

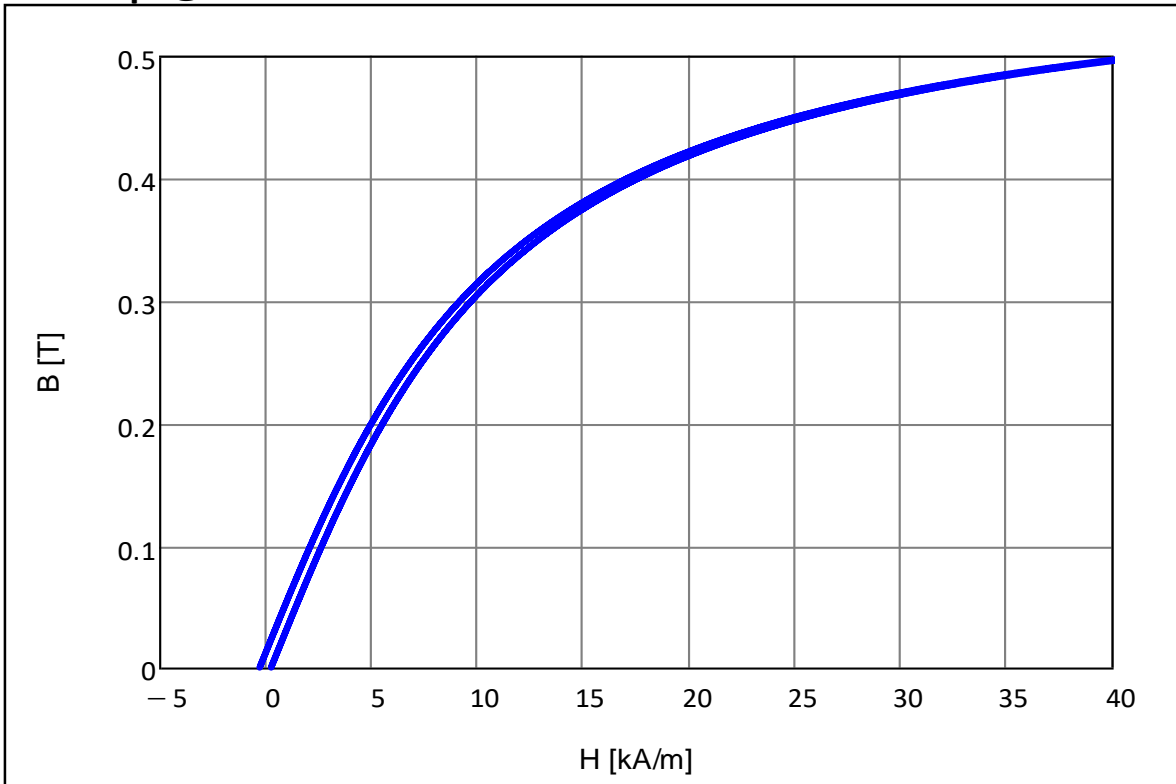


## Magnetic Cement MC40

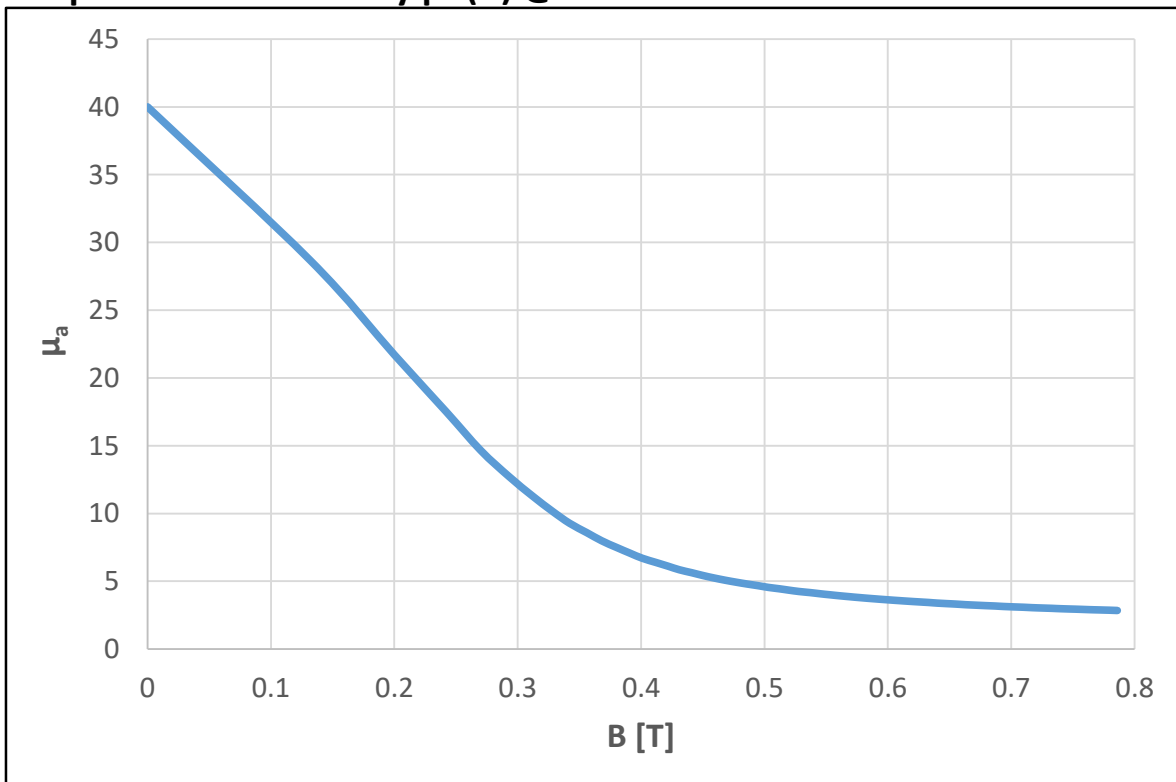
### Material Datasheet

Initial permeability	25°C	$\mu_i$		<b>40 ± 10%</b>
Flux density @ H=25 kA/m (314 Oe)	25°C	$B_{max}$	[mT]	<b>450</b>
	100°C	$B_{max}$	[mT]	<b>390</b>
Coercitive field strength	25°C	$H_C$	[A/m]	<b>270</b>
Curie-Temperature		$T_C$	[°C]	<b>&gt; 210</b>
Resistivity	DC	$\rho$	[Ω m]	<b>20</b>
Density		$\gamma$	[kg/m <sup>3</sup> ]	<b>3750</b>
Relative loss factor	@1 MHz	$\tan\delta/\mu_i$	[10 <sup>-3</sup> ]	<b>&lt; 0.5</b>
Relative temperature coefficient	-40°C...150°C	$\alpha_F$	[10 <sup>-6</sup> /K]	<b>&lt; 50</b>
Hysteresis material constant	10kHz	$\eta_B$	[10 <sup>-6</sup> /mT]	<b>&lt; 3</b>
DC-Bias (percent permeability change)	@4 kA/m (50 Oe)	$\mu_{rev}/\mu_i$		<b>55%</b>
	@8kA/m (100 Oe)	$\mu_{rev}/\mu_i$		<b>33%</b>
Realtive core losses	@ 50kHz, 100mT	$P_V$	[kW/m <sup>3</sup> ]	<b>300</b>
Specific heat		$c_p$	[J/kg K]	<b>700</b>
Thermal conductivity		$\lambda$	[W/mK]	<b>3</b>
Young's modulus		$E_c$	[MPa]	<b>25000</b>
Compressive strength		$f_c$	[MPa]	<b>&gt;50</b>
Tensile strength		$f_t$	[MPa]	<b>2</b>
Linear expansion coefficient		$\Delta l/l$	[10 <sup>-6</sup> /K]	<b>12</b>

