CALIG

Properties of Magnets for Guitar Pickups

REFERENCE
MMPA STANDARD No. 0100-00
STANDARD SPECIFICATIONS FOR PERMANENT MAGNET MATERIALS

TYPICAL MAGNETIC PROPERTIES AND CHEMICAL COMPOSITIONS

MMPA Brief Designation	Original MMPA Class	IEC Code Reference	Chemical Composition*					Magnetic Properties							
			Al	Ni	Co	Cu	Ti	Max. Energy Product $(BH)_{max}$ (MGOe)	(kJ/m^3)	Residual Induction B_r (gauss)	(mT)	Coercive Force H_c (oersteds)	(kA/m)	Intrinsic Coercive Force H_{ci} (oersteds)	(kA/m)
ISOTROPIC CAST ALNICO															
1.7/0.58	Alnico 2	R1-0-4	10	19	13	3	-	1.7	13.5	7500	750	560	45	580	46
1.35/0.50	Alnico 3	R1-0-2	12	25	-	3	-	1.35	10.7	7000	700	480	38	500	40
ANISOTROPIC CAST ALNICO															
5.5/0.64	Alnico 5	R1-1-1	8	14	24	3	-	5.5	43.8	12800	1280	640	51	640	51
CERAMIC MAGNET															
3.5/3.1	Ceramic 8	SI-1-5	$MO \cdot 6Fe_2O_3$					3.5	27.8	3850	385	2950	235	3050	245
RARE EARTH MAGNETS - NEODYMIUM															
40/15	R5-1	$RE_2TM_{14}B$	$Nd_2Fe_{14}B$					40	320	12800	1280	12000	950	15000	1190

Maximum Energy Product: BHmax
The point on the Demagnetization Curve where the product of B and H is a maximum and the required volume of magnet material required to project a given energy into its surroundings is a minimum.

Residual Induction: Br (a.k.a residual flux density; residual magnetic induction; residual magnetism)
The magnetic flux density at which the magnetizing force is zero when the material is in a symmetrically and cyclically magnetized condition.

Coercive Force: Hcb
The magnetic field H which must be applied to a magnetic material in a symmetrical, cyclicly magnetized fashion, to make the magnetic induction B vanish.

Intrinsic Coercive Force: Hcj
A measure of the material inherent ability to resist demagnetization.

Isotropic:
A magnet material whose magnetic properties are the same in any direction, and which can therefore be magnetized in any direction without loss of magnetic characteristics.

Anisotropic: (a.k.a Magnetically Oriented)
The material has a predefined direction of magnetic orientation