





Indalloy Number	TEMP (Temperature critical alloy: ±2°C of solidus. Non-temperature critical alloy ±3°C)		Elemental Composition (% by Mass)				TEMP		Density lb/in <sup>3</sup> gm/cm <sup>3</sup>	Electrical Conductivity (1.72μohms-cm) % of IACS	Thermal Conductivity @ 85°C W/cm-°C	Coefficient Expansion @ 20°C PPM/°C	Tensile Strength PSI	Shear Strength PSI	Young's Modulus PSI x 10 <sup>6</sup>	Elongation %	Brinell Hardness	Latent Heat of Fusion J/g	Specific Heat		
	Liquidus °C	Solidus °C					Liquidus °F	Solidus °F											SOLID	LIQUID	
149	280	183	80.0 Pb	20.0 Sn			536	361	0.3689	10.21	8.7	.37	27	4800	3000	2.9	20	11			
150	275	260	81.0 Pb	19.0 In			527	500	0.3711	10.27	4.5	.17	27	5550							
151	296	287	92.5 Pb	5.0 Sn	2.5 Ag		565	549	0.3982	11.02	8.6		29	4210	2240	2				0.13	
152	285	239	92.0 Pb	5.0 Sn	3.0 Sb		545	462	0.3909	10.82											
153	288	183	85.0 Pb	15.0 Sn			550	361	0.3866	10.70			4700	4470							
154	289	179	57.0 Pb	40.0 Sn	3.0 Ag		552	354	0.3346	9.26											
155	292 MP		90.0 Pb	5.0 Ag	5.0 Sn		558		0.3974	11.00	.25	27									
156	295	221	90.0 Sn	10.0 Ag			563	430	0.2713	7.51											
157	295	252	95.0 Pb	5.0 Sb			563	486	0.3960	10.96											
158	70 E	70	50.0 Bi	26.7 Pb	13.3 Sn	10.0 Cd	158	158	0.3461	9.58	4	.18	22	5990	300		120 note 4	14.5 note 1	39.8	0.146	0.184
159	302	275	90.0 Pb	10.0 Sn			576	527	0.3884	10.75	8.9	.25	29	4400	2400	2.76	30	10			
160	300	227	97.0 Sn	3.0 Cu			572	441	0.2645	7.32			4400	2900							
161	303 E	303	97.5 Pb	2.5 Ag			577	577	0.4094	11.33	8.6										
162	72 E	72	66.3 In	33.7 Bi			162	162	0.2887	7.99											
163	304	299	95.5 Pb	2.5 Ag	2.0 Sn		579	570	0.4047	11.20											
164	310	300	92.5 Pb	5.0 In	2.5 Ag		590	572	0.3982	11.02	5.5	.25	25	4560	2830						
165	309 E	309	97.5 Pb	1.5 Ag	1.0 Sn		588	588	0.4075	11.28	6	.23	30	4420			23	9.5			
167	315 MP		98.0 Pb	1.2 Sb	0.8 Ga		599		0.4047	11.20											
168	320	300	98.0 Pb	2.0 Sb			608	572	0.4043	11.19											
169	322	310	98.5 Pb	1.5 Sb			612	590	0.4057	11.23											
170	327 MP		100.0 Pb				621		0.4101	11.35											
171	312	308	95.0 Pb	5.0 Sn			594	586	0.3996	11.06	7.9	.35	29	1800	1800	2.61	55	4			
172	330	231	98.0 Sn	2.0 As			626	448	0.2616	7.24											
173	345	232	99.0 Sn	1.0 Ge			653	450	0.2623	7.26											
174	79 E	79	57.0 Bi	26.0 In	17.0 Sn		174	174	0.3086	8.54											
175	364	305	95.0 Pb	5.0 Ag			687	581	0.4083	11.30											
176	382 E	382	95.0 Zn	5.0 Al			720	720	0.2385	6.60											
177	465	451	75.0 Au	25.0 In			869	844	0.4950	13.70											
178	485	451	82.0 Au	18.0 In			905	844	0.5383	14.90											
179	705	603	61.0 Ag	24.0 Cu	15.0 In		1,301	1,117	0.3425	9.48											
181	145 E	145	51.2 Sn	30.6 Pb	18.2 Cd		293	293	0.3053	8.45			24	6263							
182	280 E	280	80.0 Au	20.0 Sn			536	536	0.5242	14.51	.57	16	40000	40000	8.57	2					0.015
183	356 E	356	88.0 Au	12.0 Ge			673	673	0.5300	14.67	.44	13	26835	26825	10.55						
184	363 E	363	96.8 Au	3.2 Si			685	685	0.5564	15.40	.27	12	36975	31900	12.04						
