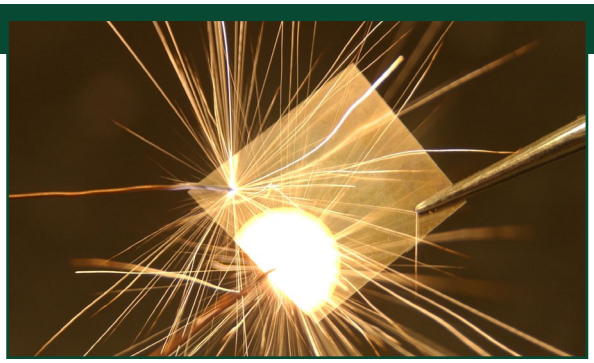
INDIUM CORPORATION®

MARKET SHEET

NanoFoil® Properties



General			
Typical Products (others available)	**NF40**	**NF60**	**NF80**
Maximum Single Sheet Size	43.5" x 9"		
	1105 mm x 229 mm		
Overall Thickness (others available)	40 microns	60 microns	80 microns
Reaction Energy	23-25 J/cm^2	35-38 J/cm^2	47-51 J/cm^2
Heat of Reaction	1050 - 1250 J/g		
Reaction Velocity	2-10 m/s		
Estimated Maximum Reaction Temperature	1400°C - 1600°C		
Composition Before Reaction	Alternating layers of NiV and Al		
Composition After Reaction	50Ni/50Al		
Appearance	Shiny, metallic foil		
Outer Layers	InCuSil 1 micron per side		
RoHS Compliant	Pb-Free		

NanoFoil® products are composed of multiple nano-layers of nickel and aluminum. Upon reaction, nickel aluminide (NiAl) is formed. The following data was obtained from published literature and may be useful in estimating the physical properties of the end use.

Reacted NanoFoil® Nickel Aluminide Properties	
Density	5.9 g/cm^3
Thermal Conductivity	60 W/mK
Coefficient of Thermal Expansion	13.2 x 10^{-6}/K
Specific Heat	0.64 J/g x K
Melting Point	1638°C
Electrical Resistivity	8 - 10 x 10^{-8} Ωm
Rc Hardness (annealed)	12
Young's Modulus	188-235 GPa
Fracture Strength	200-500 MPa
Fracture Toughness at 21°C	12-15 MPa x m$^{-0.5}$
Crystal Structure	B2 (cubic)
Safety	
Impact Sensitivity	Passes a 2 kg weight drop from 45 cm on 1.6 cm^2 (1/4 in^2) area
Auto Ignition Temperature	>200°C (392°F)
Transportation	
DOT Shipping Designation	CFR49 4.1: flammable solid
CAS Registry Number	12003-78-0
Proper Ship Name	"Flammable Solid Inorganic, N.O.S. UN 3178 class 4.1 Packing Group II"
HS Code	7106.92.0000

ISO 9001 REGISTERED

Form No. 98744 R1

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