

Alloy Data: Aluminum Die Casting Alloy Composition

NADCA

A-3-1-97

Table A-3-1 Chemical Composition: Al Alloys

All single values are maximum composition percentages unless otherwise stated.

Aluminum Die Casting Alloys [Ⓐ]											
Commercial: ANSI/AA:	360 360.0	A360 A360.0	380 380.0	A380 A380.0 [Ⓑ]	383 383.0 [Ⓑ]	384 384.0 [Ⓑ]	390 B390.0	13 413.0	A13 A413.0	43 C443.0	218 518.0
Nominal Comp:	Mg 0.5 Si 9.5	Mg 0.5 Si 9.5	Cu 3.5 Si 8.5	Cu 3.5 Si 8.5	Cu 2.5 Si 10.5	Cu 3.8 Si 11.0	Cu 4.5 Si 17.0	Si 12.0	Si 12.0	Si 5.0	Mg 8.0
Detailed Comp.											
Silicon											
Si	9.0-10.0	9.0-10.0	7.5-9.5	7.5-9.5	9.5-11.5	10.5-12.0	16.0-18.0	11.0-13.0	11.0-13.0	4.5-6.0	0.35
Iron											
Fe	2.0	1.3	2.0	1.3	1.3	1.3	1.3	2.0	1.3	2.0	1.8
Copper											
Cu	0.6	0.6	3.0-4.0	3.0-4.0	2.0-3.0	3.0-4.5	4.0-5.0	1.0	1.0	0.6	0.25
Manganese											
Mn	0.35	0.35	0.50	0.50	0.50	0.50	0.50	0.35	0.35	0.35	0.35
Magnesium											
Mg	0.4-0.6	0.4-0.6	0.10	0.10	0.10	0.10	0.45-.65	0.10	0.10	0.10	7.5-8.5
Nickel											
Ni	0.50	0.50	0.50	0.5	0.30	0.50	0.10	0.50	0.50	0.50	0.15
Zinc											
Zn	0.50	0.50	3.0	3.0	3.0	3.0	1.5	0.50	0.50	0.50	0.15
Tin											
Sn	0.15	0.15	0.35	0.35	0.15	0.35	—	0.15	0.15	0.15	0.15
Titanium											
Ti	—	—	—	—	—	—	0.10	—	—	—	—
Others											
Each	—	—	—	—	—	—	0.10	—	—	—	—
Total											
Others	0.25	0.25	0.50	0.50	0.50	0.50	0.20	0.25	0.25	0.25	0.25
Aluminum											
Al	Balance	Balance	Balance	Balance	Balance	Balance	Balance	Balance	Balance	Balance	Balance

[Ⓐ] Analysis shall ordinarily be made only for the elements mentioned in this table. If, however, the presence of other elements is suspected, or indicated in the course of routine analysis, further analysis shall be made to determine that the total of these other elements are not present in excess of specified limits. [Ⓑ] With respect to mechanical properties, alloys A380.0, 383.0 and 384.0 are substantially interchangeable. Sources: ASTM B85-92a; Aluminum Association.