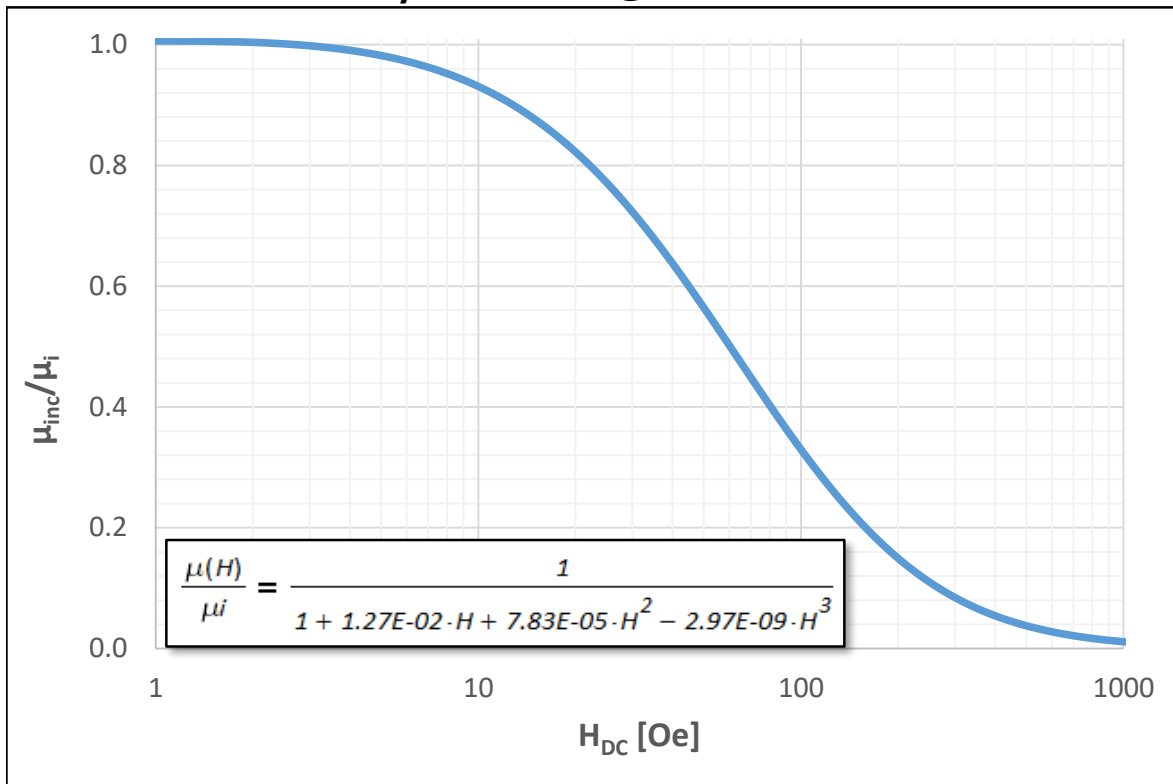
### BH Loop @25°C



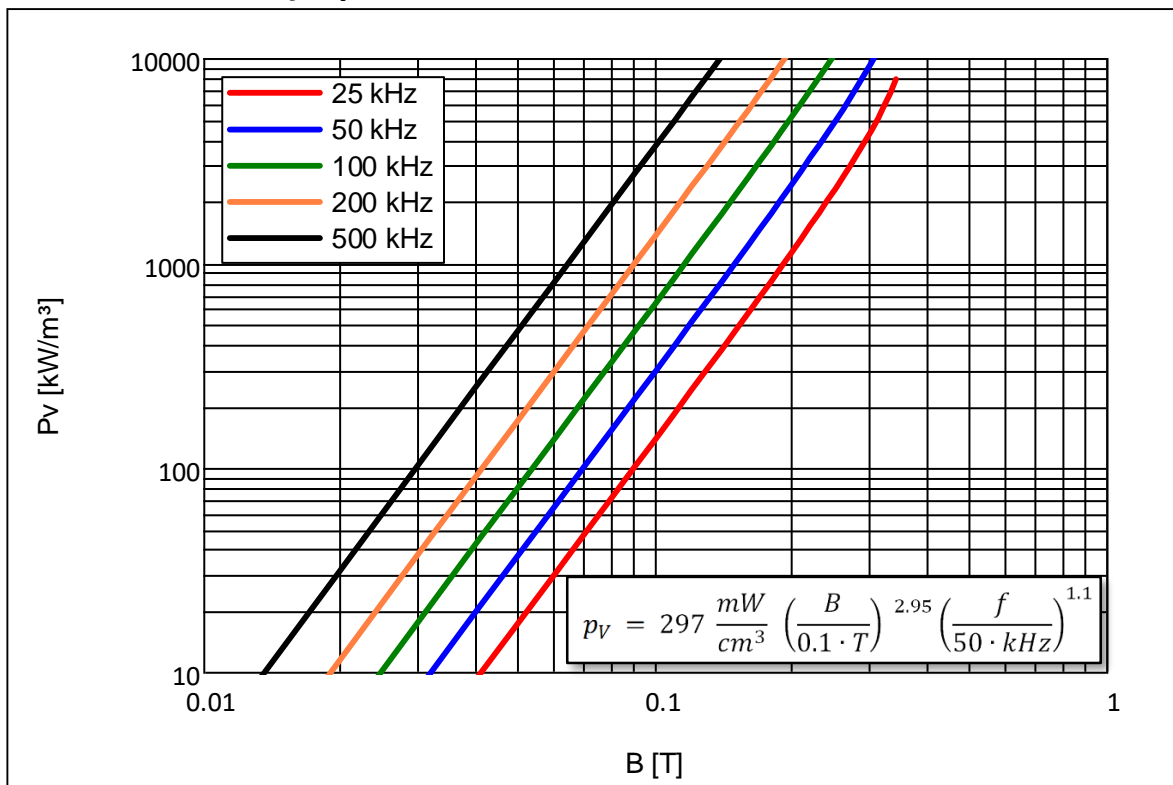
### Amplitude Permeability $\mu_a(B)$ @25°C