185	395	340	95.0 Cd	5.0 Ag			743	644	0.3154	8.73											
186	424 E	424	55.0 Ge	45.0 Al			795	795	0.1340	3.71											
187	525 E	525	45.0 Ag	38.0 Au	17.0 Ge		977	977	0.3823	10.58											
188	577 E	577	88.3 Al	11.7 Si			1,071	1,071	0.0961	2.66											
189	585	521	86.0 Al	10.0 Si	4.0 Cu		1,085	970	0.0994	2.75											
190	610	577	92.5 Al	7.5 Si			1,130	1,071	0.0968	2.68											
191	630	577	95.0 Al	5.0 Si			1,166	1,071	0.0972	2.69											
192	660 MP		100.0 Al				1,220		0.0976	2.70											
193	780 E	780	72.0 Ag	28.0 Cu			1,436	1,436	0.3617	10.01											
194	800	370	98.0 Au	2.0 Si			1,472	698	0.6113	16.92											
195	890 E	890	80.0 Au	20.0 Cu			1,634	1,634	0.5662	15.67											
196	950 E	950	82.0 Au	18.0 Ni			1,742	1,742	0.5752	15.92											
197	92 E	92	51.6 Bi	40.2 Pb	8.2 Cd		198	198	0.3703	10.25											
198	1020	1000	50.0 Au	50.0 Ag			1,868	1,832	0.4914	13.60											
199	1030	360	99.4 Au	0.6 Sb			1,886	680	0.6894	19.08											
200	1064 MP		100.0 Au				1,948		0.6973	19.30	73.4	3.18	14	20000		11.2	39 to 45(2in)			0.13	
201	199 E	199	91.0 Sn	9.0 Zn			390	390	0.2627	7.27	15	.61		7940			32.5	21.5 note 1	71.2	0.239	0.272
202	266 E	266	82.6 Cd	17.4 Zn			511	511	0.3017	8.35											
203	150	125	95.0 In	5.0 Bi			302	257	0.2675	7.40											
204	175	165	70.0 In	30.0 Pb			347	329	0.2959	8.19	8.8	.38	28	3450							
205	181	173	60.0 In	40.0 Pb			358	343	0.3078	8.52	7	.29	27	4150							
206	231	197	60.0 Pb	40.0 In			448	387	0.3360	9.30	5.2	.19	26	5000							
207	961 MP		100.0 Ag				1,762		0.3794	10.50											
208	985	665	85.0 Cu	8.0 Sn	7.0 Ag		1,805	1,229	0.3205	8.87											
209	233 MP		65.0 Sn	25.0 Ag	10.0 Sb		451		0.2818	7.80			36	17000							
210	253	179	70.0 Pb	27.0 Sn	3.0 Ag		487	354	0.3555	9.84											
211	705	640	80.0 Cu	15.0 Ag	5.0 P		1,301	1,184	0.2753	7.62											
212	710	605	30.0 Ag	27.0 Cu	23.0 Zn	20.0 Cd	1,310	1,121	0.3169	8.77											
213	183	183	62.0 Sn	38.0 Pb			362	361	0.3046	8.43					4.35						
214	720	600	60.0 Ag	30.0 Cu	10.0 Sn		1,328	1,112	0.3461	9.58											
215	620	605	45.0 Ag	24.0 Cd	16.0 Zn	15.0 Cu	1,148	1,121	0.3291	9.11											
216	635	625	50.0 Ag	18.0 Cd	16.5 Zn	15.5 Cu	1,175	1,157	0.3320	9.19											
217	650	620	56.0 Ag	22.0 Cu	17.0 Zn	5.0 Sn	1,202	1,148	0.3328	9.21											
218	690	630	50.0 Ag	16.0 Cd	15.5 Cu	15.5 Zn	3.0 Ni	1,274	1,166	0.3328	9.21										
219	700	605	35.0 Ag	26.0 Cu	21.0 Zn	18.0 Cd	1,292	1,121	0.3208	8.88											
220	785	775	71.5 Ag	28.0 Cu	0.5 Ni		1,445	1,427	0.3617	10.01											
221	800	690	63.0 Ag	28.5 Cu	6.0 Sn	2.5 Ni	1,472	1,274	0.3508	9.71											
222	1030	1025	99.0 Au	1.0 Ga			1,886	1,877	0.6818	18.87											
223	1063 MP		99.8 Au	0.2 P			1,945		0.6843	18.94											
224	108 E	108	52.2 In	46.0 Sn	1.8 Zn		226	226	0.2627	7.27											
225	151	143	90.0 In	10.0 Sn			304	289	0.2641	7.31											
226	187	181	83.6 Sn	8.8 In	7.6 Zn		369	358	0.2627	7.27			6600		4		85.5				

