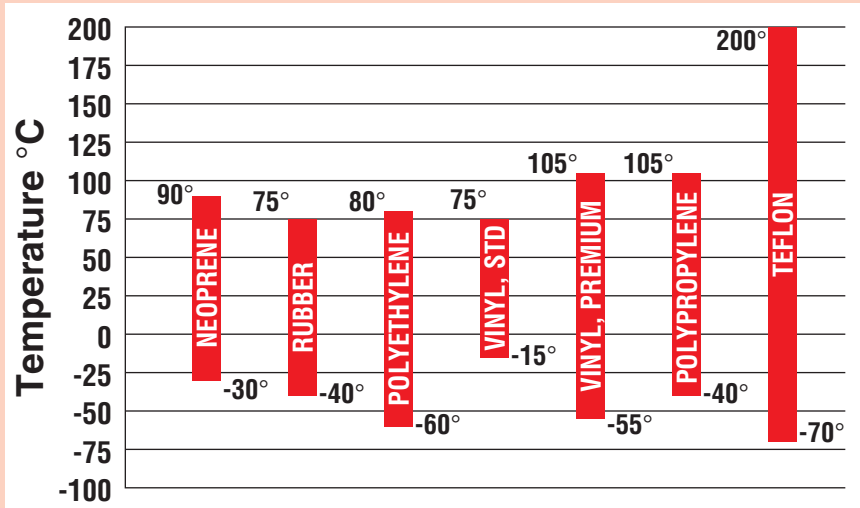


Temperature Range of Insulation Materials



Comparative Properties of Insulation Materials

	PVC	Low-Density Polyethylene	Cellular Polyethylene	High-Density Polyethylene	Polypropylene	Polyurethane	Teflon
Oxidation Resistance	E	E	E	E	E	E	O
Heat Resistance	G-E	G	G-E	E	E	G	O
Oil Resistance	E	G-E	G-E	G-E	E	E	O
Low Temperature Flexibility	P-G	G-E	E	E	P	G	O
Weather, Sun Resistance	G-E	E	E	E	E	F-G	O
Ozone Resistance	E	E	E	E	E	E	E
Abrasion Resistance	F-G	F-G	G	E	F-G	O	G-E
Electrical Properties	F-G	E	E	E	E	P-F	E
Flame Resistance	E	P	P	P	P	P	O
Nuclear Radiation Resistance	P-F	G	G	G	F	G	P-F
Water Resistance	E	E	E	E	E	P	E
Acid Resistance	G-E	G-E	G-E	G-E	E	F	E
Alkali Resistance	G-E	G-E	G-E	G-E	E	F	E
Gasoline, Kerosene, Etc. (Aliphatic Hydrocarbons) Resistance	G-E	P-F	P-F	P-F	P-F	F	E
Benzol, Toluol, Etc. (Aromatic Hydrocarbons) Resistance	P-F	P	P	P	P-F	P	E
Degreaser Solvents (Halogenated Hydrocarbons) Resistance	P-F	P	P	P	P	P	E
Alcohol Resistance	G-E	E	E	E	E	P	E

P=poor

F=fair

G=good

E=excellent

O=outstanding

These ratings are based on average performance of general compounds. Any given property can usually be improved by the use of selective compounding.

FRACTIONS & DECIMAL EQUIVALENTS

	.0156	1/64		.2656	17/64		.5156	33/64		.7656	49/64
1/32	.0312		9/32	.2812		17/32	.5312		25/32	.7812	
	.0469	3/64		.2969	19/64		.5469	35/64		.7969	51/64
1/16	.0625		5/16	.3125		9/16	.5625		13/16	.8125	
	.0781	5/64		.3281	21/64		.5781	37/64		.8281	53/64
3/32	.0937		11/32	.3437		19/32	.5937		27/32	.8437	
	.1094	7/64		.3594	23/64		.6094	39/64		.8594	55/64
1/8	.1250		3/8	.3750		5/8	.6250		7/8	.8750	
	.1406	9/64		.3906	25/64		.6406	41/64		.8906	57/64
5/32	.1562		13/32	.4062		21/32	.6562		29/32	.9062	
	.1719	11/64		.4219	27/64		.6719	43/64		.9219	59/64
3/16	.1875		7/16	.4375		11/16	.6875		15/16	.9375	
	.2031	13/64		.4531	29/64		.7031	45/64		.9531	61/64
7/32	.2187		15/32	.4687		23/32	.7187		31/32	.9687	
	.2344	15/64		.4844	31/64		.7344	47/64		.9844	63/64
1/4	.2500		1/2	.5000		3/4	.7500		1	1.0000	

