TABLE 2.--Material properties of single crystal yttrium iron garnet

Property	Source	Values
Second order elastic moduli	a	$c_{11} = 2.69 \times 10^{12}$ dyn/cm^2 $c_{12} = 1.08 \times 10^{12}$ dyn/cm^2 $c_{44} = 0.76 \times 10^{12}$ dyn/cm^2
First order magneto-elastic constants	b	$b_1 = 3.5 \times 10^6$ erg/cm^3 $b_2 = 6.9 \times 10^6$ erg/cm^3
Second order magneto-elastic constants	b	$B_{111} = 173 \pm 12 \times 10^6$ erg/cm^3 $B_{123} = 22 \pm 19 \times 10^6$ erg/cm^3 $B_{144} = -5 \pm 41 \times 10^6$ erg/cm^3 $B_{155} = -37 \pm 5 \times 10^6$ erg/cm^3 $B_{441} = -24 \pm 14 \times 10^6$ erg/cm^3 $B_{456} = -27 \pm 7 \times 10^6$ erg/cm^3
Crystal anisotropy constant	c	$K_1 = -6.2 \times 10^3$ erg/cm^3
Saturation magnetization at T = 293°K	c	$M_s = 133.7$ gauss
Ne'el temperature	d	$T_N = 563$°K
Pressure dependence of Ne'el temperature	d	$\partial T_N / \partial P = 1.25$°K kbar^{-1}
Temperature dependence of saturation magnetization at T = 293°K	e	$\frac{1}{M_s} \frac{\partial M_s}{\partial T/T_N} = -0.61$

TABLE 2--Continued

Property	Source	Values
Theoretical density	f	$\rho_o = 5.17$ g/cm^3
Lattice constant	f	$a_o = 12.38$ Å
Longitudinal velocity (polycrystalline)	g	D = 7.17 mm/μs
Coefficient of expansion	f	$\alpha = 1.39 \times 10^{-5}$ °K^{-1}
Isothermal compressibility	g	$K_T = 6.1 \times 10^{-4}$ kbar^{-1}
Specific heat	h	$C_v = 0.162$ cal/gm deg

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