

Conductivity and Resistivity Values for Misc. Materials

Material	Conductivity		Resistivity	Reference	Notes
	(% IACS)	(Siemens/m)	(Ohm-m)	(See Endnotes)	
Antimonial Tin Solder	11.90	6.902E+06	1.449E-07	CSNDT	
Antimonial Lead, 1% (Quenched and Aged)	7.88	4.570E+06	2.188E-07	CSNDT	
Antimony	4.40	2.552E+06	3.918E-07	CSNDT	
Antimony	4.66		3.700E-07	MHASM2	conductivity converted from resistivity
Arsenic (alpha-metallic)	6.63		2.600E-07	MHASM2	conductivity converted from resistivity
Babbitt, Lead Base	6.00	3.480E+06	2.874E-07	CSNDT	
Barium (at 0 C)	28.74		6.000E-08	MHASM2	conductivity converted from resistivity
Beryllium	38.9 - 43.1	2.50E+07--2.256E+07	4.00E-08--4.43E-08	CSNDT	
Beryllium	38-43		4.000E-08	MHASM2	
<i>Bismuth alloys</i>					
Pure Bismuth (at 0 C)	1.64		1.050E-06	MHASM2	conductivity converted from resistivity
A	3.34		5.162E-07	MHASM2	resistivity converted from conductivity
B	2.43		7.095E-07	MHASM2	resistivity converted from conductivity
C	4.19		4.115E-07	MHASM2	resistivity converted from conductivity
G	1.75		9.852E-07	MHASM2	resistivity converted from conductivity
H	5.00		3.448E-07	MHASM2	resistivity converted from conductivity
T	4.27		4.038E-07	MHASM2	resistivity converted from conductivity
Y	2.57		6.709E-07	MHASM2	resistivity converted from conductivity
Z	7.77		2.219E-07	MHASM2	resistivity converted from conductivity
ZZ	3.27		5.272E-07	MHASM2	resistivity converted from conductivity
Cadmium	25.20	1.462E+07	6.842E-08	CSNDT	
Cadmium	25.00		7.300E-08	MHASM2	
Calcium	48.70	2.825E+07	3.540E-08	CSNDT	
Calcium	49.60		3.160E-08	MHASM2	
Cartridge Brass (Annealed)	28.00	1.624E+07	6.158E-08	CSNDT	
Cerium (beta phase)	2.08		8.280E-07	MHASM2	conductivity converted from resistivity
Cerium (gamma phase)	2.32		7.440E-07	MHASM2	conductivity converted from resistivity

