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List of Abbreviations and Symbols

Abbreviation	Description
MMCs	Metal matrix composites
pMMCs	Particle-reinforced metal matrix composites
PM	Powder metallurgy
PMCs	Polymer matrix composites
CFRP	Carbon fiber-reinforced polymer
GFRP	Glass fiber-reinforced polymer
CMCs	Ceramic matrix composites
PVD	Physical vapor deposition
CVD	Chemical vapor deposition
SEM	Scanning electron microscope
HRSEM	High resolution scanning electron microscope
TEM	Transmission electron microscope
CNTs	Carbon nano tubes
EDS	Energy dispersive spectroscope
P/M	Powder metallurgy
GPa	Giga pascal
MPa	Mega Pascal
ASTM	American society for testing and materials
m/s or m.s ⁻¹	Meter per second
N	Newton
nm	Nano meter
wt%	Weight percentage
vol.%	Volume percentage
R _a	Average roughness
R _q	Root mean square roughness

R_z	Average maximum height from individual peak to valley
g	gram
kg	Kilo-gram
mm	millimetre
d	The inter planner spacing
JCPDS	Joint committee on powder diffraction standards
θ	The incident Bragg's angle
λ	The wavelength of the X-ray
n	An integer representing the order of the diffraction
ϵ	Lattice strain
k	The shape factor
hkl	Miller indices
EDAX	Energy dispersive analysis X-ray
VHN	Vicker hardness number
P	Load
D	Diameter of the ball
d	The average impression diameter of indentation
BN	Boron nitride
B_4C	Boron carbide
Cr	Chromium
TiC	Titanium carbide
SiO_2	Silicon oxide or silica
SiC	Silicon carbide
Al_2O_3	Alumina
h-BN	Hexagonal boron nitride
Gr	Graphite