Typical Physical Properties of Aluminum

The following typical properties are not guaranteed, since in most cases they are averages for various sizes, product forms and methods of manufacture and may not be exactly representative of any particular product or size. These data are intended only as a basis for comparing alloys and tempers and should not be specified as engineering requirements or used for design purposes.

ALLOY	AVERAGE① COEFFICIENT OF THERMAL EXPANSION	MELTING RANGE②③ APPROX.	TEMPER	THERMAL CONDUCTIVITY AT 77°F	ELECTRICAL CONDUCTIVITY AT 68°F Percent of International Annealed Copper Standard		ELECTRICAL RESISTIVITY AT 68°F
	68°F to 212°F per °F	°F		English Units④	Equal Volume	Equal Weight	Ohm-Cir. Mil./Foot
1060	13.1	1195-1215	0	1625	62	204	17
			H18	1600	61	201	17
1100	13.1	1190-1215	0	1540	59	194	18
			H18	1510	57	187	18
1350	13.2	1195-1215	all	1625	62	204	17
2011	12.7	1005-1190 ⑥	T3	1050	39	123	27
			T8	1190	45	142	23
2014	12.8	945-1180 ⑤	0	1340	50	159	21
			T4	930	34	108	31
			T6	1070	40	127	26
2017	13.1	955-1185 ⑤	0	1340	50	159	21
			T4	930	34	108	31
2018	12.4	945-1160 ⑥	T61	1070	40	127	26
2024	12.9	935-1180 ⑤	0	1340	50	160	21
			T3,T4,T361	840	30	96	35
			T6,T81,T861	1050	38	122	27
2025	12.6	970-1185 ⑤	T6	1070	40	128	26
2036	13.0	1030-1200 ⑥	T4	1100	41	135	25
2117	13.2	1030-1200 ⑥	T4	1070	40	130	26
2124	12.7	935-1180 ⑤	T851	1055	38	122	27
2218	12.4	940-1175 ⑤	T72	1070	40	126	26
2219	12.4	1010-1190 ⑤	0	1190	44	138	24
			T31,T37	780	28	88	37
			T6,T81,T87	840	30	94	35
2618	12.4	1020-1180	T6	1020	37	120	28
3003	12.9	1190-1210	0	1340	50	163	21
			H12	1130	42	137	25
			H14	1100	41	134	25
			H18	1070	40	130	26
3004	13.3	1165-1210	all	1130	42	137	25
3105	13.1	1175-1210	all	1190	45	148	23
4032	10.8	990-1060 ⑤	0	1070	40	132	26
			T6	960	35	116	30
4043	12.3	1065-1170	0	1130	42	140	25
4045	11.7	1065-1110	all	1190	45	151	23
4343	12.0	1070-1135	all	1250	47	158	25
5005	13.2	1170-1210	all	1390	52	172	20
5050	13.2	1155-1205	all	1340	50	165	21
5052	13.2	1125-1200	all	960	35	116	30
5056	13.4	1055-1180	0	810	29	98	36
			H38	750	27	91	38
5083	13.2	1095-1180	0	810	29	98	36
5086	13.2	1085-1185	all	870	31	104	33
5154	13.3	1100-1190	all	870	32	107	32
5252	13.2	1125-1200	all	960	35	116	30
5254	13.3	1100-1190	all	870	32	107	32
5356	13.4	1060-1175	0	810	29	98	36
5454	13.1	1115-1195	0	930	34	113	31
			H38	930	34	113	31
5456	13.3	1055-1180	0	810	29	98	36
5457	13.2	1165-1210	all	1220	46	153	23
5652	13.2	1125-1200	all	960	35	116	30
5657	13.2	1180-1215	all	1420	54	180	19

Typical Physical Properties of Aluminum

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ALLOY	AVERAGE① COEFFICIENT OF THERMAL EXPANSION	MELTING RANGE②③ APPROX.	TEMPER	THERMAL CONDUCTIVITY AT 77°F	ELECTRICAL CONDUCTIVITY AT 68°F Percent of International Annealed Copper Standard		ELECTRICAL RESISTIVITY AT 68°F
	68°F to 212°F per °F	°F		English Units④	Equal Volume	Equal Weight	Ohm-Cir. Mil./Foot
6005	13.0	1125-1210 ⑥	T1	1250	47	155	22
			T5	1310	49	161	21
6053	12.8	1070-1205 ⑥	0	1190	45	148	23
			T4	1070	40	132	26
			T6	1130	42	139	25
6061	13.1	1080-1205 ⑥	0	1250	47	155	22
			T4	1070	40	132	26
			T6	1160	43	142	24
6063	13.0	1140-1210	0	1510	58	191	18
			T1	1340	50	165	21
			T5	1450	55	181	19
			T6,T83	1390	53	175	20
6066	12.9	1045-1195 ⑤	0	1070	40	132	26
			T6	1020	37	122	28
6070		1050-1200 ⑤	T6	1190	44	145	24
6101	13.0	1150-1210	T6	1510	57	188	18
			T61	1540	59	194	18
			T63	1510	58	191	18
			T64	1570	60	198	17
			T65	1510	58	191	18
6105	13.0	1110-1200 ⑤	T1	1220	46	151	23
			T5	1340	50	165	21
6151	12.9	1090-1200 ⑤	0	1420	54	178	19
			T4	1130	42	138	25
			T6	1190	45	148	23
6201	13.0	1125-1210 ⑥	T81	1420	54	180	19
6253		1100-1205					
6262	13.0	1080-1205 ⑥	T9	1190	44	145	24
6351	13.0	1030-1200	T6	1220	46	151	23
6463	13.0	1140-1210	T1	1340	50	165	21
			T5	1450	55	181	19
			T6	1390	53	175	20
6951	13.0	1140-1210	0	1480	56	186	19
			T6	1370	52	172	20
7049	13.0	890-1175	T73	1070	40	132	26
7050	12.8	910-1165	T74 ⑧	1090	41	135	25
7072	13.1	1185-1215	0	1540	59	193	18
7075	13.1	890-1175 ⑦	T6	900	33	105	31
7175	13.0	890-1175 ⑦	T74	1080	39	124	26
7178	13.0	890-1165 ⑦	T6	870	31	98	33
7475	12.9	890-1175	T61,T651	960	35	116	30
			T76,T761	1020	40	132	26
			T7351	1130	42	139	25
8017	13.1	1190-1215	H12,H22		59	193	18
			H212		61	200	17
8030	13.1	1190-1215	H221	1600	61	201	17
8176	13.1	1190-1215	H24	1600	61	201	17

① Coefficient to be multiplied by 10^{-6}. Example: 12.2 x 10^{-6} = 0.0000122.
② Melting ranges shown apply to wrought products of 1/4 inch thickness or greater.
③ Based on typical composition of the indicated alloys.
④ English units = btu-in./ft^{2}hr°F
⑤ Eutectic melting is not eliminated by homogenization.
⑥ Eutectic melting can be completely eliminated by homogenization.
⑦ Homogenization may raise eutectic melting temperature 20-40°F but usually does not eliminate eutectic melting.
⑧ Although not formerly registered, the literature and some specifications have used T736 as the designation for this temper.