Emissivity Values for Common Materials

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[Measured Normal Emissivities]

Material	Wavelength	Emit.
Asbestos: board		0.96
Asbestos: fabric		0.78
Asbestos: paper		0.93
Asbestos: slate		0.96
Brick: alumina	**2-5.6m**	0.68
Brick: common	**2-5.6m**	.81-.86
Brick: common, red		0.93
Brick: facing, red	**2-5.9m**	0.92
Brick: facing, yellow	**2-5.6m**	0.72
Brick: fireclay		0.85
Brick: fireclay		0.75
Brick: fireclay		0.59
Brick: masonry	**5m**	0.94
Brick: red		0.90
Brick: waterproof	**2-5.6m**	0.87
Carbon: candle soot		0.95
Carbon: graphite, filed surface		0.98
Carbon: purified	**8-14m**	0.80
Cement:	**8-14m**	0.54
Charcoal: powder	**8-14m**	0.96
Chipboard: untreated	**2-5.6m**	0.90
Clay: fired	**8-14m**	0.91
Concrete		0.92
Concrete: dry	**5m**	0.95
Concrete: rough	**2-5.6m**	.92-.97
Enamel: laquer	**8-14m**	0.90
Fabric: Hessian, green		0.88
Fabric: Hessian, uncolored	**2-5.6m**	0.87
Fiberglass		0.750
Fiber board: porous, untreated	**2-5.6m**	0.85
Fiber board: hard, untreated	**2-5.6m**	0.85

Filler: white	**2-5.6m**	0.88
Firebrick	**2-5.6m**	0.68
Formica	**6.5-20m**	0.937
Glass	**8-14m**	0.92
Glass: chemical ware (partly transparent)	**6.5-20m**	0.97
Glass: frosted	**8-14m**	0.96
Glass: frosted		0.70
Glass: frosted		0.67
Glass: polished plate		0.94
Granite: natural surface	**5m**	0.96
Graphite: powder	**8-14m**	0.97
Gravel	**6.5-20m**	0.28
Gypsum	**8-14m**	.085
Hardwood: across grain	**2-5.6m**	0.82
Hardwood: along grain	**2-5.6m**	.68-.73
Ice	**8-14m**	0.97
Iron: heavily rusted	**2-5.6m**	.91-.96
Lacquer: bakelite	**8-14m**	0.93
Lacquer: dull black	**8-14m**	0.97
Lacquer: white	**8-14m**	0.87q
Lacquer: white		0.92
Lacquer: matte black		0.97
Lacquer: shiny, black, on metal		0.87
Lampblack	**8-14m**	0.96
Limestone: natural surface	**5m**	0.96
Mortar	**2-5.6m**	0.87
Mortar: dry	**5m**	0.94
Oil, lubricating (thin film on nickel base)		
Nickel base alone		0.05
Film thickness = 0.001		0.27
Film thickness = 0.002		0.46
Film thickness = 0.005		0.72
Thick coating		0.82
P.V.C.	**2-5.6m**	.91-.93
Paint: 3M, black velvet coating 9560 series optical black	**3m**	@1.00
Paint: 3M, black velvet coating 9560 series optical black	**10m**	@1.00

