

LIST OF ABBREVIATIONS

A	Electron affinity
AAPB	(E)-4-(benzylideneamino)-1,5-dimethyl-2-phenyl-1H-pyrazol-3(2H)-one
AAPS	(E)-4-((2-hydroxybenzylidene)amino)-1,5-dimethyl-2-phenyl-1H-pyrazol-3(2H)-one
AAPC	(E)-4-((4-chlorobenzylidene)amino)-1,5-dimethyl-2-phenyl-1H-pyrazol-3(2H)-one
AAPM	(E)-4-((4-methoxybenzylidene)amino)-1,5-dimethyl-2-phenyl-1H-pyrazol-3(2H)-one
AFM	Atomic Force Microscopy
ASTM	American Standard of Testing of Materials
BE	Borate ester
B-MRG	Boron-doped-microwave assisted reduced graphene oxide
B-N-MRG	Boron-Nitrogen-doped-microwave assisted reduced graphene oxide
CCTO	Calcium copper titanate ($\text{CaCu}_3\text{Ti}_4\text{O}_{12}$)
CCZTO	Zn-doped-calcium copper titanate ($\text{CaCu}_{2.9}\text{Zn}_{0.1}\text{Ti}_4\text{O}_{12}$)
[Cu(Abh) ₂]	Acetophenone benzoylhydrazone copper (II) complex
[Cu(Sbh) ₂]	Salicylaldehyde benzoylhydrazones copper (II) complex
DFT	Density Functional Theory
d ₀	Hertzian diameter
EDX	Energy Dispersive X-ray spectroscopy

E_{HOMO}	Energy of highest occupied molecular orbital
E_{LUMO}	Energy of lowest unoccupied molecular orbital
ΔE	Energy gap in between HOMO and LUMO
ΔE_1	$\Delta E_1 = E_{\text{LUMO}}$ of iron - E_{HOMO} of additive
ΔE_2	$\Delta E_2 = E_{\text{LUMO}}$ of additive - E_{HOMO} of iron
FTIR	Fourier Transformation Infrared
GO	Graphene oxide
HOMO	Highest occupied molecular orbital
H-Abh	Acetophenone benzoylhydrazone
H-Sbh	Salicylaldehyde benzoylhydrazone
I	Ionization energy
LUMO	Lowest occupied molecular orbital
MRG	Microwave assisted reduced graphene oxide
MWD	Mean wear scar diameter
MWV	Mean wear volume
NMR	Nuclear Magnetic Resonance
N-MRG	Nitrogen-doped-microwave assisted reduced graphene oxide
rGO	Reduced graphene oxide
R_q	Root mean square line roughness
S_q	Root mean square area roughness
S_y	Root mean square peak-valley height

SA	Stearic acid
SCCZTO	Stearic acid modified Zn-doped-calcium copper titanate
SEM	Scanning Electron Microscopy
TiO ₂ -B-N-MRG	TiO ₂ -Reinforced-B-N-co-doped-reduced graphene oxide
TEM	Transmission Electron Microscopy
TLC	Thin Layer Chromatography
UV	Ultra Violet
XPS	X-ray Photoelectron Spectroscopy
XRD	X-ray Diffraction Spectroscopy
ZDDP	Zinc dialkyldithiophosphate
μ	Friction coefficient