Cermets					
Cr-Al ₂ O ₃	19.82		8.700E-08	MHASM2	conductivity converted from resistivity
Cromium carbide type A (83Cr ₃ C ₂ -15Ni-2W)	20.53		8.400E-08	MHASM2	conductivity converted from resistivity
Cromium carbide type B (88Cr ₃ C ₂ -12Ni)	24.63		7.000E-08	MHASM2	conductivity converted from resistivity
TiB ₂	112.69		1.530E-08	MHASM2	conductivity converted from resistivity
ZrB ₂	107.76		1.600E-08	MHASM2	conductivity converted from resistivity
ZrB ₂ -B	75-101		1.7E-8--2.3E-8	MHASM2	conductivity converted from resistivity
CrB	86.21		2.000E-08	MHASM2	conductivity converted from resistivity
CrB-Ni	28-45		3.8E-8--5.8E-8	MHASM2	conductivity converted from resistivity
CrB-Cr-Mo	32-47		3.7E-8--5.4E-8	MHASM2	conductivity converted from resistivity
Mo ₂ NiB ₂	24-26		6.6E-8--7.1E-8	MHASM2	conductivity converted from resistivity
Cesium					
Cesium	8.62	4.500E+06	2.000E-07	MHASM2	conductivity (IACS) converted from resistivity
Chromium					
Chromium	8.80	5.104E+06	1.959E-07	CSNDT	
Chromium (at 20 C)	13.00		1.300E-07	MHASM2	
Cobalt					
Cobalt	27.60	1.601E+07	6.247E-08	CSNDT	
Cobalt	27.60		5.250E-08	MHASM2	
wear-resistant alloy 1					
wear-resistant alloy 1	1.83		9.400E-07	MHASM2	conductivity converted from resistivity
wear-resistant alloy 6					
wear-resistant alloy 6	2.05		8.400E-07	MHASM2	conductivity converted from resistivity
wear-resistant alloy 12					
wear-resistant alloy 12	1.96		8.800E-07	MHASM2	conductivity converted from resistivity
wear-resistant alloy 6B					
wear-resistant alloy 6B	1.89		9.100E-07	MHASM2	conductivity converted from resistivity
Columbium					
Columbium	13.20	7.656E+06	1.306E-07	CSNDT	
Constantan					
Constantan	3.52	2.042E+06	4.898E-07	CSNDT	
Corrodine Lead					
Corrodine Lead	8.30	4.814E+06	2.077E-07	CSNDT	
Dysprosium					
Dysprosium	1.86		9.260E-07	MHASM2	conductivity converted from resistivity
Europium					
Europium	1.92		9.000E-07	MHASM2	conductivity converted from resistivity
Erbium					
Erbium	2.00		8.600E-07	MHASM2	conductivity converted from resistivity
Gadolinium					
Gadolinium	1.32		1.310E-06	MHASM2	conductivity converted from resistivity
Gallium (polycrystalline)					
Gallium (polycrystalline)	11.46		1.505E-07	MHASM2	conductivity converted from resistivity
Gilding Metal (Annealed)					
Gilding Metal (Annealed)	56.00	3.248E+07	3.079E-08	CSNDT	
Gold					
Gold	73.40	4.257E+07	2.349E-08	CSNDT	
Gold, Pure					
Gold, Pure	70.00	4.060E+07	2.463E-08	ECTM	
Gold					
Gold	83.69		2.060E-08	MHASM2	conductivity converted from resistivity
Graphite					
Graphite	0.22	1.276E+05	7.837E-06	CSNDT	
Hafnium					
Hafnium	4.91		3.510E-07	MHASM2	conductivity converted from resistivity

<i>Indium</i>					
100% In	24.00		7.184E-08	MHASM2	resistivity converted from conductivity
290 (97In-3Ag)	23.00		7.496E-08	MHASM2	resistivity converted from conductivity
90In-10Ag	22.10		7.801E-08	MHASM2	resistivity converted from conductivity
300-302 (80In-15Pb-5Ag)	13.00		1.326E-07	MHASM2	resistivity converted from conductivity
320-345 (70In-30Pb)	8.80		1.959E-07	MHASM2	resistivity converted from conductivity
60In-40Pb	7.00		2.463E-07	MHASM2	resistivity converted from conductivity
244 (52In-48Sn)	11.70		1.474E-07	MHASM2	resistivity converted from conductivity
50In-50Sn	11.70		1.474E-07	MHASM2	resistivity converted from conductivity
500In-50Pb	6.00		2.874E-07	MHASM2	resistivity converted from conductivity
40In-60Pb	5.20		3.316E-07	MHASM2	resistivity converted from conductivity
25In-75Pb	4.60		3.748E-07	MHASM2	resistivity converted from conductivity
25In-37.5Pb-37.5Sn	7.80		2.210E-07	MHASM2	resistivity converted from conductivity
136 (21In-18Pb-12Sn-49Bi)	2.43		7.095E-07	MHASM2	resistivity converted from conductivity
19In-81Pb	4.50		3.831E-07	MHASM2	resistivity converted from conductivity
307-323 (12In-18Pb-70Sn)	12.20		1.413E-07	MHASM2	resistivity converted from conductivity
5In-95Pb	5.10		3.381E-07	MHASM2	resistivity converted from conductivity
5In-90Pb-5Ag	5.60		3.079E-07	MHASM2	resistivity converted from conductivity
5In-92.5Pb-2.5Ag	5.50		3.135E-07	MHASM2	resistivity converted from conductivity
<i>Iridium</i>					
Iridium	36.61		4.710E-08	MHASM2	conductivity converted from resistivity
Iridium	32.60	1.891E+07	5.289E-08	CSNDT	
Iridium - Platinum Alloys	9.10	5.278E+06	1.895E-07	CSNDT	
Iridium - Platinum Alloys, 18% Nickel Silver Alloy B	5.20	3.016E+06	3.316E-07	CSNDT	

