Infrared Thermometer

K values of the materials

Material	Emissivity		
	1.0 µm	1.6 µm	8 - 14 µm
Aluminium			
unoxidised	0.1 - 0.2	0.02 - 0.2	n/a
oxidised	0.4	0.4	0.2 - 0.4
A3003 alloy,			
oxidised	n/a	0.4	0.3
harsh	0.2 - 0.8	0.2 - 0.6	0.1 - 0.3
polished	0.1 - 0.2	0.02 - 0.1	n/a
Lead			
polished	0.35	0.05 - 0.2	n/a
rough	0.65	0.6	0.4
oxidised	n/a	0.3 - 0.7	0.2 - 0.6
Chrome	0.4	0.4	n/a
Iron			
oxidised	0.4 - 0.8	0.5 - 0.9	0.5 - 0.9
unoxidised	0.35	0.1 - 0.3	n/a
rusty	n/a	0.6 - 0.9	0.5 - 0.7
molten	0.35	0.4 - 0.6	n/a
Iron, cast			
oxidised	0.7 - 0.9	0.7 - 0.9	0.6 - 0.95
unoxidised	0.35	0.3	0.2
molten	0.35	0.3 - 0.4	0.2 - 0.3
Iron, forged			
uncut	0.9	0.9	0.9
Gold	0.3	0.01 - 0.1	n/a
Haynes			
alloy	0.5 - 0.9	0.6 - 0.9	0.3 - 0.8
Inconel			
oxidised	0.4 - 0.9	0.6 - 0.9	0.7 - 0.95
sand blasted	0.3 - 0.4	0.3 - 0.6	0.3 - 0.6
electrically polished	0.2 - 0.5	0.25	0.15
Copper			
polished	n/a	0.03	n/a
alloy	n/a	0.05 - 0.2	n/a
oxidised	0.2 - 0.8	0.2 - 0.9	0.4 - 0.8
Magnesium	0.3 - 0.8	0.05 - 0.3	n/a
Bronze			
polished	0.8 - 0.95	0.01 - 0.05	n/a
highly polished	n/a	n/a	0.3
oxidised	0.6	0.6	0.5
Molybdenum			
oxidised	0.5 - 0.9	0.4 - 0.9	0.2 - 0.6
unoxidised	0.25 - 0.35	0.1 - 0.35	

Nickel			
oxidised	0.8 - 0.9	0.4 - 0.7	0.2 - 0.5
electrolytic	0.2 - 0.04	0.1 - 0.3	n/a
Platinum			
black	n/a	0.95	0.9
Mercury	n/a	0.05 - 0.15	n/a
Silver	n/a	0.02	n/a
Steel			
cold-rolled	0.8 - 0.9	0.8 - 0.9	0.7 - 0.9
rough	n/a	n/a	0.4 - 0.6
polished	0.35	0.25	0.1
molten	0.35	0.25 - 0.4	n/a
oxidised	0.8 - 0.9	0.8 - 0.9	0.7 - 0.9
stainless	0.35	0.2 - 0.9	0.1 - 0.8
Titanium			
polished	0.5 - 0.75	0.3 - 0.5	n/a
oxidised	n/a	0.6 - 0.8	0.5 - 0.6
Tungsten	n/a	0.1 - 0.6	n/a
polished	0.35 - 0.4	0.1 - 0.3	n/a
Zinc			
oxidised	0.6	0.15	0.1
polished	0.5	0.05	n/a
Tin (unoxidised)	0.25	0.1 - 0.3	n/a

n/a = not available

Non-metallic materials

Material	Emission			
	1.0 µm	5.0 µm	7.9 µm	8 - 14 µm
Asbestos	0.9	0.9	0.95	0.95
Asphalt	n/a	0.9	0.95	0.95
Basalt	n/a	0.7	0.7	0.7
Concrete	0.65	0.9	0.95	0.95
Ice	n/a	——	0.98	0.98
Earth	n/a	0.9 - 0.98	0.9 - 0.98	
Paint (non alkaline)	——	0.9 - 0.95	0.9 - 0.95	
Gypsum	n/a	0.4 - 0.97	0.8 - 0.95	0.8 - 0.95
Glass				
plate	n/a	0.98	0.85	0.85
cast	n/a	0.9	n/a	n/a
Rubber	n/a	0.9	0.95	0.95
Wood (natural)	n/a	0.9 - 0.95	0.9 - 0.95	0.9 - 0.95
Calcium carbonate	n/a	0.4 - 0.98	0.98	0.98
Carborundum	n/a	0.9	0.9	0.9
Ceramic	0.4	0.85 - 0.95	0.95	0.95
Gravel	n/a	0.95	0.95	0.95
Carbon				
non corroding	0.8 - 0.95	0.8 - 0.9	0.8 - 0.9	0.8 - 0.9
graphite	0.8 - 0.9	0.7 - 0.9	0.7 - 0.8	0.7 - 0.8
Paper (coloured)	n/a	0.95	0.95	0.95
Plastic				
non translucent	n/a	0.95	0.95	0.95

Fabric	n/a	0.95	0.95	0.95
Sand	n/a	0.9	0.9	0.9
Snow	n/a	——	0.9	0.9
Clay	n/a	0.85 - 0.95	0.95	0.95
Water	n/a	——	0.93	0.93

n/a = not available