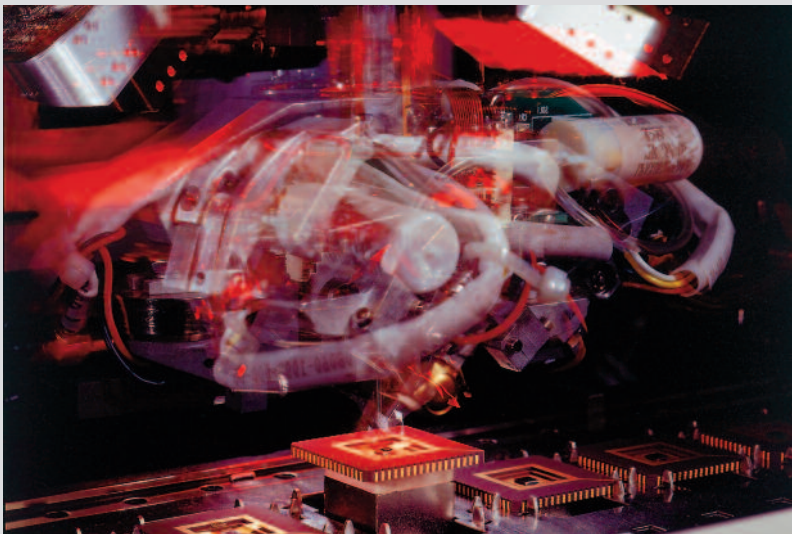


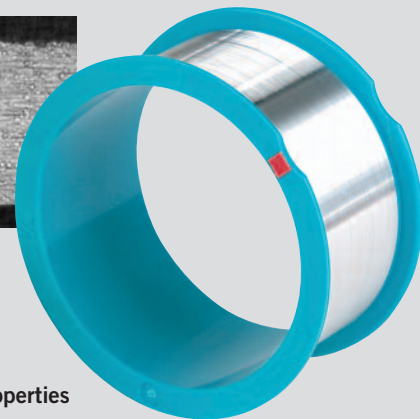
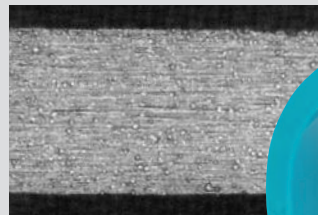
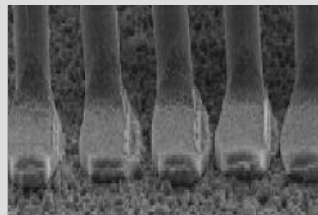
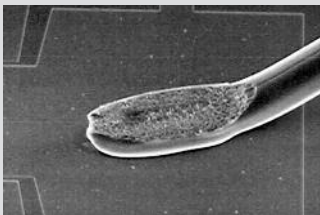
## ALW-29C

### Corrosion Resistant Aluminum Wedge Bonding



#### ALW-29C Benefits

- 0.7 mil – 3.0 mil thickness to suit a wide range of wedge bonding applications
- Superior corrosion resistance for use in non-hermetically sealed packages and at high operating temperatures
- Outstanding mechanical properties insure superior loop strength that prevents electrical shorts
- Highly reliable bonds due to compatibility with aluminum package metallization
- Bondable at temperature and energy levels low enough to avoid damage to sensitive devices



#### ALW-29C Mechanical Properties and Fusing Content

Diameter	Microns	38	50	75
	Mils	0.7	0.8	0.9
<b>ALW-29C (hard)</b>				
Elongation (%)		0.5 – 4	0.5 – 4	1 – 6
Breaking Load (g)		30 – 40	50 – 70	100 – 180
<b>ALW-29C (soft)</b>				
Elongation (%)		2 – 7	2 – 7	5 – 15
Breaking Load (g)		17 – 21	28 – 33	80 – 150
Fusing Current (Amp)		0.9	1.4	2.5

#### Superior Mechanical Properties

In addition to its excellent ductility, ALW-29C wire is also characterized by its superior strength.

The outstanding mechanical properties of ALW-29C wire help to prevent sag, deflection and shorting – important for fine pitch packaging applications.

## Wire Specifications

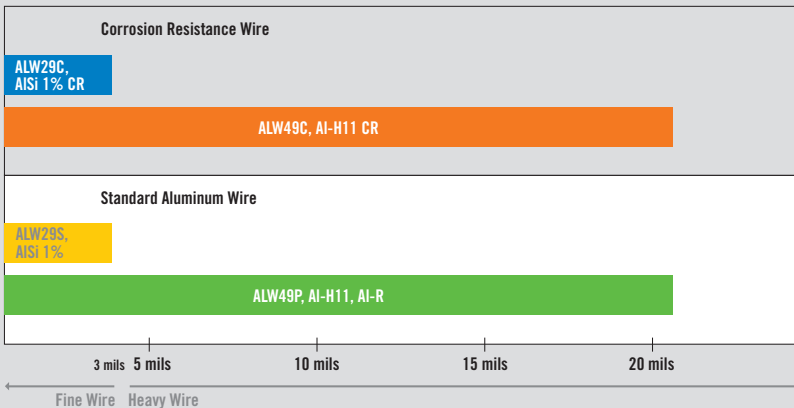
### Chemical Composition

Aluminum	99.3 – 99.5%
Magnesium	0.45 – 0.55%
Palladium	0.05 – 0.15%
Other Impurities, each:	0.002%

### Physical Properties

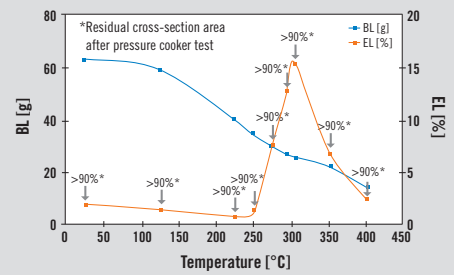
Density	2.69 g/cm <sup>3</sup>
Melting Point	654°C / 1209°F
Electrical Resistivity @20°C	0.030 Wmm <sup>2</sup> /m
Electrical Conductivity @20°C	57% IACS

## Aluminum Wire Map



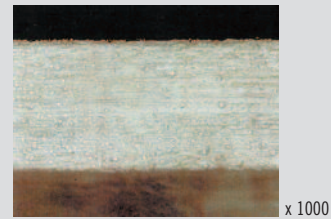
- Chip on Board - Discrete Device (Small Signal Package)
- Chip on Board - Discrete Device (Plastic Package)
- Hybrid Package - Hermetic Package - High Power Device
- Hybrid Package - Power Device

## Annealing Curve of 0.002" AlMgPd



## Corrosion Test

After annealing at 300°C AlMgPd 0.002" wire



Very slight surface corrosion.

Estimated residual cross-sectional area >90%

## Corrosion Resistant Test Conditions

Temperature	121°C
Pressure	2 Atmospheres (Saturated Steam)
Time	48 Hrs.
Wire Condition	Bare

\* 48 hour "pressure cooker" exposure of bare wire is essentially equivalent to about 1000 hours in a typical plastic package.

Ref. T. H. Ramsey, Aluminum Alloy Bonding Wires in Corrosive Environments.

## W. C. Heraeus GmbH

Contact Materials Division  
 Business Unit Bonding Wire  
 Heraeusstr. 12-14  
 63450 Hanau, Germany  
 Phone: +49 6181.35-5591  
 Fax: +49 6181.35-5179  
 bonding.wires@heraeus.com  
 www.heraeus-contactmaterials.com