

Material parameters

Material	$\rho$ (range)		$\rho$	$E$ (range)		$E$	$\nu$ (range)			$\nu$	$\mu$	$\lambda$
Tungsten Carbide	14	17	15.5	450	650	550	0.22	0.22	0.22	225.4	177.1	
Silicon Carbide	2.5	3.2	2.85	450	450	450	0.22	0.22	0.22	184.4	144.9	
Tungsten	13.4	13.4	13.4	410	410	410	0.30	0.30	0.30	157.7	236.5	
Alumina	3.9	3.9	3.9	390	390	390	0.25	0.25	0.25	156.0	156.0	
Titanium Carbide	4.9	4.9	4.9	380	380	380	0.19	0.19	0.19	159.7	97.9	
Silicon Nitride	3.2	3.2	3.2	320	370	345	0.22	0.22	0.22	141.4	111.1	
Nickel	8.9	8.9	8.9	215	215	215	0.31	0.31	0.31	82.1	133.9	
CFRP	1.5	1.6	1.55	70	200	135	0.20	0.20	0.20	56.3	37.5	
Iron	7.9	7.9	7.9	196	196	196	0.30	0.30	0.30	75.4	113.1	
Low alloy steels	7.8	7.8	7.8	200	210	205	0.30	0.30	0.30	78.8	118.3	
Stainless steel	7.5	7.7	7.6	190	200	195	0.30	0.30	0.30	75.0	112.5	
Mild steel	7.8	7.8	7.8	196	196	196	0.30	0.30	0.30	75.4	113.1	
Copper	8.9	8.9	8.9	124	124	124	0.34	0.34	0.34	46.3	98.3	
Titanium	4.5	4.5	4.5	116	116	116	0.30	0.30	0.30	44.6	66.9	
Silicon	2.5	3.2	2.85	107	107	107	0.22	0.22	0.22	43.9	34.5	
Silica glass	2.6	2.6	2.6	94	94	94	0.16	0.16	0.16	40.5	19.1	
Aluminum & alloys	2.6	2.9	2.75	69	79	74	0.35	0.35	0.35	27.4	64.0	
Concrete	2.4	2.5	2.45	45	50	47.5	0.30	0.30	0.30	18.3	27.4	
Wood parallel grain	0.4	0.8	0.6	9	16	12.5	0.20	0.20	0.20	5.21	3.47	
Polyimides	1.4	1.4	1.4	3	5	4	0.1	0.45	0.28	1.57	1.92	
Nylon	1.1	1.2	1.15	2	4	3	0.25	0.25	0.25	1.20	1.20	
PMMA	1.2	1.2	1.2	3.4	3.4	3.4	0.35	0.4	0.38	1.24	3.71	
Polycarbonate	1.2	1.3	1.25	2.6	2.6	2.6	0.36	0.36	0.36	0.956	2.46	
Natural rubbers	0.83	0.91	0.87	0.01	0.1	0.055	0.49	0.49	0.49	0.0185	0.904	
PVC	1.3	1.6	1.45	0.003	0.01	0.0065	0.41	0.41	0.41	0.00230	0.0105	

Material parameters taken from <http://solidmechanics.org/> 2012-01-17

*Unit for density ( $\rho$ ) is Mg/m<sup>3</sup> so values should be multiplied by 1e3 for SI units*

*Unit for Young's modulus ( $E$ ) is GN/m<sup>2</sup> so values should be multiplied by 1e9 for SI units*