



Brand Name	NISIL		
Material Code	-		
Abbreviation	NN (X)		
Chemical Composition.(mass components.) in % average values of alloy components			
Ni	Si		
Rest	4.4		

Form of Delivery

NISIL (NN und NNX) is supplied in the form of bare wire with dimensions from 0.10 to 6 mmØ. We supply coated wires from 0.10 to 1.5 mmØ. Nisil can also be supplied in the form of stranded wire, ribbon, flat wire and rods. Please contact us for the range of dimensions.

Features and Application Notes

NISIL is used as negative leg of the thermocouple type N. In the version for extension leads NISIL is used for type NNX. NISIL is standardized from -200 to 1260°C in thermocouple type N. In the version for extension leads NICROSIL is standardized from -25 to 200°C. See also „*Special remarks on the alloy*“.

Thermoelectrical and Electrical Values in Soft-Annealed Condition ¹⁾

EMF vers. Pt/NIST 175 0-200 ° F / mV	EMF vers. Pt67/NIST 175 0-100 ° C / mV	EMF vers. Pt/NIST 175 0-2000 ° F / mV	EMF vers. Pt67/NIST 175 0-1000 ° C / mV	Electrical resistivity at 20°C in	
				μΩ x cm	Ω / cir mil ft
-0.925	-0.990	-10.954	-10.210	34	204.5

Physical Characteristics (Reference Values)

Density at 20 ° C	Melting Point	Specific heat at 20 ° C	Thermal conductivity at 20 ° C	Average linear thermal expansion coefficient between 20 ° C and 100 ° C	Magnetic at room temp.
g/cm ³	lb/cub in	°C	J/g K	10 ⁻⁶ /K	
8.55	0.309	1341	0.50	12.7	slight

Mechanical Properties at 20 °C in Annealed Condition (Reference Values) ²⁾

Annealing state	Tensile Strength		Elongation %	Hardness HV10
	MPa	lb / sq in		
hard	>1200	>174000	<2	>450
soft	620	89900	35	130

1) The exact EMF values according to NIST 175 can be calculated with the „EMF-Software“, which can be downloaded from our homepage.
2) The mechanical values considerably depend on dimension. The indicated values refer to a dimension of 1 mm diameter.

Notes on Treatment

NISIL can be brazed without difficulty. All known welding methods are applicable. However, the alloy is difficult to soft-solder. See also “*Special Remarks on the Alloy*“.

Special Remarks on the Alloy

Nisil reacts corrosively at higher temperatures in the presence of sulphur. Thus the thermoelectric voltage may change dramatically as a result. This oxidation also leads to brittleness of the material.