Paint: Acme, quality spray enamel, #801 brilliant black	**3m**	.0959
Paint: Acme, quality spray enamel, #801 brilliant black	**10m**	0.945
Paint: Aquadag, 4 coats on copper aluminum		0.490
Paint: aluminum		0.450
Paint: Broma, alkyd enamel #113 light blue	**3m**	0.95
Paint: Broma, alkyd enamel #113 light blue	**10m**	0.960
Paint: Broma, alkyd enamel #102, gold leaf	**3m**	0.98
Paint: Broma, alkyd enamel #102, gold leaf	**10m**	0.98
Paint: cadmium yellow		0.33
Paint: chrome green		0.70
Paint: Chromatone stabilized silver finish (Alumatone)	**3m**	0.26
Paint: Chromatone stabilized silver finish (Alumatone)	**10m**	0.305
Paint: cobalt blue		
Paint: Dupont Duco #71 wrought iron black	**3m**	0.982
Paint: Dupont Duco #71 wrought iron black	**10m**	0.897
Paint: Dutch Boy, 46H47, National lead high heat black	**10m**	0.90
Paint: Krylon, flat black	**3m**	0.95
Paint: Krylon, flat black	**10m**	0.956
Paint: Krylon, flat white #1502	**3m**	0.992
Paint: Kylon, flat white #1502	**10m**	0.989
Paint: Krylon, ultra flat black	**5m**	0.97
Paint: Microbond, 4 coats on magnesium		0.844
Paint, oil: average of 16 colors		0.94
Paint: oil, black, flat	**2-5.6m**	0.94
Paint: oil, black, gloss	**2-5.6m**	0.92
Paint: oil, gray, flat	**2-5.6m**	0.97
Paint: oil, gray, gloss	**2-5.6m**	0.94
Paint: oil, various colors	**8-14m**	0.94
Paint: plastic, black	**2-5.6m**	0.95
Paint: plastic, white	**2-5.6m**	0.84
Paint: TiO_2, gray		0.870
Paint: TiO_2, white		0.940
Paper: black		0.90
Paper: black, dull		0.94
Paper: black, shiny	**8-14m**	0.90
Paper: cardboard box	**5m**	0.81

Paper: green		0.85
Paper: red		0.76
Paper: white	**2-5.6m**	0.68
Paper: white	**8-14m**	0.90
Paper: white bond		0.93
Paper: yellow		0.72
Paper: tar	**8-14m**	0.92
Pipes: glazed	**2-5.6m**	0.83
Plaster	**2-5.6m**	.86-.90
Plaster: rough coat		0.91
Plasterboard: untreated	**2-5.6m**	0.90
Plastic: acrylic, clear	**5m**	0.94
Plastic: black	**2-5.6m**	0.95
Plastic: white	**2-5.6m**	0.84
Plastic paper: red	**2-5.6m**	0.94
Plastic paper: white	**2-5.6m**	0.84
Plexiglass: Perpex	**2-5.6m**	0.86
Plywood	**2-5.6m**	.83-.98
Plywood: commercial, smooth finish, dry	**5m**	0.82
Plywood: untreated	**2-5.6m**	0.83
Polyproplene	**2-5.6m**	0.97
Porcelain: glazed	**8-14m**	0.92
Quartz	**8-14m**	0.93
Redwood: wrought, untreated	**2-5.6m**	0.83
Redwood: unwrought, untreated	**2-5.6m**	0.84
Rendering: gray	**2-5.6m**	0.92
Rokide A		0.770
Rubber	**8-14m**	0.95
Rubber: stopper, black	**5m**	0.97
Sand		0.90
Shellac: black, dull		0.91
Shellac: black, shiny, on tin plate		0.82
Shingles: asphalt, sm, ceramic coated		
Skin, human		0.98
Snow	**8-14m**	0.80
Soil: dry		0.92

Soil: frozen	**6.5-20m**	0.93
Soil: saturated with water		0.95
Styrofoam: insulation	**5m**	0.60
Tape: electrical, insulating, black	**5m**	0.97
Tape: masking	**5m**	0.92
Tile: floor, asbestos	**5m**	0.94
Tile: glazed	**2-5.6m**	0.94
Varnish: flat	**2-5.6m**	0.93
Wallpaper: slight pattern, light gray	**2-5.6m**	0.85
Wallpaper: slight pattern, red	**2-5.6m**	0.90
Water:	**8-14m**	0.98
Water: distilled		0.98
Water: ice, smooth		0.96
Water: frost crystals		0.98
Water: snow		0.85
Wood: oak, planed		0.90
Wood: paneling, light finish		0.87
Wood: planed	**8-14m**	0.85
Wood: spruce, polished, dray	**5m**	0.86