

Table 1-51. METALS AND ALLOYS—MISCELLANEOUS PROPERTIES***Table A. PURE METALS**

At Room Temperature

Common name	PROPERTIES (TYPICAL ONLY)						
	Thermal conductivity, Btu/hr ft °F	Specific gravity	Coeff. of linear expansion, μ in./in. °F	Electrical resistivity, microhm-cm	Poisson's ratio	Modulus of elasticity, millions of psi	Approximate melting point, °F
Aluminum	137	2.70	14	2.655	0.33	10.0	1220
Antimony	10.7	6.69	5	41.8		11.3	1170
Beryllium	126	1.85	6.7	4.0	0.024-.030	42	2345
Bismuth	4.9	9.75	7.2	115		4.6	521
Cadmium	54	8.65	17	7.4		8	610
Chromium	52	7.2	3.3	13		36	3380
Cobalt	40	8.9	6.7	9		30	2723
Copper	230	8.96	9.2	1.673	0.36	17	1983
Gold	182	19.32	7.9	2.35	0.42	10.8	1945
Iridium	85.0	22.42	3.3	5.3		75	4440
Iron	46.4	7.87	6.7	9.7		28.5	2797
Lead	20.0	11.35	16	20.6	0.40-.45	2.0	621
Magnesium	91.9	1.74	14	4.45	0.35	6.4	1200
Manganese		7.21-7.44	12	185		23	2271
Mercury	4.85	13.546		98.4			-38
Molybdenum	81	10.22	3.0	5.2	0.32	40	4750
Nickel	52.0	8.90	7.4	6.85	0.31	31	2647
Niobium (Columbium)	30	8.57	3.9	13		15	4473
Osmium	35	22.57	2.8	9		80	5477
Platinum	42	21.45	5	10.5	0.39	21.3	3220
Plutonium	4.6	19.84	30	141.4	0.15-.21	14	1180
Potassium	57.8	0.86	46	7.01			146
Rhodium	86.7	12.41	4.4	4.6		42	3569
Selenium	0.3	4.8	21	12.0		8.4	423
Silicon	48.3	2.33	2.8	1×10^5		16	2572
Silver	247	10.50	11	1.59	0.37	10.5	1760
Sodium	77.5	0.97	39	4.2			208
Tantalum	31	16.6	3.6	12.4	0.35	27	5400
Thorium	24	11.7	6.7	18	0.27	8.5	3180
Tin	37	7.31	11	11.0	0.33	6	450
Titanium	12	4.54	4.7	43	0.3	16	3040
Tungsten	103	19.3	2.5	5.65	0.28	50	6150
Uranium	14	18.8	7.4	30	0.21	24	2070
Vanadium	35	6.1	4.4	25		19	3450
Zinc	66.5	7	19	5.92	0.25	12	787

Table 1-51. METALS AND ALLOYS—MISCELLANEOUS PROPERTIES
(Continued)

Table B. COMMERCIAL METALS AND ALLOYS

CLASSIFICATION AND DESIGNATION		PROPERTIES (TYPICAL ONLY)					
Material No. (from Table 1-49)	Common name and classification	Thermal conductivity, Btu/hr ft °F	Specific gravity	Coeff. of linear expansion, μ in./in. °F	Electrical resistivity, microhm-cm	Modulus of elasticity, millions of psi	Approximate melting point, °F
1	Ingot iron (included for comparison)	42.	7.86	6.8	9.	30	2800
2	Plain carbon steel						
	AISI-SAE 1020	30.	7.86	6.7	10.	30	2760
15	Stainless steel type 304	10.	8.02	9.6	72.	28	2600
19	Cast gray iron						
	ASTM A48-48, Class 25	26.	7.2	6.7	67.	13	2150
21	Malleable iron						
	ASTM A47	—	7.32	6.6	30.	25	2250
22	Ductile cast iron						
	ASTM A339, A395	19	7.2	7.5	60.	25	2100
24	Ni-resist cast iron, type 2	23	7.3	9.6	170.	15.6	2250
29	Cast 28-7 alloy (HD)						
	ASTM A297-63T	1.5	7.6	9.2	41.	27	2700
31	Hastelloy C	5	3.94	6.3	139.	30	2350
36	Inconel X, annealed	9	8.25	6.7	122.	31	2550
41	Haynes Stellite alloy 25 (L605)	5.5	9.15	7.61	88.	34	2500
43	Aluminum alloy 3003, rolled						
	ASTM B221	90	2.73	12.9	4.	10	1200
44	Aluminum alloy 2017, annealed						
	ASTM B221	95	2.8	12.7	4.	10.5	1185
49	Aluminum alloy 380						
	ASTM SC84B	56	2.7	11.6	7.5	10.3	1050
53	Copper						
	ASTM B152, B124, B133, B1, B2, B3	225	8.91	9.3	1.7	17	1980
57	Yellow brass (high brass)						
	ASTM B36, B134, B135	69	8.47	10.5	7.	15	1710
61	Aluminum bronze						
	ASTM B169, alloy A; ASTM B124, B150	41	7.8	9.2	12.	17	1900
62	Beryllium copper 25						
	ASTM B194	7	8.25	9.3	—	19	1700
64	Nickel silver 18% alloy A (wrought)						
	ASTM B122, No. 2	19	8.8	9.0	29.	18	2030
67	Cupronickel 30%	17	8.95	8.5	35.	22	2240
68	Red brass (cast)						
	ASTM B30, No. 4A	42	8.7	10.	11.	13	1825
74	Chemical lead	20	11.35	16.4	21.	2	621
75	Antimonial lead (hard lead)	17	10.9	15.1	23.	3	554
80	Solder 50-50	26	8.89	13.1	15.	—	420
82	Magnesium alloy AZ31B	45	1.77	14.5	9.	6.5	1160
89	K Monel	11	8.47	7.4	58.	26	2430
90	Nickel						
	ASTM B160, B161, B162	35	8.89	6.6	10.	30	2625
92	Cupronickel 55-45 (Constantan)	13	8.9	8.1	49.	24	2300
95	Commercial titanium	10	5.	4.9	80.	16.5	3300
99	Zinc						
	ASTM B69	62	7.14	18	6.	—	785
103	Zirconium, commercial	10	6.5	2.9	41.	12	3350

*Compiled from several sources.