DEGREES CENTIGRADE versus DEGREES FAHRENHEIT

°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F
-80	-112.0	-20	-4.0	5	41.0	30	86.0	55	131.0	80	176.0	105	221.0	130	266.0	200	392
-70	-94.0	-19	-2.2	6	42.8	31	87.8	56	132.8	81	177.8	106	222.8	131	267.8	210	410
-60	-65.0	-18	-0.4	7	44.6	32	89.6	57	134.6	82	179.6	107	224.6	132	269.6	220	428
-50	-58.1	-17	+1.4	8	46.4	33	91.4	58	136.4	83	181.4	108	226.4	133	271.4	230	446
-45	-49.1	-16	3.2	9	48.2	34	93.2	59	138.2	84	183.2	109	228.2	134	273.2	240	464
-40	-40.0	-15	5.0	10	50.0	35	95.0	60	140.0	85	185.0	110	230.0	135	275.0	250	482
-39	-38.2	-14	6.8	11	51.8	36	96.8	61	141.8	86	186.8	111	231.8	136	276.8	300	572
-38	-36.4	-13	8.6	12	53.6	37	98.6	62	143.6	87	188.6	112	233.6	137	278.6	350	662
-37	-34.6	-12	10.4	13	55.4	38	100.4	63	145.4	88	189.4	113	235.4	138	280.4	400	752
-36	-32.8	-11	12.2	14	57.2	39	102.2	64	147.2	89	192.2	114	237.2	139	282.2	500	932
-35	-31.0	-10	14.0	15	59.0	40	104.0	65	149.0	90	194.0	115	239.0	140	284.0	600	1112
-34	-29.2	-9	15.5	16	60.8	41	105.8	66	150.8	91	195.8	116	240.8	141	285.8	700	1292
-33	-27.4	-8	17.6	17	62.6	42	107.6	67	152.6	92	197.6	117	242.6	142	287.6	800	1472
-32	-25.6	-7	19.4	18	64.4	43	109.4	68	154.4	93	199.4	118	244.4	143	289.4	900	1652
-31	-23.8	-6	21.2	19	66.2	44	111.2	69	156.2	94	201.2	119	246.2	144	291.2	1000	1832
-30	-22.0	-5	23.0	20	68.0	45	113.0	70	158.0	95	203.0	120	248.0	145	293.0	1100	2012
-29	-20.2	-4	24.8	21	69.8	46	114.8	71	159.8	96	204.8	121	249.8	146	294.8	1200	2192
-28	-18.4	-3	26.6	22	71.6	47	116.6	72	161.6	97	206.6	122	251.6	147	296.6	1300	2372
-27	-16.6	-2	28.4	23	73.4	48	118.4	73	163.4	98	208.4	123	253.4	148	298.4	1400	2552
-26	-14.8	-1	30.2	24	75.2	49	120.2	74	165.2	99	210.2	124	255.2	149	300.2	1500	2732
-25	-13.0	0	32.0	25	77.0	50	122.0	75	167.0	100	212.0	125	257.0	150	302.0	1600	2912
-24	-11.2	1	33.8	26	78.8	51	123.8	76	168.8	101	213.8	126	258.8	160	320.0	1700	3092
-23	-9.4	2	35.6	27	80.6	52	125.6	77	170.6	102	215.6	127	260.6	170	338.0	1800	3272
-22	-7.6	3	37.4	28	82.4	53	127.4	78	172.4	103	217.4	128	262.4	180	356.0	1900	3452
-21	-5.8	4	39.2	29	84.2	54	129.2	79	174.2	104	219.2	129	264.2	190	374.0	2000	3632



