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WILLIAM D. CALLISTER, JR.

DAVID G. RETHWISCH

Contents

List of Symbols

The number of the section in which a symbol is introduced or explained is given in parentheses.

A = area
Å = angstrom unit
A_i = atomic weight of element i (2.2)
APF = atomic packing factor (3.4)
a = lattice parameter: unit cell x-axial length (3.4)
a = crack length of a surface crack (9.5)
at% = atom percent (5.6)
B = magnetic flux density (induction) (18.2)
B_r = magnetic remanence (18.7)
BCC = body-centered cubic crystal structure (3.4)
b = lattice parameter: unit cell y-axial length (3.11)
$\mathbf{b}$ = Burgers vector (5.7)
C = capacitance (12.18)
C_i = concentration (composition) of component i in wt% (5.6)
C_i' = concentration (composition) of component i in at% (5.6)
C_v, C_p = heat capacity at constant volume, pressure (17.2)
CPR = corrosion penetration rate (16.3)
CVN = Charpy V-notch (9.8)
%CW = percent cold work (8.11)
c = lattice parameter: unit cell z-axial length (3.11)
c_v, c_p = specific heat at constant volume, pressure (17.2)
D = diffusion coefficient (6.3)
D = dielectric displacement (12.19)
DP = degree of polymerization (4.5)
d = diameter
d = average grain diameter (8.9)
d_{hkl} = interplanar spacing for planes of Miller indices h, k, and l (3.20)
E = energy (2.5)
E = modulus of elasticity or Young's modulus (7.3)
$\mathscr{E}$ = electric field intensity (12.3)
E_f = Fermi energy (12.5)
E_g = band gap energy (12.6)
$E_r(t)$ = relaxation modulus (7.15)
%EL = ductility, in percent elongation (7.6)
e = electric charge per electron (12.7)
e^- = electron (16.2)
erf = Gaussian error function (6.4)
exp = e, the base for natural logarithms
F = force, interatomic or mechanical (2.5, 7.2)
$\mathscr{F}$ = Faraday constant (16.2)
FCC = face-centered cubic crystal structure (3.4)
G = shear modulus (7.3)
H = magnetic field strength (18.2)
H_c = magnetic coercivity (18.7)
HB = Brinell hardness (7.16)
HCP = hexagonal close-packed crystal structure (3.4)
HK = Knoop hardness (7.16)
HRB, HRF = Rockwell hardness: B and F scales (7.16)
HR15N, HR45W = superficial Rockwell hardness: 15N and 45W scales (7.16)
HV = Vickers hardness (7.16)
h = Planck's constant (19.2)
(hkl) = Miller indices for a crystallographic plane (3.14)
I = electric current (12.2)
I = intensity of electromagnetic radiation (19.3)
i = current density (16.3)
i_C = corrosion current density (16.4)