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REGISTRATION RECORD SERIES
PINK SHEETS

Designations and Chemical Composition Limits for Aluminum Alloys in the Form of Castings and Ingot

The Aluminum Association

1400 Crystal Drive, Arlington, VA 22202
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Revised: **December 2015**

Supersedes: **November 2009**

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ISSN: 2377-6722

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FOREWORD

Listed herein are designations and chemical composition limits for aluminum alloys in the form of castings or ingot registered with The Aluminum Association. This list is maintained by the Technical Committee on Product Standards of The Aluminum Association. The designations of these compositions were assigned in conformance with the system adopted by The Aluminum Association in 1954 and approved by the American Standards Association (now American National Standards Institute Incorporated) as an American Standard in 1957 (see American National Standard Alloy and Temper Designation Systems for Aluminum ANSI H35.1/H35.1(M)). Additions may be made as required, and alloys will be deleted when no longer in commercial use (see table of inactive alloys printed on page 13).

This registration record is not intended to address all regulatory requirements that may be imposed by local, national or international governing bodies. Regulatory requirements, which vary by region and end use, can further restrict the chemical composition within the registered limits. When applicable, inclusion of such requirements in the sales agreement is advised.

Effective July/2015, the practice of registering experimental alloys has been discontinued and new experimental alloy designations shall not be granted.

Some of the registered alloys may be the subject of patent or patent applications, and their listing herein is not to be construed in any way as the granting of a license under such patent rights.

CHEMICAL COMPOSITION LIMITS[1,2]

Only composition limits which are identical to those listed herein or are registered with The Aluminum Association should be designated as "AA" alloys.

REGISTERED ALLOYS IN THE FORM OF xxx.0 CASTINGS, xxx.1 INGOT AND xxx.2 INGOT.