Lead					
Lead	8.40	4.872E+06	2.053E-07	ECTM	
Lead	8.35		2.064E-07	MHASM2	conductivity converted from resistivity
1% Antimonial (Quenched & Aged)	7.88	4.570E+06	2.188E-07	CSNDT	
Corrodine	8.30	4.814E+06	2.077E-07	CSNDT	
Hard (Quenched & Aged)	7.70	4.466E+06	2.239E-07	CSNDT	
Lithium	20.20	1.172E+07	8.535E-08	CSNDT	
Lithium	18.44		9.350E-08	MHASM2	conductivity converted from resistivity
Manganese (alpha phase)	0.90		1.440E-06	MHASM2	
Mercury	1.80	1.044E+06	9.579E-07	CSNDT	
Mercury	1.80		9.580E-07	MHASM2	conductivity converted from resistivity
Mischmetal	2.16		8.000E-07	MHASM2	conductivity converted from resistivity
Molybdenum	33.00	1.914E+07	5.225E-08	CSNDT	
Molybdenum	33.00		5.200E-08	MHASM2	
Monel	3.60	2.088E+06	4.789E-07	ECTM	
Monel	3.58	2.076E+06	4.816E-07	CSNDT	
Muntz Metal (Annealed)	28.00	1.624E+07	6.158E-08	CSNDT	
Neodymium	2.68		6.430E-07	MHASM2	conductivity converted from resistivity
Niobium	13.20		1.600E-07	MHASM2	
Osmium	18.20	1.056E+07	9.473E-08	CSNDT	
Osmium	21.23		8.120E-08	MHASM2	conductivity converted from resistivity
Palladium	16.00	9.280E+06	1.078E-07	CSNDT	
Palladium	17.36		9.930E-08	MHASM2	conductivity converted from resistivity

Permanent Magnet Materials					
3 1/2 % Cr steel	5.95		2.900E-07	MHASM2	conductivity converted from resistivity
6% W steel	5.75		3.000E-07	MHASM2	conductivity converted from resistivity
17% Co steel	6.16		2.800E-07	MHASM2	conductivity converted from resistivity
36% Co steel	6.39		2.700E-07	MHASM2	conductivity converted from resistivity
Cast Alnico 1	2.30		7.500E-07	MHASM2	conductivity converted from resistivity
Cast Alnico 2	2.65		6.500E-07	MHASM2	conductivity converted from resistivity
Cast Alnico 3	2.87		6.000E-07	MHASM2	conductivity converted from resistivity
Cast Alnico 4	2.30		7.500E-07	MHASM2	conductivity converted from resistivity
Cast Alnico 5	3.67		4.700E-07	MHASM2	conductivity converted from resistivity
Cast Alnico 5DG	3.67		4.700E-07	MHASM2	conductivity converted from resistivity
Cast Alnico 5-7	3.67		4.700E-07	MHASM2	conductivity converted from resistivity
Cast Alnico 6	3.45		5.000E-07	MHASM2	conductivity converted from resistivity
Cast Alnico 7	2.97		5.800E-07	MHASM2	conductivity converted from resistivity
Cast Alnico 8	3.45		5.000E-07	MHASM2	conductivity converted from resistivity
Cast Alnico 12	2.78		6.200E-07	MHASM2	conductivity converted from resistivity
Sintered Alnico 2	2.54		6.800E-07	MHASM2	conductivity converted from resistivity
Sintered Alnico 4	2.54		6.800E-07	MHASM2	conductivity converted from resistivity
Sintered Alnico 5	3.45		5.000E-07	MHASM2	conductivity converted from resistivity
Sintered Alnico 6	3.25		5.300E-07	MHASM2	conductivity converted from resistivity
Bonded ferrite A	N/A		1.000E+05	MHASM2	conductivity converted from resistivity
Sintered ferrite 1	N/A		1.000E+05	MHASM2	conductivity converted from resistivity
Sintered NdFeB	1.08		1.600E-06	MHASM2	conductivity converted from resistivity
Bonded NdFeB	N/A		1.000E+00	MHASM2	conductivity converted from resistivity
Hot-pressed NdFeB	1.08		1.600E-06	MHASM2	conductivity converted from resistivity
Hot-formed ndFeB	1.08		1.600E-06	MHASM2	conductivity converted from resistivity
cunife	9.58		1.800E-07	MHASM2	conductivity converted from resistivity
Platinum cobalt	6.16		2.800E-07	MHASM2	conductivity converted from resistivity
Cobalt rare earth	3.45		5.000E-07	MHASM2	conductivity converted from resistivity

