Specific Heat of common Substances

Specific heat of materials like wet mud, granite, sandy clay, quartz sand and more

The specific heat of some **common substances** is given in the table below.

For conversion of units, use the Specific heat online unit converter.

See also tabulated values of *specific heat* of gases, food and foodstuff, metals and semimetals, common liquids and fluids and common solids, as well as values of *molar heat capacity* of common organic substances and inorganic substances.

Substance	Specific Heat - c_p -	
	(cal/gram ^oC)	*(J/kg ^oC)* *(Btu/lb F)*
Acetals	0.35	1460
Air, dry (sea level)	0.24	1005
Agate	0.19	800
Alcohol, ethyl	0.58	2440
Alcohol, metyl wood)	0.60	2530
Aluminum	0.21	897
Aluminum bronze	0.10	436
Alumina, AL_2O_3	0.17	718
Ammonia, liquid	1.12	4700
Ammonia, gas	0.49	2060
Antimony	0.05	209
Argon	0.12	520
Arsenic	0.083	348
Artificial wool	0.32	1357
Asbestos	0.2	816
Asphalt	0.22	920
Barium	0.07	290
Barytes	0.11	460
Beryllium	0.24	1020
Bismuth	0.03	130
Boiler scale	0.19	800
Bone	0.11	440
Boron	0.23	960
Boron nitride	0.17	720
Brass	0.09	375
Brick	0.20	840
Bronze	0.09	370
Brown iron ore	0.16	670
Cadmium	0.06	234
Calcium	0.13	532
Calsium silicate, $CaSiO_3$	0.17	710
Cellulose, cotton, wood pulp and regenerated	0.31 - 0.36	1300 - 1500
Cellulose acetate, molded	0.30 - 0.43	1260 - 1800
Cellulose acetate, sheet	0.30 - 0.50	1260 - 2100
Cellulose nitrate, Celluloid	0.31 - 0.41	1300 - 1700
Chalk	0.18	750
Charcoal	0.06	840
Chromium	0.11	452
Chrom oxide	0.18	750
Clay, sandy	0.33	1381
Cobalt	0.10	435
Coke	0.20	840

Substance	Specific Heat - c_p -	
	(cal/gram ^oC)	*(J/kg ^oC)* (Btu/lb F)
Concrete	0.21	880
Constantan	0.1	410
Copper	0.09	385
Cork	0.48	2000
Diamond (carbon)	0.12	516
Duralium	0.22	920
Emery	0.23	960
Epoxy cast resins	0.24	1000
Fire brick	0.21	880
Fluorspar CaF_2	0.20	830
Dichlorodifluoromethane R12, liquid	0.21	871
Dichlorodifluoromethane R12, vapor	0.14	595
Ice (0^oC)	0.50	2093
India rubber	0.30	1250
Glass, crown	0.16	670
Glass, pyrex	0.18	753
Glass-wool	0.20	840
Gold	0.031	129
Granite	0.19	790
Graphite (carbon)	0.17	717
Gypsum	0.26	1090
Helium	1.24	5193
Hydrogen	3.42	14304
Ice, snow (-5^oC)	0.50	2090
Ingot iron	0.12	490
Iodine	0.05	218
Iridium	0.03	134
Iron	0.11	449
Lead	0.03	129
Leather	0.36	1500
Limestone	0.22	909
Lithium	0.86	3582
Lucite	0.35	1460
Magnesia (Mangnesium oxide), MgO	0.21	874
Magnesium	0.25	1050
Magnesium alloy	0.24	1010
Manganese	0.11	460
Marble	0.21	880
Mercury	0.033	140
Mica	0.21	880
Molybdenum	0.07	272
Neon	0.25	1030
Nickel	0.11	461
Nitrogen	0.25	1040
Nylon-6	0.38	1600
Nylon-66	0.41	1700
Olive oil	0.43	1790
Osmium	0.03	130
Oxygen	0.22	918
Palladium	0.06	240
Paper	0.32	1336
Paraffin	0.78	3260
Peat	0.45	1900
Perlite	0.092	387
Phenolic cast resins	0.30 - 0.40	1250 - 1670
Phenol-formaldehyde molding compounds	0.60 - 1.4	2500 - 6000
Phosphorbonze	0.09	360
Phosphorus	0.19	800
Pinchbeck	0.09	380
Pit coal	0.24	1020

Substance	Specific Heat - c_p -	
	(cal/gram^oC)	*(J/kg^oC)* (Btu/lb F)
Platinium	0.032	133
Plutonium	0.033	140
Polycarbonates	0.28 - 0.30	1170 - 1250
Polyethylene terephthalate	0.30	1250
Polyimide aromatics	0.27	1120
Polyisoprene natural rubber	0.45	1880
Polyisoprene hard rubber	0.33	1380
Polymethylmethacrylate	0.36	1500
Polypropylene	0.46	1920
Polystyrene	0.31 - 0.36	1300 - 1500
Polytetrafluoroethylene moulding compound	0.24	1000
Polytetrafluoroethylene (PTFE)	0.28	1172
Polyurethane cast liquid	0.43	1800
Polyurethane elastomer	0.43	1800
Polyvinylchloride PVC	0.20 - 0.29	840 - 1170
Porcelain	0.26	1085
Potassium	0.24	1000
Potassium chloride	0.16	680
Pyroceram	0.17	710
Quartz, SiO_2	0.17	730
Quartz glass	0.17	700
Red metal	0.09	381
Rhenium	0.03	140
Rhodium	0.06	240
Rosin	0.31	1300
Rubidium	0.08	330
Salt, NaCl	0.21	880
Sand, quartz	0.19	830
Sandstone	0.17	710
Scandium	0.16	568
Selenium	0.08	330
Silicon	0.17	705
silicon carbide	0.16	670
Silver	0.056	235
Slate	0.18	760
Sodium	0.30	1260
Soil, dry	0.19	800
Soil, wet	0.35	1480
Soot	0.20	840
Snow	0.50	2090
Steatite	0.20	830
Steel	0.12	490
Sulfur, crystal	0.17	700
Tantalium	0.03	138
Tellurium	0.05	201
Thorium	0.03	140
Timber, alder	0.33	1400
Timber, ash	0.38	1600
Timber, birch	0.45	1900
Timber, larch	0.33	1400
Timber, maple	0.38	1600
Timber, oak	0.57	2400
Timber, pitchpine	0.31	1300
Timber, pockwood	0.60	2500
Timber, red beech	0.31	1300
Timber, red pine	0.36	1500
Timber, white pine	0.36	1500
Timber, walnut	0.33	1400
Tin	0.054	228
Titanium	0.12	523