STRANDING AND AMERICAN WIRE GAGE CHART

CONDUCTOR		DIAMETER		AREA		APPROX. WEIGHT		NOM. D.C. RESISTANCE @ 20°C			
AWG	Stranding	in.	mm.	circ. mils	sq. mm.	lbs./M'	kg./km.	Tin Coated		Bare or Silver Coated	
								ohms/M'	ohms/km.	ohms/M'	ohms/kg.
40	Solid	.0031	.079	9.61	.0049	.029	.043	1158	3799	1080	3540
38	Solid	.0040	.102	16.0	.0081	.048	.072	696	2283	648	2130
36	Solid	.0050	.127	25.0	.0127	.076	.113	445	1460	415	1360
34	Solid	.0063	.160	39.7	.0201	.120	.179	280	918	261	857
33	Solid	.0071	.180	50.4	.0255	.153	.228	221	725	206	675
32	Solid	.0080	.203	64.0	.0324	.194	.289	174	571	162	532
30	Solid	.0100	.254	100	.0507	.300	.450	113	365	104	340
	7/38	.0120	.305	112	.0568	.350	.520	102	336	95.4	313
28	Solid	.0126	.320	159	.0804	.480	.720	70.8	232	65.3	214
	7/36	.0150	.381	175	.0887	.550	.820	65.5	215	61.0	200
27	7/35	.0180	.457	220	.1112	.690	1.03	52.2	171	48.7	160
26	Solid	.0159	.404	253	.1281	.770	1.14	43.6	143	41.0	135
	7/34	.0190	.483	278	.1408	.870	1.29	41.3	135	38.5	126
	19/38	.0209	.533	304	.1540	.970	1.44	38.1	125	35.5	116
24	Solid	.0201	.511	404	.2050	1.22	1.82	27.3	89.4	25.7	84.2
	7/32	.0240	.610	448	.2270	1.40	2.08	25.6	84.0	23.8	78.3
	19/36	.0250	.635	475	.2410	1.50	2.23	24.4	80.0	22.7	74.5
22	Solid	.0253	.643	640	.3240	1.95	2.91	16.8	55.3	16.2	53.2
	7/30	.0310	.787	700	.3550	2.18	3.25	16.4	53.7	15.3	50.1
	19/34	.0320	.813	754	.3820	2.35	3.50	15.4	50.4	14.3	46.9
20	Solid	.0320	.813	1,020	.5190	3.10	4.61	10.5	34.6	10.1	33.2
	7/28	.0380	.965	1,111	.5630	3.47	5.16	10.2	33.5	9.6	31.5
	10/30	.0360	.914	1,000	.5070	3.14	4.67	11.5	37.8	10.7	35.2
	19/32	.0400	1.020	1,216	.6160	3.84	5.71	9.5	31.2	8.9	29.1
18	Solid	.0403	1.020	1,620	.8230	4.92	7.32	6.64	21.8	6.39	21.0
	7/26	.0480	1.220	1,770	.8970	5.52	8.21	6.41	21.0	6.04	19.8
	16/30	.0460	1.170	1,600	.8110	5.04	7.51	7.24	23.7	6.74	22.1
	19/30	.0500	1.270	1,900	.9630	5.98	8.90	6.09	20.0	5.68	18.6
16	Solid	.0508	1.290	2,580	1.31	7.81	11.6	4.18	13.7	4.02	13.2
	19/29	.0570	1.450	2,426	1.23	7.64	11.4	4.72	15.5	4.45	14.6
	26/30	.0600	1.520	2,600	1.32	8.27	12.3	4.50	14.8	4.19	13.7
14	Solid	.0641	1.630	4,110	2.08	12.4	18.5	2.62	8.61	2.52	8.28
	19/27	.0710	1.800	3,831	1.94	12.1	18.0	2.99	9.81	2.82	9.24
	19/.0147	.0740	1.880	4,106	2.08	12.9	18.9	—	—	2.63	8.62
	41/30	.0690	1.750	4,100	2.08	13.1	19.4	2.85	9.35	2.66	8.71
12	Solid	.0808	2.050	6,530	3.31	19.8	29.5	1.65	5.42	1.59	5.21
	19/25	.0900	2.290	6,088	3.08	19.4	28.9	1.88	6.17	1.77	5.81
	19/.0185	.0930	2.360	6,503	3.30	20.5	30.1	—	—	1.66	5.44
	65/30	.0910	2.310	6,500	3.29	20.8	31.1	1.81	5.93	1.68	5.52
10	Solid	.1019	2.590	10,380	5.26	31.4	46.8	1.04	3.41	.999	3.28
	19/.0234	.1170	2.970	10,404	5.27	32.8	48.8	—	—	1.04	3.40
	37/26	.1120	2.840	9,354	4.74	28.3	42.2	1.23	4.04	1.16	3.82
	105/30	.1300	3.300	10,500	5.32	33.1	49.2	1.12	3.69	1.05	3.43
8	19/.0295	.1440	3.360	16,535	8.38	50.0	74.4	—	—	.652	2.14
	133/29	.1670	4.240	16,983	8.61	54.5	80.4	.688	2.26	—	—
	168/30	.1740	4.420	16,800	8.51	54.0	80.3	.709	2.23	—	—
6	19/.0372	.1860	4.720	26,293	13.32	82.8	123	—	—	.410	1.35
	133/27	.2100	5.330	26,818	13.60	86.1	128	.435	1.43	—	—
	266/30	.2040	5.180	26,600	13.49	85.4	127	.448	1.47	—	—
4	133/25	.2570	6.530	42,615	21.61	137	204	.274	.899	—	—
	420/30	.2570	6.530	42,000	21.29	136	202	.287	.941	—	—
2	19/.0591	.2920	7.420	66,363	33.67	209	311	—	—	.163	.533
	665/30	.3380	8.590	66,500	33.72	215	321	.183	.600	—	—
1/0	259/24	.4240	10.770	104,639	53.05	339	504	—	—	.108	.355
	1045/30	.4250	10.80	104,500	52.95	316	479	.114	.373	.106	.348
2/0	37/.0600	.4200	10.660	133,200	67.49	423	630	—	—	.0808	.268
	1330/30	.4750	12.070	133,000	67.39	403	599	.089	.292	.0833	.274
3/0	37/.0673	.4700	11.930	167,584	84.92	533	793	—	—	.0650	.213
4/0	37/.0756	.5300	13.460	211,468	107	673	1000	—	—	.0515	.169
	2107/30	.6080	15.440	210,700	107	682	1016	.0589	.193	—	—

* Typical D.C. Resistance values for uninsulated wire. Multiply x 1.04 for typical values after insulation.