DESIGNATION																		OTHERS[12]		Al
AA No.	DATE REGISTERED	PRO-DUCTS[5]	Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Ag	Be	Pb	Sn	Zr		FNs	Each	Total[3]	Min.
100.1*	1970-06-30	Ingot	0.15	0.6-0.8	0.10	…	…	…	…	0.05	…	…	…	…	…	…	0.025 Mn+Cr+Ti+V	…	0.03	0.10	99.00[4]
130.1*	1970-06-30	Ingot	…	…	0.10	…	…	…	…	0.05	…	…	…	…	…	…	0.025 Mn+Cr+Ti+V, 2.5 min. Fe/Si ratio	…	0.03	0.10	99.30[4]
150.1*	1970-06-30	Ingot	…	…	0.05	…	…	…	…	0.05	…	…	…	…	…	…	0.025 Mn+Cr+Ti+V, 2.0 min. Fe/Si ratio	…	0.03	0.10	99.50[4]
160.1	1976-01-28	Ingot	0.10	0.25	…	…	…	…	…	0.05	…	...	…	…	…	…	0.025 Mn+Cr+Ti+V, 2.0 min. Fe/Si ratio	…	0.03	0.10	99.60[4]
170.1*	1970-06-30	Ingot	…	…	...	...	…	…	…	0.05	…	…	…	…	…	…	0.025 Mn+Cr+Ti+V, 1.5 min. Fe/Si ratio	…	0.03	0.10	99.70[4]
201.0	1968-04-17	S	0.10	0.15	4.0-5.2	0.20-0.50	0.15-0.55	…	…	…	0.15-0.35	0.40-1.0	…	…	…	…	…	…	0.05	0.10	Rem.
201.2	1968-04-17	Ingot	0.10	0.10	4.0-5.2	0.20-0.50	0.20-0.55	…	…..	…	0.15-0.35	0.40-1.0	…	…	…	…	…	…	0.05	0.10	Rem.
A201.0	1970-10-09	S	0.05	0.10	4.0-5.0	0.20-0.40	0.15-0.35	…	…	…	0.15-0.35	0.40-1.0	…	…	…	…	…	…	0.03	0.10	Rem.
A201.1	1970-10-09	Ingot	0.05	0.07	4.0-5.0	0.20-0.40	0.20-0.35	…	…	…	0.15-0.35	0.40-1.0	…	…	…	…	…	…	0.03	0.10	Rem.
B201.0	1984-09-21	S	0.05	0.05	4.5-5.0	0.20-0.50	0.25-0.35	…	…	…	0.15-0.35	0.50-1.0	…	…	…	…	…	…	0.05	0.15	Rem.
203.0	1972-12-02	S	0.30	0.50	4.5-5.5	0.20-0.30	0.10	…	1.3-1.7	0.10	0.15-0.25	…	…	…	…	0.10-0.30	0.20-0.30 Co, 0.20-0.30 Sb, 0.50 Ti + Zr	…	0.05	0.20	Rem.
203.2	1972-12-02	Ingot	0.20	0.35	4.8-5.2	0.20-0.30	0.10	…	1.3-1.7	0.10	0.15-0.25	…	…	…	…	0.10-0.30	0.20-0.30 Co, 0.20-0.30 Sb, 0.50 Ti + Zr	…	0.05	0.20	Rem.
204.0	1974-10-01	S&P	0.20	0.35	4.2-5.0	0.10	0.15-0.35	…	0.05	0.10	0.15-0.30	…	…	…	0.05	…	…	…	0.05	0.15	Rem.
204.2	1974-10-01	Ingot	0.15	0.10-0.20	4.2-4.9	0.05	0.20-0.35	…	0.03	0.05	0.15-0.25	…	…	…	0.05	…	…	…	0.05	0.15	Rem.
+ 205.0	2011-10-26	….	0.10	0.08	4.2-5.0	…	0.20-0.33	…	…	…	0.50	0.6-0.9	…	…	…	…	…	…	0.08	0.17	Rem.
+ 205.2	2011-10-26	Ingot[13]	0.07	0.05	4.2-5.0	…	0.25-0.33	…	…	…	0.50	0.6-0.9	…	…	…	…	…	…	0.08	0.17	Rem.
206.0	1976-04-23	S&P	0.10	0.15	4.2-5.0	0.20-0.50	0.15-0.35	…	0.05	0.10	0.15-0.30	…	...	…	0.05	...	…	…	0.05	0.15	Rem.
206.2	1976-04-23	Ingot	0.10	0.10	4.2-5.0	0.20-0.50	0.20-0.35	…	0.03	0.05	0.15-0.25	...	…	...	0.05	…	...	…	0.05	0.15	Rem.
A206.0	1976-04-23	S&P	0.05	0.10	4.2-5.0	0.20-0.50	0.15-0.35	…	0.05	0.10	0.15-0.30	…	...	...	0.05	…	…	…	0.05	0.15	Rem.
A206.2	1976-04-23	Ingot	0.05	0.07	4.2-5.0	0.20-0.50	0.20-0.35	...	0.03	0.05	0.15-0.25	…	...	…	0.05	...	...	…	0.05	0.15	Rem.
B206.0	2003-07-07	S&P	0.05	0.10	4.2-5.0	0.20-0.50	0.15-0.35	…	0.05	0.10	0.10	…	…	…	0.05	…	…	…	0.05	0.15	Rem.
B206.2	2003-07-07	Ingot	0.05	0.07	4.2-5.0	0.20-0.50	0.20-0.35	…	0.03	0.05	0.05	…	…	…	0.05	…	…	…	0.05	0.15	Rem.
240.0	....	S	0.50	0.50	7.0-9.0	0.30-0.7	5.5-6.5	…	0.30-0.7	0.10	0.20	…	…	…	…	…	…	…	0.05	0.15	Rem.

See footnotes on pages 11-12.

CHEMICAL COMPOSITION LIMITS[1,2]

Only composition limits which are identical to those listed herein or are registered with The Aluminum Association should be designated as "AA" alloys.