Platinum					
Platinum	16.28	9.442E+06	1.059E-07	CSNDT	
Platinum	17.50		9.850E-08	MHASM2	conductivity converted from resistivity
Commercial	11.60	6.728E+06	1.486E-07	CSNDT	
Platinum - Iridium Alloys	9.10	5.278E+06	1.895E-07	CSNDT	
Platinum - Iridium Alloys, 18%					
Nickel Silver Alloy B	5.20	3.016E+06	3.316E-07	CSNDT	
Platinum - Nickel Alloys	7.40	4.292E+06	2.330E-07	CSNDT	
Platinum - Nickel Alloys	13.60	7.888E+06	1.268E-07	CSNDT	
Ruthenium (Contact Grade)	4.00	2.320E+06	4.310E-07	CSNDT	
Ruthenium (Jewelry Grade)	5.50	3.190E+06	3.135E-07	CSNDT	
Potassium	23.95		7.200E-08	MHASM2	conductivity converted from resistivity
Praseodymium	2.46		7.000E-07	MHASM2	conductivity converted from resistivity
Promethium	2.30		7.500E-07	MHASM2	conductivity converted from resistivity
Rhenium	9.30		1.854E-07	MHASM2	resistivity converted from conductivity--PIH
Ruthenium	22.70	1.317E+07	7.595E-08	CSNDT	
Ruthenium	25.35		6.800E-08	MHASM2	conductivity converted from resistivity
Ruthenium - Platinum (Contact Grade)	4.00	2.320E+06	4.310E-07	CSNDT	
Ruthenium - Platinum (Jewelry Grade)	5.50	3.190E+06	3.135E-07	CSNDT	
Scandium	3.07		5.620E-07	MHASM2	conductivity converted from resistivity
Selenium	14.40	8.352E+06	1.197E-07	CSNDT	
Silver					
Pure	105.00	6.090E+07	1.642E-08	ECTM	
Pure	108.40	6.287E+07	1.591E-08	CSNDT	
18% Nickel Alloy A	6.00	3.480E+06	2.874E-07	CSNDT	
Sodium	39.82		4.330E-08	MHASM2	conductivity converted from resistivity
Solder					
Antimonial Tin	11.90	6.902E+06	1.449E-07	CSNDT	
Tin Silver	16.60	9.628E+06	1.039E-07	CSNDT	
20-80 Soft	9.80	5.684E+06	1.759E-07	CSNDT	
5-95 Soft	8.80	5.104E+06	1.959E-07	CSNDT	
50-50 Soft	11.00	6.380E+06	1.567E-07	CSNDT	
Tantalum	13.90	8.062E+06	1.240E-07	CSNDT	
Tantalum	13.00		1.350E-07	MHASM2	
Technetium	9.32		1.850E-07	MHASM2	conductivity converted from resistivity
Terbium	1.50		1.150E-06	MHASM2	conductivity converted from resistivity
Thallium (at 0 C)	11.49		1.500E-07	MHASM2	conductivity converted from resistivity
Thorium	11.00		1.570E-07	MHASM2	
Thulium	2.55		6.760E-07	MHASM2	conductivity converted from resistivity

