

MATERIAL PROPERTIES

THERMAL CONDUCTIVITY

Material	Thermal Conductivity [W/m·°C]
Acetyl	0.23
Acrylic	0.14
Aluminum 2024-T3	190.4
Aluminum 3003	233.64
Aluminum 6061-T6	155.8
Aluminum 7079-T6	121.1
Beryllium QMV	147.1
Borosilicate glass	1.13
Borosilicate Tempax	1.13
Concrete	1.8
Copper - pure	392.9
Diamond	550
Douglas fir	0.11
Dow Corning 200 (350cSt)	0.159
Dow Corning 739	0.19
Dow Corning 93-500	0.15
Dow Corning Q3-6605	0.84
Epoxy (Epotek 353ND)	0.049
Epoxy (Masterbond 11A0)	1.44
Glass wool	0.04
Gold - pure	297.7
Helium	2.77
Ice	2.2
Iron	83.5
Lead - pure	37.04
Limestone	0.5
Magnesium AZ31B-H24	95.19
Magnesium HK31A-H24	114.2
Methane	0.303
Molybdenum - wrought	143.6
Nickel - pure	91.73
Nitrogen	0.146

Nylon	0.24
Platinum	69.23
Polycarbonate	0.2
Polypropylene	0.4
Polystyrene foam	0.36
Polyurethane foam	0.026
PTFE	0.24
SiC Alpha	77.5
SiC sintered KT	80
Silastic E	0.18
Silastic L	0.28
Silicone foam (Poron)	0.06
Silver - pure	417.1
Snow (light)	0.6
Snow (packed)	2.2
Soil (coarse)	0.52
Soil (dry w/ stones)	0.52
Soil (dry)	0.23
Soil (w/ 42% water)	1.1
Steel AISI 304	16.27
Steel AISI C1020	46.73
Tantalum	53.65
Titanium B 120 VCA	7.442
Tungsten	164.4
Water (4 degC)	0.603
White pine	0.11

DENSITY

Material	Density [kg/m ³]
Acrylic	1400
Air (2800 m)	0.98
Air (STP)	1.293
Aluminum 2024-T3	2770
Aluminum 3003	2700
Aluminum 6061-T6	2700
Aluminum 7079-T6	2740

Ammonia - liquid	682.1
Argon - liquid	1390
Beryllium QMV	1850
Borosilicate Ohara E6	2180
Borosilicate Tempax	2230
Concrete	2242
Copper - pure	8900
Dow Corning 200 (350cSt)	968
Fused silica	2200
Glass wool	64
Gold - pure	19320
Helium - liquid	125
Hydrogen - liquid	70
Iron	7830
Lead - pure	11340
Magnesium AZ31B-H24	1770
Magnesium HK31A-H24	1790
Methane - liquid	424
Molybdenum - wrought	10300
Neon - liquid	1200
Nickel - pure	8900
Nitrogen - liquid	804
Nylon	1700
Platinum	21450
Polycarbonate	1300
Polyethylene	2300
PTFE	1200
SiC Alpha	2975
SiC sintered KT	2975
Silver - pure	10500
Steel AISI 304	8030
Steel AISI C1020	7850
Tantalum	16600
Titanium B 120 VCA	4850
Tungsten	19300
Water (4 degC)	999.97
White pine	513

VISCOSITY

Material	Viscosity [N·s/m ²]
Carbon dioxide (0°C, 101 kPa)	1.39E-05
Helium (0°C, 101 kPa)	1.86E-05
Hydrogen (0°C, 101 kPa)	8.35E-06
Methane (0°C, 101 kPa)	1.03E-05
Nitrogen (0°C, 101 kPa)	1.66E-05
Oxygen (0°C, 101 kPa)	1.92E-05
Water (0 degC)	1.75E-03

ELECTRICAL RESISTIVITY

Material	Electrical Resistivity Ohm ·m
Aluminum 2017	4.00E-08
Aluminum 3003	4.00E-08
Aluminum 99.996%	2.66E-08
Copper - pure	1.67E-08
Nickel ASTM B160	1.00E-07
Steel AISI 304	7.20E-07
Steel AISI C1020	1.00E-07

HEAT CAPACITY

Material	Heat Capacity [J/kg·°C]
Acrylic	1006
Aluminum 2024-T3	963
Aluminum 6061-T6	963
Aluminum 7079-T6	963
Beryllium QMV	1884
Borosilicate glass	710
Concrete	1000
Copper - pure	385
Dow Corning 200 (350cSt)	1465
Ethanol (25°C)	2453

Gold - pure	130
Ice	2093
Iron	440
Lead - pure	130
Magnesium AZ31B-H24	1047
Magnesium HK31A-H24	544
Methanol (25°C)	2547
Molybdenum - wrought	293
Nickel - pure	461
Platinum	130
SiC Alpha	1300
SiC sintered KT	1340
Silica (0°C)	937
Silver - pure	235
Steel AISI 304	503
Steel AISI C1020	419
Tantalum	126
Titanium B 120 VCA	544
Tungsten	138
Water (4 degC)	4216

HEAT OF COMBUSTION

Material	Heat of Combustion [MJ/kg]
Methane	55.7
Water (4 degC)	334

HEAT OF FUSION

Material	Heat of Fusion [kJ/kg]
Nitrogen	25.5
Octane	47.7

ELASTIC MODULUS

Material	Elastic Modulus [Pa]
Aluminum 2024-T3	7.310E+10
Aluminum 6061-T6	7.310E+10
Aluminum 7079-T6	7.172E+10
Beryllium QMV	2.897E+11
Borosilicate Ohara E6	5.743E+10
Borosilicate Tempax	6.200E+10
Copper - pure	1.172E+11
Gold - pure	7.448E+10
Lead - pure	1.379E+10
Magnesium AZ31B-H24	4.483E+10
Magnesium HK31A-H24	4.414E+10
Molybdenum - wrought	2.759E+11
Nickel - pure	2.207E+11
Platinum	1.469E+11
SiC Alpha	4.760E+11
SiC sintered KT	3.320E+11
Silver - pure	7.241E+10
Steel AISI 304	1.931E+11
Steel AISI C1020	2.034E+11
Tantalum	1.862E+11
Titanium B 120 VCA	1.021E+11
Tungsten	3.448E+11