REGISTERED ALLOYS IN THE FORM OF xxx.0 CASTINGS, xxx.1 INGOT AND xxx.2 INGOT.

DESIGNATION																			OTHERS[12]		Al
AA No.	DATE REGISTERED	PRO-DUCTS[5]	Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Ag	Be	Pb	Sn	Zr		FNs	Each	Total[3]	Min.
240.1	....	Ingot	0.50	0.40	7.0-9.0	0.30-0.7	5.6-6.5	...	0.30-0.7	0.10	0.20	...	...	...	...	...	...	...	0.05	0.15	Rem.
242.0	....	S&P	0.7	1.0	3.5-4.5	0.35	1.2-1.8	0.25	1.7-2.3	0.35	0.25	...	...	...	...	...	...	...	0.05	0.15	Rem.
242.1	....	Ingot	0.7	0.8	3.5-4.5	0.35	1.3-1.8	0.25	1.7-2.3	0.35	0.25	...	...	...	...	...	...	...	0.05	0.15	Rem.
242.2	....	Ingot	0.6	0.6	3.5-4.5	0.10	1.3-1.8	...	1.7-2.3	0.10	0.20	...	...	...	...	...	...	...	0.05	0.15	Rem.
A242.0	....	S	0.6	0.8	3.7-4.5	0.10	1.2-1.7	0.15-0.25	1.8-2.3	0.10	0.07-0.20	...	...	...	...	...	...	...	0.05	0.15	Rem.
A242.1	....	Ingot	0.6	0.6	3.7-4.5	0.10	1.3-1.7	0.15-0.25	1.8-2.3	0.10	0.07-0.20	...	...	...	...	...	...	...	0.05	0.15	Rem.
A242.2	....	Ingot	0.35	0.6	3.7-4.5	0.10	1.3-1.7	0.15-0.25	1.8-2.3	0.10	0.07-0.20	...	...	...	...	...	...	...	0.05	0.15	Rem.
295.0	....	S	0.7-1.5	1.0	4.0-5.0	0.35	0.03	...	...	0.35	0.25	...	...	...	...	...	...	...	0.05	0.15	Rem.
295.1	....	Ingot	0.7-1.5	0.8	4.0-5.0	0.35	0.03	...	...	0.35	0.25	...	...	...	...	...	...	...	0.05	0.15	Rem.
295.2	....	Ingot	0.7-1.2	0.8	4.0-5.0	0.30	0.03	...	...	0.30	0.20	...	...	...	...	...	...	...	0.05	0.15	Rem.
296.0	....	P	2.0-3.0	1.2	4.0-5.0	0.35	0.05	...	0.35	0.50	0.25	...	...	...	...	...	...	...	...	0.35	Rem.
296.1	....	Ingot	2.0-3.0	0.9	4.0-5.0	0.35	0.05	...	0.35	0.50	0.25	...	...	...	...	...	...	...	...	0.35	Rem.
296.2	....	Ingot	2.0-3.0	0.8	4.0-5.0	0.30	0.03	...	...	0.30	0.20	...	...	...	...	...	...	...	0.05	0.15	Rem.
301.0	1994-08-02	....	9.5-10.5	0.8-1.5	3.0-3.5	0.50-0.8	0.25-0.50	...	1.0-1.5	0.05	0.20	...	...	...	...	...	...	...	0.03	0.10	Rem.
301.1[14]	1994-08-02	Ingot[13]	9.5-10.5	0.8-1.2	3.0-3.5	0.50-0.8	0.30-0.50	...	1.0-1.5	0.05	0.20	...	...	...	...	...	...	...	0.03	0.10	Rem.
302.0	1994-08-02	....	9.5-10.5	0.25	2.8-3.2	...	0.7-1.2	...	1.0-1.5	0.05	0.20	...	...	...	...	...	...	...	0.03	0.10	Rem.
302.1[14]	1994-08-02	Ingot[13]	9.5-10.5	0.20	2.8-3.2	...	0.8-1.2	...	1.0-1.5	0.05	0.20	...	...	...	...	...	...	...	0.03	0.10	Rem.
303.0	1994-08-02	....	9.5-10.5	0.8-1.5	0.20	0.50-0.8	0.45-0.7	...	...	0.05	0.20	...	...	...	...	...	...	...	0.03	0.10	Rem.
303.1[14]	1994-08-02	Ingot[13]	9.5-10.5	0.8-1.2	0.20	0.50-0.8	0.50-0.7	...	...	0.05	0.20	...	...	...	...	...	...	...	0.03	0.10	Rem.
+ 304.0	2012-04-17	D	9.0-11.5	0.8-1.2	0.05-0.08	0.30-0.50	0.30-0.50	0.05	0.03	0.20	0.03-0.18	...	...	...	0.03	...	...	...	0.03	0.15	Rem.
+ 304.1[14]	2012-04-17	Ingot	9.0-11.5	0.8-1.0	0.05-0.08	0.30-0.50	0.35-0.50	0.05	0.03	0.20	0.03-0.18	...	...	...	0.03	...	...	...	0.03	0.15	Rem.
308.0	....	S&P	5.0-6.0	1.0	4.0-5.0	0.50	0.10	...	...	1.0	0.25	...	...	...	...	...	...	...	...	0.50	Rem.
308.1[14]	....	Ingot	5.0-6.0	0.8	4.0-5.0	0.50	0.10	...	...	1.0	0.25	...	...	...	...	...	...	...	...	0.50	Rem.
308.2[14]	....	Ingot	5.0-6.0	0.8	4.0-5.0	0.30	0.10	...	...	0.50	0.20	...	...	...	...	...	...	...	...	0.50	Rem.
318.0	1991-01-29	S&P	5.5-6.5	1.0	3.0-4.0	0.50	0.10-0.6	...	0.35	1.0	0.25	...	...	...	...	...	...	...	...	0.50	Rem.
318.1[14]	1991-01-29	Ingot	5.5-6.5	0.8	3.0-4.0	0.50	0.15-0.6	...	0.35	0.9	0.25	...	...	...	...	...	...	...	...	0.50	Rem.
319.0	....	S&P	5.5-6.5	1.0	3.0-4.0	0.50	0.10	...	0.35	1.0	0.25	...	...	...	...	...	...	...	...	0.50	Rem.
319.1[14]	....	Ingot	5.5-6.5	0.8	3.0-4.0	0.50	0.10	...	0.35	1.0	0.25	...	...	...	...	...	...	...	...	0.50	Rem.
319.2[14]	....	Ingot	5.5-6.5	0.6	3.0-4.0	0.10	0.10	...	0.10	0.10	0.20	...	...	...	...	...	...	...	...	0.20	Rem.

