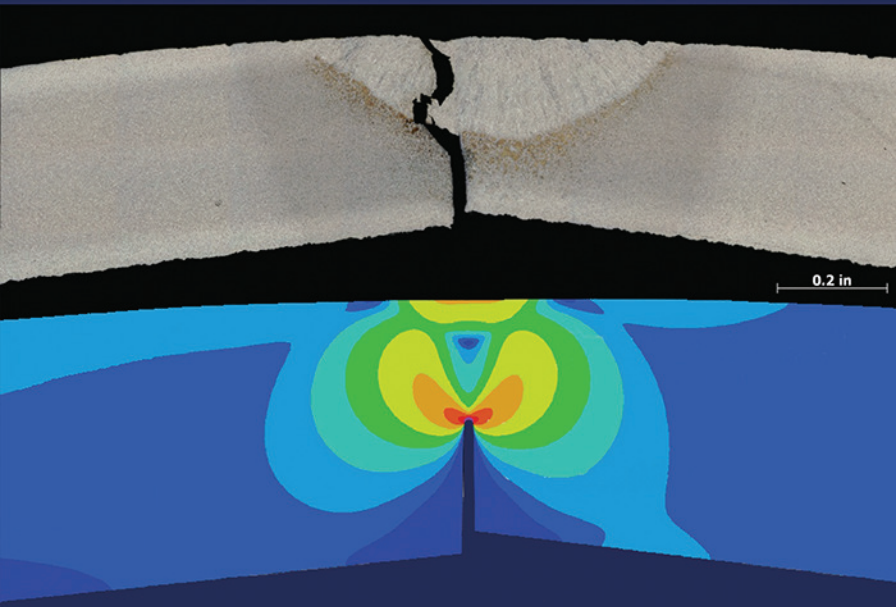
GLOBAL EDITION

Mechanical Behavior of Materials

Engineering Methods for Deformation, Fracture, and Fatigue



FIFTH EDITION

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MATERIALS PROPERTIES LOCATOR

Table No.	Page	Material Type	Data Listed
2.2	57	Whiskers, fibers, wires	E, σ_u
3.2	90	Metals	E, σ_o, σ_u, $100\varepsilon_f$, $\%RA$
3.3	91	Polymers	E, σ_o, σ_f, $100\varepsilon_f$, Izod energy, T_d
3.4	92	Ceramics, glasses, stone	T_m, ρ, E, σ_u, σ_{uc}
3.5	93	SiC in Al composite	E, σ_o, σ_u, $100\varepsilon_f$
3.7	107	Metals	$\tilde{\sigma}_{fB}$, $\tilde{\varepsilon}_f$, H, n, HB
3.8	108	Representative	E, σ_o or σ_u, ρ, cost
4.1	134	Ceramics, glasses	E, σ_{fb}, HV
5.2	166	Metals, polymers, ceramics	E, ν
5.3	181	Fibers, epoxy, composites	E, G, ν, ρ
7.1	266	Stone, concrete, gray iron	σ_u, σ_{uc}, C-M fitting constants
8.1	300	Metals	K_{Ic}; also σ_o, σ_u, $100\varepsilon_f$,$\%RA$
8.2	301	Polymers, ceramics	K_{Ic}
9.1	383	Metals	σ_a-N_f constants; also σ_o, σ_u, $\tilde{\sigma}_{fB}$
10.1	464	Metals	Fatigue limit estimates
10.2	480	Metals	S-N curve estimates at 10^3 cycles
11.1	524	Steels by class	da/dN-ΔK constants
11.2	535	Steels, aluminums	da/dN-ΔK constants (Walker); also K_{Ic}, σ_o
11.3	538	Metals	da/dN-ΔK constants (Forman); also K_{Ic}, σ_o
12.1	594	Metal alloys	K_{IEAC}, $\dot{a}$, K_{Ic}
12.5	605	Solvents, polymers	δ_e, δ_p
13.1	641	Steels, aluminums	E, H', n'; also σ_o, σ_u
15.1	727	Metals	ε_a-N_f constants; E, H', n'; σ_o, σ_u, $\tilde{\sigma}_{fB}$, $\%RA$
16.3	802	Metals	L-M parameter constants
16.4	816	Metals	σ-ε-t nonlinear creep constants
B.5	881	Metals, stone, concrete	K_{Ic} and statistics; also σ_o or σ_{uc}
C.1	886	Metals, alloys	T_m, ρ, E
C.9	907	Polymers	T_g, T_m

Explanation of Symbols for Materials Properties

$\dot{a}$	Crack velocity	T_m	Melting temperature
E	Elastic modulus	δ_e, δ_p	Solubility parameters
G	Shear modulus	$100\varepsilon_f$	Percent elongation
H, n	Monotonic σ-ε constants	$\tilde{\varepsilon}_f$	True fracture strain
H', n'	Cyclic σ-ε constants	ν	Poisson's ratio
HB	Brinell hardness	ρ	Density
HV	Vickers hardness	σ_f	Engineering fracture strength
K_{Ic}	Plane strain fracture toughness	$\tilde{\sigma}_{fB}$	True fracture strength
K_{IEAC}	Environmental cracking threshold	σ_{fb}	Bend strength
$\%RA$	Percent reduction in area	σ_o	Yield strength
T_d	Heat deflection temperature	σ_u	Ultimate tensile strength
T_g	Glass transition temperature	σ_{uc}	Ultimate compressive strength

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