength. An excessive quantity of ARON ALPHA never helps increase the bond strength. On the contrary, it may result in chlorosis, solvent cracks, or erosion by the ARON ALPHA monomer of the surface to be bonded. Test results indicate that with ARON ALPHA, the optimum quantity to be applied at one time is 0.004 - 0.006 g/cm^2 or 0.03 - 0.05 mm in terms of film thickness. On the basis of the value of 5 mg/cm^2, you can obtain standard bond strengths as shown in the tables above.

Storage:

Store product in the unopened container in a dry location.

Humidity

- Avoid moist, humid storage conditions.
- Fasten cap tightly to avoid exposure to moisture.
- Store with desiccant.

Temperature

- Avoid storing at a high temperature.
- When storing ARON ALPHA for an extended period, refrigerate between 32°F and 40°F.

Sunlight

- Avoid direct exposure to ultraviolet light (keep in light-proof packaging).

Other

- Never store ARON ALPHA with an accelerator or primer.

Warning

Eye and Skin irritant. Bonds skin instantly. Combustible—keep away from heat and flames. For safe handling information on this product, consult the Safety Data Sheet (SDS) before using.

Disclaimer

Please be advised that test results above were prepare at Toagosei America Inc.'s laboratory. The results may vary under actual application conditions.

It is the user's responsibility to determine suitability for the user's purpose of any production methods mentioned herein and to adopt such precautions as may be advisable for the protection of property and of persons against any hazards that may be involved in the handling and use thereof.

Material removed from original containers may be contaminated during use. Do not return product to the original container. Toagosei cannot assume responsibility for product which has been contaminated or stored under conditions other than previously indicated.

If additional information is required, please contact the Toagosei Technical Department or Customer Service Representative at 614-718-3855 or 1-800-338-5192 or via email at sales@toagosei.net