See footnotes on pages 11-12.

CHEMICAL COMPOSITION LIMITS[1,2]

Only composition limits which are identical to those listed herein or are registered with The Aluminum Association should be designated as "AA" alloys.

REGISTERED ALLOYS IN THE FORM OF xxx.0 CASTINGS, xxx.1 INGOT AND xxx.2 INGOT.

DESIGNATION																			OTHERS[12]		Al
AA No.	DATE REGISTERED	PRO-DUCTS[5]	Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Ag	Be	Pb	Sn	Zr		FNs	Each	Total[3]	Min.
A319.0	1970-08-28	S&P	5.5-6.5	1.0	3.0-4.0	0.50	0.10	...	0.35	3.0	0.25	...	...	...	...	...	...	...	...	0.50	Rem.
A319.1[14]	1970-08-28	Ingot	5.5-6.5	0.8	3.0-4.0	0.50	0.10	...	0.35	3.0	0.25	...	...	...	...	...	...	...	...	0.50	Rem.
B319.0	1981-10-30	S&P	5.5-6.5	1.2	3.0-4.0	0.8	0.10-0.50	...	0.50	1.0	0.25	...	...	...	...	...	...	...	...	0.50	Rem.
B319.1[14]	1981-10-30	Ingot	5.5-6.5	0.9	3.0-4.0	0.8	0.15-0.50	...	0.50	1.0	0.25	...	...	...	...	...	...	...	...	0.50	Rem.
320.0	1982-04-08	S&P	5.0-8.0	1.2	2.0-4.0	0.8	0.05-0.6	...	0.35	3.0	0.25	...	...	...	...	...	...	...	...	0.50	Rem.
320.1[14]	1982-04-08	Ingot	5.0-8.0	0.9	2.0-4.0	0.8	0.10-0.6	...	0.35	3.0	0.25	...	...	...	...	...	...	...	...	0.50	Rem.
328.0	2003-07-09[18]	S	7.5-8.5	1.0	1.0-2.0	0.20-0.6	0.20-0.6	0.35	0.25	1.5	0.25	...	...	...	...	...	...	...	...	0.50	Rem.
328.1[14]	2003-07-09[18]	Ingot	7.5-8.5	0.8	1.0-2.0	0.20-0.6	0.25-0.6	0.35	0.25	1.5	0.25	...	...	...	...	...	...	...	...	0.50	Rem.
332.0	....	P	8.5-10.5	1.2	2.0-4.0	0.50	0.50-1.5	...	0.50	1.0	0.25	...	...	...	...	...	...	...	...	0.50	Rem.
332.1[14]	....	Ingot	8.5-10.5	0.9	2.0-4.0	0.50	0.6-1.5	...	0.50	1.0	0.25	...	...	...	...	...	...	...	...	0.50	Rem.
332.2[14]	....	Ingot	8.5-10.0	0.6	2.0-4.0	0.10	0.9-1.3	...	0.10	0.10	0.20	...	...	...	...	...	...	...	...	0.30	Rem.
333.0	....	P	8.0-10.0	1.0	3.0-4.0	0.50	0.05-0.50	...	0.50	1.0	0.25	...	...	...	...	...	...	...	...	0.50	Rem.
333.1[14]	....	Ingot	8.0-10.0	0.8	3.0-4.0	0.50	0.10-0.50	...	0.50	1.0	0.25	...	...	...	...	...	...	...	...	0.50	Rem.