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	Liquidus	Solidus	% Sn	% Pb	% Bi	% Ag	% Cu	% In	% Zn	% Au	% Cd											% Ga	Liquidus	Solidus	lb/in <sup>3</sup>	g/cm <sup>3</sup>	% of IACS	W/cm <sup>2</sup> ·°C
227	187	175	77.2	Sn	20.0	In	2.8	Ag				369	347	0.2619	7.25	9.8	.54	28	6800	4800	5.6	47	17					
228	290	267	88.0	Pb	10.0	Sn	2.0	Ag				554	513	0.3884	10.75	8.5	.27	29	3260			42					0.143	
229	365	304	94.5	Pb	5.5	Ag					689	579	0.4101	11.35	6	.23	30	4420										
230	152	140	54.0	Sn	26.0	Pb	20.0	In			306	284	0.2912	8.06														
231	186	174	86.5	Sn	5.5	Zn	4.5	In	3.5	Bi		367	345	0.2659	7.36													
233	255	245	85.0	Pb	10.0	Sb	5.0	Sn			491	473	0.3743	10.36	6				5570			3.5		0.9	0.15			
234	172	166	49.7	Sn	41.8	Pb	8.0	Bi	0.5	Ag		342	331	0.3187	8.82													
235	195	165	58.0	In	39.0	Pb	3.0	Ag			383	329	0.3104	8.59														
236	247	237	83.0	Pb	10.0	Sb	5.0	Sn	2.0	Ag		477	459	0.3739	10.35													
237	304	MP	93.0	Pb	3.0	Sn	2.0	In	2.0	Ag		579		0.4000	11.07													
238	217	E	217	90.0	Sn	10.0	Au				423	423	0.2811	7.78				7280			1.1							
239	313	E	313	91.0	Pb	4.0	Sn	4.0	Ag	1.0	In		595	595	0.3992	11.05												
240	173	160	46.0	Sn	46.0	Pb	8.0	Bi			343	320	0.3241	8.97			22	6000		5.28	48							
241	220	217	95.5	Sn	3.8	Ag	0.7	Cu			428	423	0.2674	7.40	13.2			6962	3916	2.76	36.5	15						
242	302	275	89.5	Pb	10.5	Sn					576	527	0.3884	10.75	8.9	.25	29	4400	2400	2.76	30	10						
243	227	E	227	99.0	Sn	1.0	Cu				441	441	0.2641	7.31														
244	227	E	227	99.3	Sn	0.7	Cu				441	441	0.2641	7.31														
246	225	217	95.5	Sn	4.0	Ag	0.5	Cu			437	423	0.2674	7.40				7470		2.6	17.3							
249	213	211	91.8	Sn	4.8	Bi	3.4	Ag			415	412	0.2688	7.44														
251	225	217	96.2	Sn	2.5	Ag	0.8	Cu	0.5	Sb		437	423	0.2663	7.37													
252	220	217	95.5	Sn	3.9	Ag	0.6	Cu			428	423	0.2674	7.40														
253	123	E	123	74.0	In	26.0	Cd				253	253	0.2753	7.62														
254	205	204	86.9	Sn	10.0	In	3.1	Ag			401	399	0.2663	7.37														
255	124	E	124	55.5	Bi	44.5	Pb				255	255	0.3772	10.44	4	.04		6400			37.5	15	20.9	0.126	0.155			
256	220	217	96.5	Sn	3.0	Ag	0.5	Cu			428	423	0.2674	7.40				7200		2.41	19.3							
257	96	95	52.0	Bi	32.0	Pb	16.0	Sn			204	203	0.3501	9.69			24	5060	3800	2.08	148.6							
281	138	E	138	58.0	Bi	42.0	Sn				281	281	0.3093	8.56	4.5	.19	15	8000	500		55 note 4	23 note 1	44.8	0.167	0.201			
282	140	139	57.0	Bi	42.0	Sn	1.0	Ag			284	282	0.3098	8.57														
290	143	E	143	97.0	In	3.0	Ag				290	290	0.2666	7.38	23	.73	22	800				2						
532			see Indalloy #230																									
160-190	88	71	42.5	Bi	37.7	Pb	11.3	Sn	8.5	Cd		190	160	0.3544	9.81	4.3			5400	300		135 note 4	15 note 1	34.3	0.146			
1E	118	E	118	52.0	In	48.0	Sn				244	244	0.2637	7.30	11.7	.34	20	1720	1630		83	4.5 note 2						
217-440	227	103	48.0	Bi	28.5	Pb	14.5	Sn	9.0	Sb		441	217	0.3360	9.30	3			13000			19					0.167	
281-338	170	138	60.0	Sn	40.0	Bi					338	280	0.2934	8.12	5	.30		7500			35	23.5 note 1	44.4	0.18	0.213			
46L	8	7	61.0	Ga	25.0	In	13.0	Sn	1.0	Zn		46	44	0.2348	6.50													

**NOTES**

- note 1: Brinell Hardness, 2mm ball, 4kg load
- note 2: Modified Brinell hardness, using 100-kg load, 1/2 min.
- note 3: Depends on specimen preparation.
- note 4: % elongation on 5.65 (sq. root Area) gauge length

**Conversions:**

Resistivity of IACS / Elec. conductivity %IACS = Resistivity of alloy  
 ex: 1.72 x 100 / %IACS = micro ohm - cm