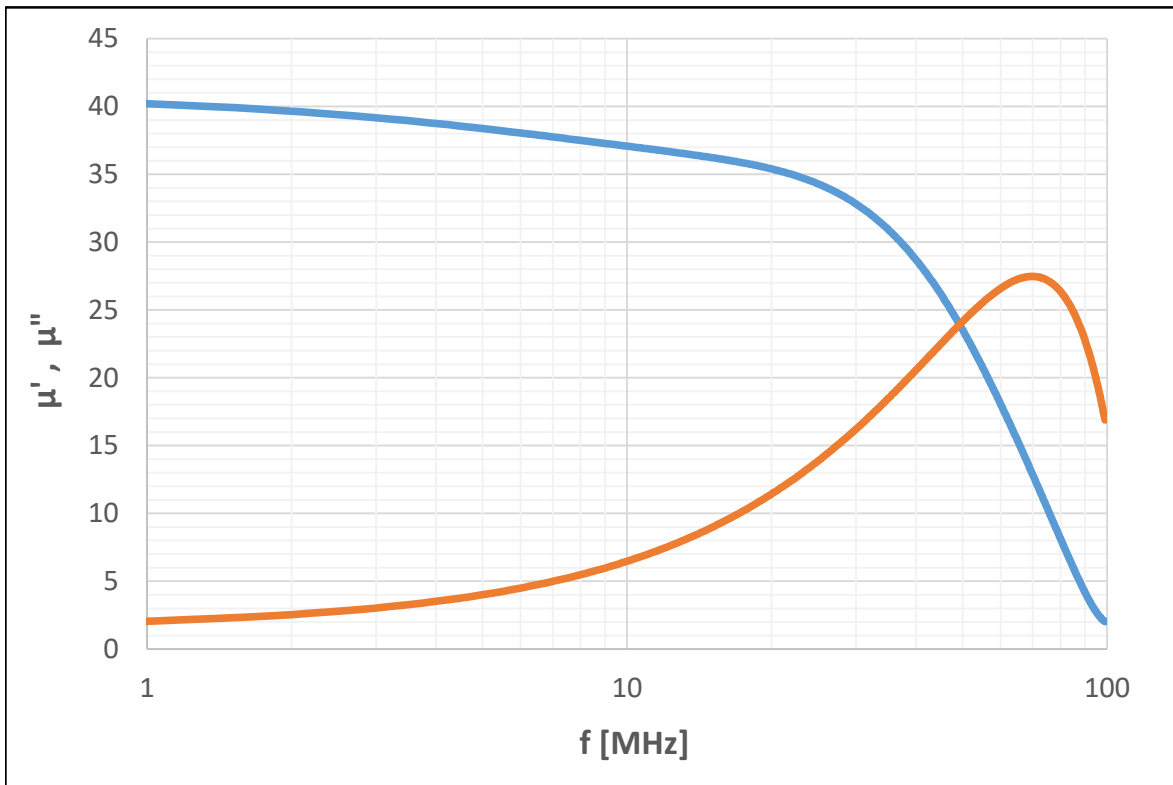
## Reversible Permeability vs. DC Bias @25°C



## Core Loss Density $P_V$ (B)



### Complex Permeability vs. Frequency @25°C



### Normalized Impedance vs. Frequency @25°C

