Emmissivity Values

1. Black Coatings & Materials

Material		Emissivity
Anodize Black		0.88
Carbon	Filament	0.53
	Rough Plate	0.77
	Lampblack	0.84
Carbon Black Paint NS-7		0.88
Catalac Black Paint		0.88
Chemglaze Black Paint Z306		0.91
Delrin Black Plastic		0.87
Ebanol C Black		0.73
Ebanol C Black-384 ESH* UV		0.75
EOI Mid-Temperature Black Coating (up to 200°C)		0.965
EOI High-Temperature Black Coating (up to 1400°C)		0.93
GSFC Black Slicate MS-94		0.89
GSFC Black Paint 313-1		0.86
Hughson Black Paint H322		0.86
Hughson Black Paint L-300		0.84
Martin Black Paint N-150-1		0.94
Martin Black Velvet Paint		0.94
3M Black Velvet Paint		0.91
Paladin Black Lacquer		0.75
Parsons Black Paint		0.91
Polyethylene Black Plastic		0.92
Pyramil Black on Beryllium Copper		0.72
Tedlar Black Plastic		0.9
Velesat Black Plastic		0.85

2. White Coatings & Materials

Material	Emissivity
Barium Sulphate with Polyvinyl Alcohol	0.88
Biphenyl-White Solid	0.86
Catalac White Paint	0.9
Dupont Lucite Acrylic Lacquer	0.9
Dow Corning White Paint DC-007	0.88
GSFC White Paint NS43-C	0.92
GSFC White Paint NS44-B	0.91
GSFC White Paint NS-74	0.92
GSFC White Paint NS-37	0.91
Hughson White Paint A-276	0.88
Hughson White Paint A-276+1036 ESH UV	0.88
Hughson White Paint V-200	0.89
Hughson White Paint Z-202	0.87
Hughson White Paint Z-202+1000 ESH UV	0.87
Hughson White Paint Z-255	0.89
Mautz White House Paint	0.9
3M-401 White Paint	0.91
Magnesium Oxide White Paint	0.9
Magnesium Oxide Aluminum Oxide Paint	0.92
Opal Glass	0.87
OSO-H White Paint 63W	0.83
P764-1A White Paint	0.92
Potassium Fluorotitanate White Paint	0.88
Sherwin Williams White Paint (A8W11)	0.87
Sherwin Williams White Paint (F8WJ2030)	0.82
Sherwin Williams F8W2030 with Polasol V6V241	0.87
Sperex White Paint	0.85
Tedlar White Plastic	0.87
Titanium Oxide White Paint with Methyl Silicone	0.9
Titanium Oxide White Paint with Potassium Silicate	0.92
Zerlauts S-13G White Paint	0.9
Zerlauts Z-93 White Paint	0.92
Zinc Orthotitanate with Potassium Silicate	0.92
Zinc Oxide with Sodium Silicate	0.92
Zirconium Oxide with 650 Glass Resin	0.88

3. Conductive Paints

Material	Emissivity
Brilliant Aluminum Paint	0.31
Epoxy Aluminum Paint	0.81
Finch Aluminum Paint 643-1-1	0.23
Leafing Aluminum in Epon828	0.36
Leafing Aluminum (80-U)	0.32
NRL Leafing Aluminum Paint	0.24
Silicone Aluminum Paint	0.3
Dupont Silver	0.49
Chromeric Silver Paint 586	0.3
GSFC Yellow NS-43-G	0.9
GSFC Green NS-53-B	0.87
GSFC Green NS-43-E	0.89
GSFC White NS-43-C	0.92
GSFC Green NS-55-F	0.91
GSFC Green NS-79	0.91

4. Anodized Aluminum

Material	Emissivity
Black	0.82
Black (2nd sample)	0.86
Blue	0.87
Blue (2nd sample)	0.82
Brown	0.86
Chromic	0.56
Clear	0.76
Clear (2nd sample)	0.84
Green	0.88
Gold	0.82
Plain	0.04
Red	0.88
Sulphuric	0.87
Yellow	0.87
Blue Anodized Titanium Foil	0.13