A333.0	1970-08-28	P	8.0-10.0	1.0	3.0-4.0	0.50	0.05-0.50	...	0.50	3.0	0.25	...	...	...	...	...	...	...	...	0.50	Rem.
A333.1[14]	1970-08-28	Ingot	8.0-10.0	0.8	3.0-4.0	0.50	0.10-0.50	...	0.50	3.0	0.25	...	...	...	...	...	...	...	...	0.50	Rem.
336.0	.....	P	11.0-13.0	1.2	0.50-1.5	0.35	0.7-1.3	...	2.0-3.0	0.35	0.25	...	...	...	...	...	...	...	0.05	...	Rem.
336.1[14]	.....	Ingot	11.0-13.0	0.9	0.50-1.5	0.35	0.8-1.3	...	2.0-3.0	0.35	0.25	...	...	...	...	...	...	...	0.05	...	Rem.
336.2[14]	.....	Ingot	11.0-13.0	0.9	0.50-1.5	0.10	0.9-1.3	...	2.0-3.0	0.10	0.20	...	...	...	...	...	...	...	0.05	0.15	Rem.
339.0	....	P	11.0-13.0	1.2	1.5-3.0	0.50	0.50-1.5	...	0.50-1.5	1.0	0.25	...	...	...	...	...	...	...	...	0.50	Rem.
339.1[14]	....	Ingot	11.0-13.0	0.9	1.5-3.0	0.50	0.6-1.5	...	0.50-1.5	1.0	0.25	...	...	...	...	...	...	...	...	0.50	Rem.
354.0	....	P	8.6-9.4	0.20	1.6-2.0	0.10	0.40-0.6	...	...	0.10	0.20	...	...	...	...	...	...	...	0.05	0.15	Rem.
354.1[14]	....	Ingot	8.6-9.4	0.15	1.6-2.0	0.10	0.45-0.6	...	...	0.10	0.20	...	...	...	...	...	...	...	0.05	0.15	Rem.
354.2[14]	1997-07-21	Ingot	8.6-9.4	0.06	1.6-2.0	0.10	0.45-0.6	...	...	0.10	0.20	...	...	...	...	...	...	...	0.05	0.15	Rem.
355.0	....	S&P	4.5-5.5	0.6[7]	1.0-1.5	0.50[7]	0.40-0.6	0.25	...	0.35	0.25	...	...	...	...	...	...	...	0.05	0.15	Rem.
355.1[14]	....	Ingot	4.5-5.5	0.50[7]	1.0-1.5	0.50[7]	0.45-0.6	0.25	...	0.35	0.25	...	...	...	...	...	...	...	0.05	0.15	Rem.
355.2[14]	....	Ingot	4.5-5.5	0.14-0.25	1.0-1.5	0.05	0.50-0.6	...	...	0.05	0.20	...	...	...	...	...	...	...	0.05	0.15	Rem.
A355.0	1981-09-17	S&P	4.5-5.5	0.09	1.0-1.5	0.05	0.45-0.6	...	...	0.05	0.04-0.20	...	...	...	...	...	...	...	0.05	0.15	Rem.
A355.2[14]	1981-09-17	Ingot	4.5-5.5	0.06	1.0-1.5	0.03	0.50-0.6	...	...	0.03	0.04-0.20	...	...	...	...	...	...	...	0.03	0.10	Rem.
C355.0	....	S&P	4.5-5.5	0.20	1.0-1.5	0.10	0.40-0.6	...	...	0.10	0.20	...	...	...	...	...	...	...	0.05	0.15	Rem.

