Official MAGNETIC SHIELD CORPORATION Document

What effect does cryogenically cooling the magnetic material have on its magnetic shielding properties?

CONETIC AA alloy is affected by operation at low temperatures. The saturation induction (which determines maximum field) remains unaffected, but the permeability decreases as the temperature drops, because of reduced molecular mobility.

The need for de-rating the attenuation highlights the importance of selecting the optimum shield size. Attenuation should be calculated for two sizes; a cryogenic atmosphere shield and a room temperature shield.

The chart below depicts the Low Temperature Performance of magnetic shielding material. To use the factors, multiply the room temperature attenuation by the performance factor shown for the operating temperature (T) of the shield.

A_T = A x Performance factor at T / 100
A_T = Attenuation ratio at temperature T.