Tin					
Pure	15.00	8.700E+06	1.149E-07	CSNDT	
Solder (Antimonial)	11.90	6.902E+06	1.449E-07	CSNDT	
Foil	4.20	2.436E+06	4.105E-07	CSNDT	
Bronze	14.00	8.120E+06	1.232E-07	CSNDT	
Silver Solder	16.60	9.628E+06	1.039E-07	CSNDT	
Tungsten	31.40	1.821E+07	5.491E-08	CSNDT	
Tungsten	30.00		5.300E-07	MHASM2	
Uranium	6.00	3.480E+06	2.874E-07	CSNDT	
Vanadium	6.60	3.828E+06	2.612E-07	CSNDT	
Waspaloy	1.40	8.120E+05	1.232E-06	ECTM	
White Metal	11.10	6.438E+06	1.553E-07	CSNDT	
Ytterbium	6.90		2.500E-07	MHASM2	conductivity converted from resistivity
Yttrium	2.89		5.960E-07	MHASM2	conductivity converted from resistivity
Zinc					
Commercial Rolled	28.00	1.624E+07	6.158E-08	CSNDT	
Die Cast	25.00	1.450E+07	6.897E-08	CSNDT	
Die Cast	27.00	1.566E+07	6.386E-08	CSNDT	
AG40A	27.00		6.400E-08	MHASM2	
AC43A	27.00		6.386E-08	MHASM2	resistivity converted from conductivity
ZA-8	27.70		6.224E-08	MHASM2	resistivity converted from conductivity
ZA-12	28.30		6.100E-08	MHASM2	
ZA-27	29.70		5.800E-08	MHASM2	
ILZRO 16	20.53		8.400E-08	MHASM2	conductivity converted from resistivity
Commercial Rolled Zinc (Zn-0.08Pb)	28.40		6.200E-08	MHASM2	
Commercial Rolled Zinc (Zn-0.3Pb-0.03Cd)	32.00		6.060E-08	MHASM2	
Commercial Rolled Zinc (Zn-0.06Pb-0.06Cd)	32.00		6.060E-08	MHASM2	
Copper-Hardened Rolled Zinc (Zn-1.0Cu)	28.00		6.200E-08	MHASM2	
Rolled Zinc Alloy (Zn-1.0Cu-0.010Mg)	27.00		6.300E-08	MHASM2	
Zn-Cu-Ti Alloy (Zn-0.8Cu-0.15Ti)	27.00		6.240E-08	MHASM2	
Superplastic Zinc (Zn-22Al) (annealed)	32.00		6.000E-08	MHASM2	

Zirconium					
Zirconium	4.20	2.436E+06	4.105E-07	CSNDT	
Zirconium	3.40	1.972E+06	5.071E-07	ECTM	
Reactor grade and grade 702	4.34		3.970E-07	MHASM2	conductivity converted from resistivity
Zr-2.5Nb, grade 705, and grade 706	3.13		5.500E-07	MHASM2	conductivity converted from resistivity
Zircaloy - 2	2.40	1.392E+06	7.184E-07	ECTM	
Zircaloy-2, Zircaloy-4, and grade704	2.33		7.400E-07	MHASM2	conductivity converted from resistivity

CSNDT=CSNDT compiled by Eddy Current Technology Incorporated

ECTM=Eddy Current Testing Manual on Eddy Current Method compiled by Eddy Current Technology Incorporated

MHASM2=ASM Metals Handbook--Volume 2, Tenth Edition