

List of Abbreviations

AFM	Atomic Force Microscopy
ASTM	American Standard of Testing of Materials
BE	Borate ester
DFT	Density Functional Theory
COF	Coefficient of friction
d_0	Hertzian diameter
[DIP-Q]⁺Br⁻	N-Bromopropyl isoindolin-1,3-dione
[DIE-Q]⁺Br⁻	N-Bromoethyl isoindolin-1,3-dione
[P-Q]⁺I⁻	Iodopropane
[M-Q]⁺I⁻	Iodomethane
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	E_{LUMO} of iron - E_{HOMO} of additive
ΔE_2	E_{LUMO} of additive - E_{HOMO} of iron
FTIR	Fourier Transformation Infrared
HOMO	Highest occupied molecular orbital
LUMO	Lowest occupied molecular orbital

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MWD	Mean wear scar diameter
MWV	Mean wear volume
NMR	Nuclear Magnetic Resonance
R_q	Root mean square line roughness
S_q	Root mean square area roughness
S_y	Root mean square peak-valley height
SEM	Scanning Electron Microscopy
SZMO	Sodium dodecyl sulfate stabilized magnesium-doped-zinc 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
ZMO	Magnesium-doped-zinc oxide
μ	Friction coefficient