See footnotes on pages 11-12.

CHEMICAL COMPOSITION LIMITS[1,2]

Only composition limits which are identical to those listed herein or are registered with The Aluminum Association should be designated as "AA" alloys.

REGISTERED ALLOYS IN THE FORM OF xxx.0 CASTINGS, xxx.1 INGOT AND xxx.2 INGOT.

DESIGNATION																			OTHERS[12]		Al
AA No.	DATE REGISTERED	PRO-DUCTS[5]	Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Ag	Be	Pb	Sn	Zr		FNs	Each	Total[3]	Min.
C355.1[14]	1974-06-04	Ingot	4.5-5.5	0.15	1.0-1.5	0.10	0.45-0.6	...	...	0.10	0.20	...	...	...	...	...	...	...	0.05	0.15	Rem.
C355.2[14]	....	Ingot	4.5-5.5	0.13	1.0-1.5	0.05	0.50-0.6	...	...	0.05	0.20	...	...	...	...	...	...	...	0.05	0.15	Rem.
356.0	....	S&P	6.5-7.5	0.6[7]	0.25	0.35[7]	0.20-0.45	...	...	0.35	0.25	...	...	...	...	...	...	...	0.05	0.15	Rem.
356.1[14]	....	Ingot	6.5-7.5	0.50[7]	0.25	0.35[7]	0.25-0.45	...	...	0.35	0.25	...	...	...	...	...	...	...	0.05	0.15	Rem.
356.2[14]	....	Ingot	6.5-7.5	0.13-0.25	0.10	0.05	0.30-0.45	...	...	0.05	0.20	...	...	...	...	...	...	...	0.05	0.15	Rem.
A356.0	....	S&P	6.5-7.5	0.20	0.20	0.10	0.25-0.45	...	...	0.10	0.20	...	...	...	...	...	...	...	0.05	0.15	Rem.
A356.1[14]	1974-06-04	Ingot	6.5-7.5	0.15	0.20	0.10	0.30-0.45	...	...	0.10	0.20	...	...	...	...	...	...	...	0.05	0.15	Rem.
A356.2[14]	....	Ingot	6.5-7.5	0.12	0.10	0.05	0.30-0.45	...	...	0.05	0.20	...	...	...	...	...	...	...	0.05	0.15	Rem.
B356.0	1981-09-17	S&P	6.5-7.5	0.09	0.05	0.05	0.25-0.45	...	...	0.05	0.04-0.20	...	...	...	...	...	...	...	0.05	0.15	Rem.
B356.2[14]	1981-09-17	Ingot	6.5-7.5	0.06	0.03	0.03	0.30-0.45	...	...	0.03	0.04-0.20	...	...	...	...	...	...	...	0.03	0.10	Rem.
C356.0	1985-05-30	S&P	6.5-7.5	0.07	0.05	0.05	0.25-0.45	...	...	0.05	0.04-0.20	...	...	...	...	...	...	...	0.05	0.15	Rem.
C356.2[14]	1985-05-30	Ingot	6.5-7.5	0.04	0.03	0.03	0.30-0.45	...	...	0.03	0.04-0.20	...	...	...	...	...	...	...	0.03	0.10	Rem.
F356.0	1971-10-20	S&P	6.5-7.5	0.20	0.20	0.10	0.17-0.25	...	...	0.10	0.04-0.20	...	...	...	...	...	...	...	0.05	0.15	Rem.
