



MuMetal is a "soft" ferromagnetic material that does not retain a macroscopic internal field after the removal of an external magnetizing field. Most alloys are permalloys containing approximately 80% Nickel (Ni), 20% Iron (Fe) and small amounts of Molybdenum (Mo). MuShield high permeability magnetic shielding material is a non-oriented 80% nickel-iron-molybdenum alloy (permalloy) which offers extremely high initial permeability and maximum permeability with minimum hysteresis loss.

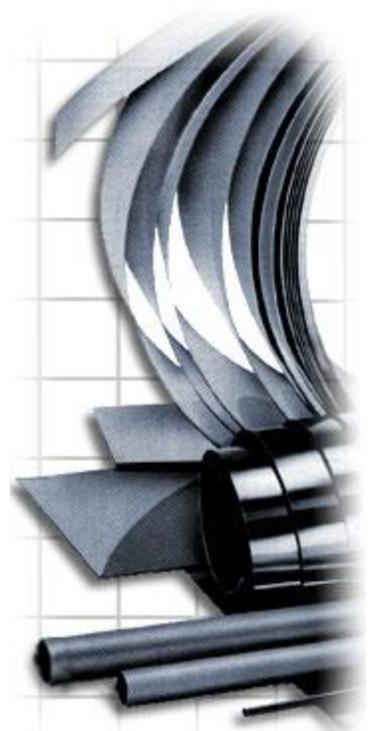
Ferromagnetism originates at the quantum level. Ferromagnetic elements have a lowest energy e- orbital state that aligns the e- spins parallel, thus giving an intrinsic magnetic moment to the atom. The lowest microscopic energy state of an ensemble of atoms is with these magnetic moments aligned to produce a net magnetic field. Since maintaining an external magnetic field would require energy, the lowest macroscopic energy state requires that the atoms divide into domains about 1000 atoms across and that the magnetic orientation of these domains be randomized.

In the presence of an externally applied magnetic field, the domains magnetically realign to some degree and thus generate their own external field. The primary field continues to exist, but now the net field is the sum (or superposition) of the primary and induced field. The induced field must have an alignment of opposite polarity to the primary field (just like two bar magnets must align North to South and South to North), and the superposition of the two fields results in a lower observed field, and there you have magnetic shielding.

MuShield works closely with customer design engineers to create a viable magnetic shield. We then build according to agreed upon specifications, and test for performance. Simple.

MuShield is a small company that tackles big problems. Our flexibility and talented mix of engineers enables us to build, test, and ship prototypes within reasonable time frames.

MuShield is fortunate to have on its staff several design engineers with extensive experience in the field of magnetic shielding. In many cases two design minds are better than one, and we work as a team to develop an end product that works.



9 Ricker Avenue | Londonderry, New Hampshire, USA | 03053
Phone: 603.666.4433 | Toll Free: 888.669.3539
Fax: 603.666.4013 | Email: info@mumetal.com

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