

## Physical properties of cast lead-antimony alloys

Antimony %	Liquidus °F.	Solidus °F.	Brinell Hardness No.	Density	Tensile Strength Lbs. per Sq. In.	Elongation %
0	621	...	4.0	11.36	2500	45
1	612	603	7.0	11.26	3400	16
2	602	559	8.0	11.18	4200	16
3	590	516	9.1	11.10	4700	15
4	578	485	10.1	11.03	5660	22
5	565	485	11.0	10.95	6360	29
6	552	485	11.8	10.88	6840	24
7	539	485	12.5	10.81	7180	21
8	527	485	13.3	10.74	7420	19
9	515	485	14.0	10.66	7580	17
10	505	485	14.6	10.59	7670	15
11	496	485	14.8	10.52	7620	13
12	489	485	15.0	10.52	7480	12
12.5	485	485	15.1	10.42	7380	11
13	492	485	15.2	10.38	7280	10
14	496	485	15.3	10.30	7000	9

## Lead-tin-antimony alloys

### Mechanical properties

Lead (by dif.) percent	Tin, percent	Antimony, percent	Yield point, Lbs. per Sq. In.	Tensile strength Lbs. per Sq. In.	Elongation, percent	Compression load required to compress to half length <sup>1</sup>	Brinell hardness No., 10 mm. ball 200 kg., ½ min.
88.0	4.1	7.9	4,800	5,400	1.5	28,448	15.2
86.5	8.6	4.9	4,800	7,220	3.0	N.O.	15.1
81.8	13.1	5.1	6,010	7,500	2.0	N.O.	16.7
76.8	14.8	8.4	6,300	6,900	1.0	N.O.	18.0
72.6	22.1	5.3	N.O.	5,400	...	19,220	16.8
65.7	28.7	5.6	6,610	8,400	1.5	N.O.	15.1
85.2	4.6	10.2	8,990	13,820	10.5	28,200	23.2
82.0	8.9	9.1	8,660	14,400	13.0	24,640	25.4
75.1	14.7	10.2	8,400	14,400	5.5	N.O.	26.4
71.0	18.6	10.4	8,990	11,400	1.5	20,150 C.	23.2
66.8	23.0	10.2	8,400	12,000	1.0	N.O.	24.0
79.6	4.5	15.9	6,900	11,690	4.0	N.O.	25.6
77.1	8.6	14.3	Broken in machining			26,000	31.0
66.4	19.0	14.6	7,800	12,000	...	23,980 S.C.	32.0
66.0	18.9	15.1	7,800	12,000	1.5	21,720 S.C.	27.6
70.1	4.6	25.3	Broken in machining			28,000 S.C.	26.6
68.8	9.1	22.1	10,180	10,180	...	21,950*	37.0
64.1	13.9	22.0	9,600	11,400	...	22,400*	35.6
72.2	4.5	23.3	7,800	...	...	19,700*	27.8
65.0	10.0	25.0	Broken in machining			18,590*	33.6
64.2	5.9	29.9	8,400	12,580	1.0	14,500*	28.8

N.O.—Not observed; C.—Cracks in compression test piece; S.C.—Slight cracks in compression test piece; \*—Failed without compression to half length. <sup>1</sup>O. W. Ellis, Note on Lead-Tin Antimony Alloys, J. Inst. Metals, 1918, v. 19, No. 1, p. 151. From Metals Handbook, 1939 edition.