F356.2[14]	1971-10-20	Ingot	6.5-7.5	0.12	0.10	0.05	0.17-0.25	...	...	0.05	0.04-0.20	...	...	...	...	...	...	...	0.05	0.15	Rem.
357.0	....	S&P	6.5-7.5	0.15	0.05	0.03	0.45-0.6	...	...	0.05	0.20	...	...	...	...	...	...	...	0.05	0.15	Rem.
357.1[14]	....	Ingot	6.5-7.5	0.12	0.05	0.03	0.45-0.6	...	...	0.05	0.20	...	...	...	...	...	...	...	0.05	0.15	Rem.
A357.0	....	S&P	6.5-7.5	0.20	0.20	0.10	0.40-0.7	...	...	0.10	0.04-0.20	...	0.04-0.07	...	...	...	...	...	0.05	0.15	Rem.
A357.2[14]	....	Ingot	6.5-7.5	0.12	0.10	0.05	0.45-0.7	...	...	0.05	0.04-0.20	...	0.04-0.07	...	...	...	...	...	0.03	0.10	Rem.
B357.0	1981-09-17	S&P	6.5-7.5	0.09	0.05	0.05	0.40-0.6	...	...	0.05	0.04-0.20	...	...	...	...	...	...	...	0.05	0.15	Rem.
B357.2[14]	1981-09-17	Ingot	6.5-7.5	0.06	0.03	0.03	0.45-0.6	...	...	0.03	0.04-0.20	...	...	...	...	...	...	...	0.03	0.10	Rem.
C357.0	1981-09-17	S&P	6.5-7.5	0.09	0.05	0.05	0.45-0.7	...	...	0.05	0.04-0.20	...	0.04-0.07	...	...	...	...	...	0.05	0.15	Rem.
C357.2[14]	1981-09-17	Ingot	6.5-7.5	0.06	0.03	0.03	0.50-0.7	...	...	0.03	0.04-0.20	...	0.04-0.07	...	...	...	...	...	0.03	0.10	Rem.
D357.0	1984-09-21	S	6.5-7.5	0.20	...	0.10	0.55-0.6	...	...	...	0.10-0.20	...	0.04-0.07	...	...	...	...	...	0.05	0.15	Rem.
E357.0	2001-06-06	S, P & I	6.5-7.5	0.10	...	0.10	0.55-0.6	...	...	...	0.10-0.20	...	0.002	...	...	...	...	...	0.05	0.15	Rem.
E357.1[14]	2001-06-06	Ingot	6.5-7.5	0.07	...	0.10	0.6-0.7	...	...	...	0.10-0.20	...	0.002	...	...	...	...	...	0.05	0.15	Rem.
E357.2[14]	2001-06-06	Ingot	6.5-7.5	0.07	...	0.10	0.6-0.7	...	...	...	0.10-0.20	...	0.0003	...	...	...	...	...	0.05	0.15	Rem.
F357.0	2001-06-06	S, P & I	6.5-7.5	0.10	0.20	0.10	0.40-0.7	...	...	0.10	0.04-0.20	...	0.002	...	...	...	...	...	0.05	0.15	Rem.
F357.1[14]	2001-06-06	Ingot	6.5-7.5	0.07	0.20	0.10	0.45-0.7	...	...	0.10	0.04-0.20	...	0.002	...	...	...	...	...	0.05	0.15	Rem.
F357.2[14]	2001-06-06	Ingot	6.5-7.5	0.07	0.20	0.10	0.45-0.7	...	...	0.10	0.04-0.20	...	0.0003	...	...	...	...	...	0.05	0.15	Rem.