5. Metals and Conversion Coatings

Material		Emissivity
Aluminum	Highly Polished	0.039 - 0.057
	Commercial Sheet	0.09
	Heavily Oxidized	0.20 - 0.31
	Surface Roofing	0.216
Alzac A-2		0.73
Black Chrome		0.62
Black Copper		0.63
Black Iridite		0.17
Black nickel		0.66
Brass	Highly polished	0.028 - 0.037
	Dull plate	0.22
Buffed Aluminum		0.03
Buffed Copper		0.03
Constantan-Metal Strip		0.09
Copper	Polished	0.023
	Thick oxide layer	0.78
Dow 23 on Magnesium		0.67
Ebanol C Black		0.77
Electroplated Gold		0.03
Electroless Nickel		0.07
	Iron, polished	0.14 - 0.38
	Cast Iron	0.60 - 0.70
	Mild Steel	0.20 - 0.32
	Iron Plate, Rusted Red	0.61
	Sheet, Rough Oxide Layer	0.81
Gold - Pure, Highly Polished		0.018 - 0.035
Iridite Aluminum		0.11
Inconel X Foil (1 mil)		0.1
Iron and Steel (not stainless)	Kannigen-Nickel Alloy	0.08
	Steel, polished	0.066
Lead	Unoxidized	0.057 - 0.075
	Gray oxidize	0.28
Molybdenum	Filament	0.096 - 0.202
	Massive, polished	0.071
Nickel	Polished	0.072
	Nickel oxide	0.59 - 0.86
Plain Beryllium Copper		0.03
Platinum Foil		0.04
Quartz, rough, fused		0.93
Stainless Steel	Polished	0.11
	Machined	0.14
	Sandblasted	0.38

	Machine Rolled	0.11
	Boom-Polished	0.1
Silver - Pure, polished		0.020 - 0.032
Tantalum Foil		0.05
Tungsten polished		0.03

6. Vapor Deposited Coatings

Material	Emissivity
Aluminum	0.02
Aluminum on fiberglass	0.07
Aluminum on stainless steel	0.02
Chromium	0.17
Chromiumlon 5-mil Kapton	0.24
Germanium	0.09
Gold	0.02
Iron Oxide	0.56
Molybdenum	0.21
Nickel	0.04
Rhodium	0.03
Silver	0.02
Titanium	0.12
Tungsten	0.27

7. Tapes & Film

Material		Emissivity
Aclar Film (Aluminum Backing)	1 mil	0.45
	2 mil	0.62
	5 mil	0.73
Copper Foil Tape	Plain	0.02
	Sanded	0.04
	Tarnished	0.04
Kapton Film (Aluminum Backing)	0.08 mil	0.24
	0.15 mil	0.34
	0.25 mil	0.45
	0.50 mil	0.55
	1.0 mil	0.67
	1.5 mil	0.71
	2.0 mil	0.75
	3.0 mil	0.82
	5.0 mil	0.86
Kapton Film (Chrome-Si Oxide-Alu backing green)		0.78
235-3M Black		0.9
425-3M Aluminum Foil		0.03

850-3M Mylar-Aluminum Backing	0.59
7361-Mystic Aluminized Kapton	0.03
7452-Mystic Aluminum Foil	0.03
7800-Mystic Aluminum Foil	0.03
Y9360-3M Aluminized Mylar	0.03

8. MISCELLANEOUS

Material		Emissivity
Asbestos, board		0.96
Aluminum Oxide (Al_2O_3)-(12/4) on buffed Alu initial		0.23
Aluminum Oxide (Al_2O_3)-(12/4) on fused silica		0.24
Brick	Red, rough, no gross irregularities	0.93
	Fireclay	0.75
Concrete tiles		0.63
Glass	Smooth	0.94
	Pyrex, lead, and soda	0.95
	Porcelain, glazed	0.92
GSFC Dark Mirror Coating - SiO-Cr-Al		0.04
GSFC Composite SiOx - Al_2O_3-Ag		0.68
Inconel with Teflon Over coating - 1 mil		0.46
Kapton Over coating		0.57
Parylene C Over coating		0.34
Roofing paper		0.91
Silver Beryllium Copper Coating (AgBeCu)		0.03
Teflon Over coating		0.38
Vespel Polyimide SP1		0.9
Water		0.95