



Hamilton Precision Metals
1780 Rohrerstown Road, Lancaster, PA 17602
Phone: (717) 569-7061 Fax: (717) 569-7642

TECHNICAL DATA SHEET

EVANOHM® R

Evanohm® R is a unique resistance alloy with high electrical resistivity and very low temperature coefficient of resistivity (TCR). The alloy is produced by melting and conditioning practices which result in a low level of pinholes at ultra-thin thicknesses. This combination of attributes with inherent corrosion resistance makes it suitable for a variety of strain gauge and foil resistor applications.

NOMINAL COMPOSITION:

Chromium	20.0%	Manganese	.90%
Aluminum	2.8%	Zirconium	.08%
Copper	2.0%	Nickel	Balance
Silicon	1.0%		

TYPICAL MECHANICAL PROPERTIES:¹

	<u>ANNEALED</u>	<u>COLD ROLLED</u>	<u>HEAT-TREATED</u>
Ultimate Tensile Strength	120,000 PSI	200,000 PSI	240,000 PSI
Yield Strength (.2% Offset)	70,000 PSI	195,000 PSI	235,000 PSI
Elongation in 2" *	30%	1%	1%

*The measured elongation will be less as thickness decreases to .002" and less.

¹ These values may be adjusted by control of process variables – consult HPM for desired values.

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PHYSICAL PROPERTIES: ²

Density	-	0.293 lb./cu.in.
Melting Point (approx.)	-	1350°C
Electrical Resistivity @ R.T.	-	133 Microhm-cm
Temperature Coefficient of Resistivity (TCR) (-55°C to 105°C) – Heat Treated	-	±10 PPM/°C
Thermal Expansion Coefficient (20°C to 100°C)	-	13 X 10 ⁻⁶ /°C
Thermal EMF vs. Copper (0°C to 100°C)	-	<1.0 Microvolts/°C
Thermal Conductivity R.T.	-	14.6 W/m· K
Magnetic Attraction	-	None
Specific Heat	-	.104 gram· cal./°C

GENERAL INFORMATION:

The alloy is supplied with 90% cold reduction which has a positive TCR of about 70 PPM/°C. A stabilizing heat treatment (approximately 475°C) during manufacture of finished parts adjusts the TCR to a desired value. The heat treatment virtually eliminates any drift tendency of the resistivity. A heat-treat curve for each melt is developed at Hamilton and is made available as a guide in regulating TCR. A typical heat-treat curve is shown in Figure 1.

AVAILABILITY:

Evanohm is available from Hamilton Precision Metals as foil and strip product in thicknesses from .0005” to .010” and in widths up to 12.0” maximum. It is available in foil as thin as .000100” in widths of 4.0” maximum.

² Typical values to guide alloy selection but are not a guarantee of minimum or maximum.