

LIST OF ABBREVIATIONS AND SYMBOLS

SrM	Strontium hexaferrite
MNP	Magnetic nanoparticles
PVA	Polyvinyl alcohol
IPA	Iso-propyl alcohol
DI water	Deionized water
DTA	Differential thermal analysis
TG	Thermo gravimetric
FTIR	Fourier-transform infrared spectroscopy
XRD	X-Ray Diffraction
JCPDS	Joint committee on powder diffraction standards
λ	Incident wavelength
θ	Bragg's angle
d	Atomic spacing
n	Diffraction order
I	Relative intensities
t	Crystallite size
β	Full width at half maxima
β_{meas}	Full width at half maxima of measured peak
β_{equip}	Instrumental broadening
a and c	Lattice parameters
$h\ k\ l$	Miller index
ψ	Minimized function
W_i	Assigned weight for i^{th} data points
Y_i^{cal}	Calculated profile
Y_i^{obs}	Observed profile
R_{wp}	Weight profile residual
R_{p}	Profile residual factor
χ^2	Chi square
R_{exp}	Expected profile residual
θ_i	Position
y_{b_i}	Background

P_{kj}	Polarization
S_j	Scale factor
A_j	Absorption
L_k	Lorentz factor
V_j	Volume of the respective phase
f_j	Atomic form factor
$2\theta_i-2\theta_{kj}$	Profile function
U, V and W	Refinable peak shape factors
ϵ_{strain}	Average strain
D_o	External diameter
D_{Bulk}	Bulk density
W_D	Dry weight
W_S	Soaked weight
W_A	Suspended weight
SEM	Scanning electron microscopy
EDX	Energy dispersive X-ray spectroscopy
At%	Atomic percentage
H	Applied field strength
M	Magnetization
M_s	Saturation magnetization
M_r	Remanence magnetization
H_c	Coercivity
Br	Theoretical remanence
iH_c	Intrinsic coercivity
bH_c	Magnetic induction coercivity
$(BH)_{\text{max}}$	Theoretical energy product
H_k	Knee field
Tc	Curie temperature
T_{M-S}	Transition temperature
μ_B	Bohr magneton
μ_0	Vacuum permeability
k_{eff}	Magneto-crystalline anisotropy constant
H_a	Anisotropy field

H_{sat}	Saturated field strength
B	Flux density
B_{sat}	Saturation flux density
χ_p	High-field susceptibility
α	Anisotropy factor
ϕ	Commands for the anisotropy
J	Magnetic polarization
J_r	Residual magnetic polarization
ρ	Resistivity
ϵ	Dielectric constant
C	Capacitance in farad
A	Pellet cross-sectional area
T	Pellet thickness
ϵ_0	Dielectric constant of free space.
μ_d	Drift mobility
SC	Space charge polarization
GB	Grain boundary