Units for Magnetic Properties

Symbol	Quantity	Conversion from Gaussian and cgs emu to SI
Φ	magnetic flux	$1 \text{ Mx} \to 10^{-8} \text{ Wb} = 10^{-8} \text{ V·s}$
B	magnetic flux density, magnetic induction	$1 \text{ G} \to 10^{-4} \text{ T} = 10^{-4} \text{ Wb/m}^2$
H	magnetic field strength	$1 \text{ Oe} \to 10^3/(4\pi) \text{ A/m}$
m	magnetic moment	$1 \text{ erg/G} = 1 \text{ emu} \to 10^{-3} \text{ A·m}^2 = 10^{-3} \text{ J/T}$
M	magnetization	$1 \text{ erg/(G·cm}^3) = 1 \text{ emu/cm}^3 \to 10^3 \text{ A/m}$
$4\pi M$	magnetization	$1 \text{ G} \to 10^3/(4\pi) \text{ A/m}$
σ	mass magnetization, specific magnetization	$1 \text{ erg/(G·g)} = 1 \text{ emu/g} \to 1 \text{ A·m}^2/\text{kg}$
j	magnetic dipole moment	$1 \text{ erg/G} = 1 \text{ emu} \to 4\pi \times 10^{-10} \text{ Wb·m}$
J	magnetic polarization	$1 \text{ erg/(G·cm}^3) = 1 \text{ emu/cm}^3 \to 4\pi \times 10^{-4} \text{ T}$
χ, κ	susceptibility	$1 \to 4\pi$
χ_ρ	mass susceptibility	$1 \text{ cm}^3/\text{g} \to 4\pi \times 10^{-3} \text{ m}^3/\text{kg}$
μ	permeability	$1 \to 4\pi \times 10^{-7} \text{ H/m} = 4\pi \times 10^{-7} \text{ Wb/(A·m)}$
μ_r	relative permeability	$\mu \to \mu_r$
w, W	energy density	$1 \text{ erg/cm}^3 \to 10^{-1} \text{ J/m}^3$
N, D	demagnetizing factor	$1 \to 1/(4\pi)$

Gaussian units are the same as cgs emu for magnetostatics; Mx = maxwell, G = gauss, Oe = oersted; Wb = weber, V = volt, s = second, T = tesla, m = meter, A = ampere, J = joule, kg = kilogram, H = henry.