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ELECTRELEASE™ E4

Electrically Disbonding Adhesive

Data Sheet

Physical

Lap shear strength	>2,500 psi at R.T; 1,800 psi at 70°C; varies with surface finish of bonded parts
Glass transition (T_g)	110°C

Cure and disbond (see over)

Cure conditions	1 hr at 80°C or 24 hr at room temperature (see instructions for details)
Disbonding (see over)	10-50 V DC. Maximum current ~5 mA/cm ² decreasing to <1 mA/cm ² after a few seconds
Disbonding time (see over)	1 s to 20 minutes depending on voltage, temperature and load on bond
Disbonding interface	Anode (see instructions for disbonding both surfaces)
Pot-life	40 minutes for a 50 ml quantity
Shelf-life	>12 months at room temperature

Suitable substrates for disbonding

Aluminum and aluminum alloys, stainless steel, high-alloy steel, carbon steel, copper, titanium.

Call EIC Laboratories for use with other metals or non-metallic substrates

Viscosity

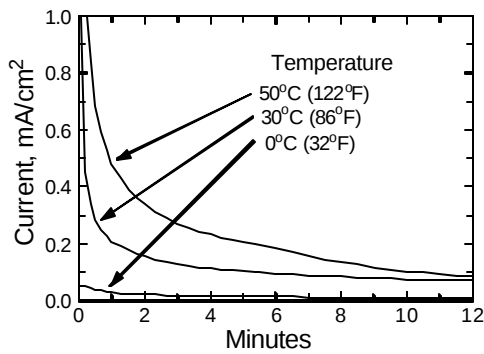
Part A	127 Pa-s from 0.1 to 1000 s ⁻¹
Part B	1297 Pa-s (zero shear rate limit); 234 Pa-s (infinite shear rate limit)
Mix	1064 Pa-s (zero shear rate limit); 215 Pa-s (infinite shear rate limit)
Thixotropy	Mix weakly thixotropic, higher thixotropy version available on request

Environmental

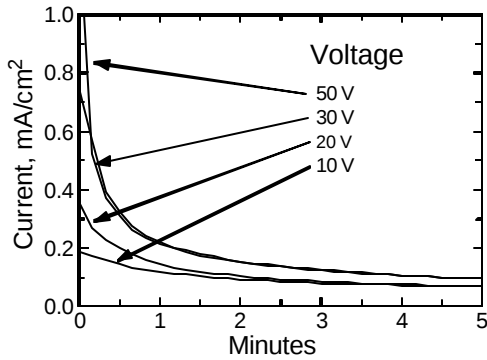
Kerosene	Stable after 24 hr immersion
Gasoline	Stable after 24 hr immersion
Toluene	Stable after 24 hr immersion
Acetone	Swells
Chlorinated solvents	Swells in dichloromethane
Max. temperature	180°C for 20 minutes
Max. service temperature	80°C (260 hr test)
Thermal cycling	100 cycles -40°C to 80°C: Lap shear strength >2300 psi.
Thermal shock	80°C → -80°C pass; -80°C → 100°C pass

Other

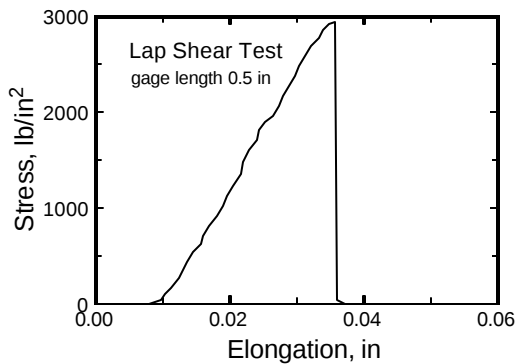
Color	Clear to off-white White (high thixotropy version)
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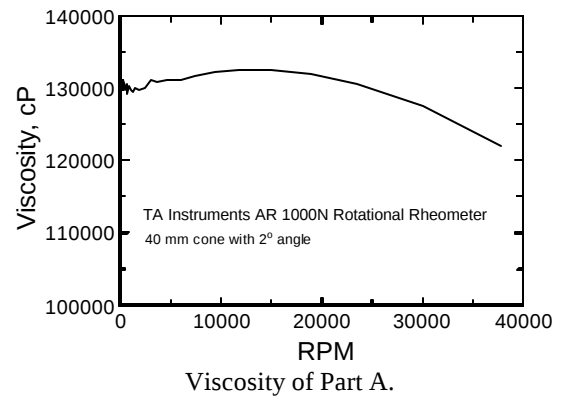
Current during disbonding at 50 V for different temperatures.
Substrates: Al alloy 6061-T651



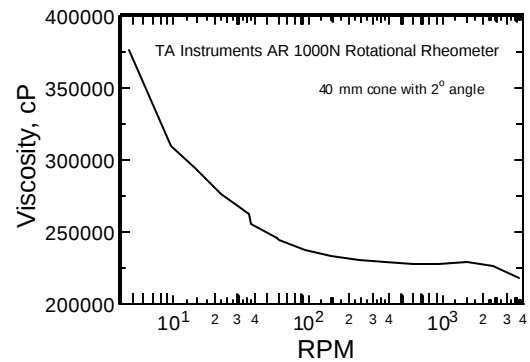
Current during disbonding as a function of voltage at 25°C.
Substrates: Al alloy 6061-T651



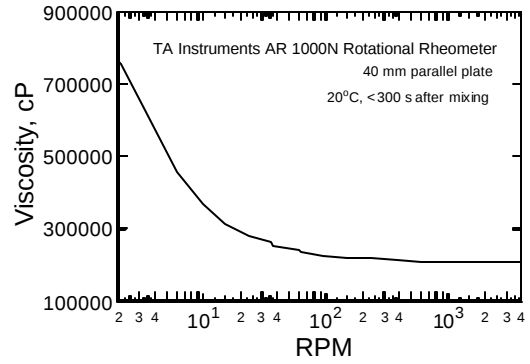
Lap shear strength of **ELECTRELEASE** E4 bonded to Al alloy 6061-T651. Bonded area 0.5 square inches, crosshead speed 0.5 inches/min.



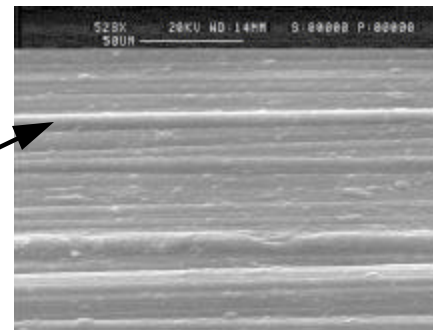
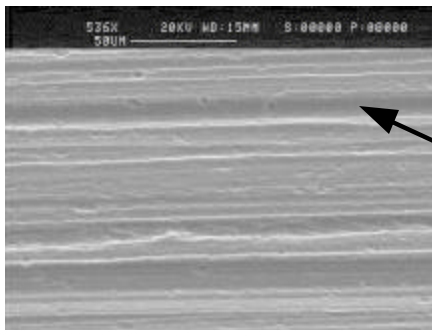
Viscosity of Part A.



Viscosity of Part B.



Viscosity of A&B 4:1 mix ratio.



“positive” and
“negative” image
of Al alloy surface

A scanning electron micrograph of the anode surface of Al alloy 6061-T651 after disbonding from **ELECTRELEASE** E4. The surface is free of residual epoxy to a magnification of 500 X. Lateral lines are scratches from prebonding surface preparation.

Matching surface in the disbonded epoxy.