See footnotes on pages 11-12.

CHEMICAL COMPOSITION LIMITS[1,2]

Only composition limits which are identical to those listed herein or are registered with The Aluminum Association should be designated as "AA" alloys.

REGISTERED ALLOYS IN THE FORM OF xxx.0 CASTINGS, xxx.1 INGOT AND xxx.2 INGOT.

DESIGNATION																			OTHERS[12]		Al
AA No.	DATE REGISTERED	PRO-DUCTS[5]	Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Ag	Be	Pb	Sn	Zr		FNs	Each	Total[3]	Min.
358.0	....	S&P	7.6-8.6	0.30	0.20	0.20	0.40-0.6	0.20	...	0.20	0.10-0.20	...	0.10-0.30	...	...	...	...	...	0.05	0.15	Rem.
358.2[14]	....	Ingot	7.6-8.6	0.20	0.10	0.10	0.45-0.6	0.05	...	0.10	0.12-0.20	...	0.15-0.30	...	...	...	...	...	0.05	0.15	Rem.
359.0	....	S&P	8.5-9.5	0.20	0.20	0.10	0.50-0.7	...	...	0.10	0.20	...	...	...	...	...	...	...	0.05	0.15	Rem.
359.2[14]	....	Ingot	8.5-9.5	0.12	0.10	0.10	0.55-0.7	...	...	0.10	0.20	...	...	...	...	...	...	...	0.05	0.15	Rem.
A359.0	1994-08-02	....	8.5-9.5	0.25	0.20	0.10	0.40-0.6	...	...	0.05	0.20	...	...	...	...	...	...	...	0.03	0.10	Rem.
A359.1[14]	1994-08-02	Ingot[13]	8.5-9.5	0.20	0.20	0.10	0.45-0.6	...	...	0.05	0.20	...	...	...	...	...	...	...	0.03	0.10	Rem.
360.0[8]	....	D	9.0-10.0	2.0	0.6	0.35	0.40-0.6	...	0.50	0.50	...	...	...	...	0.15	...	...	...	...	0.25	Rem.
360.2[14]	....	Ingot	9.0-10.0	0.7-1.1	0.10	0.10	0.45-0.6	...	0.10	0.10	...	...	...	...	0.10	...	...	...	...	0.20	Rem.
A360.0[8]	....	D	9.0-10.0	1.3	0.6	0.35	0.40-0.6	...	0.50	0.50	...	...	...	...	0.15	...	...	...	...	0.25	Rem.
A360.1[8, 14]	....	Ingot	9.0-10.0	1.0	0.6	0.35	0.45-0.6	...	0.50	0.40	...	...	...	...	0.15	...	...	...	...	0.25	Rem.
A360.2[14]	....	Ingot	9.0-10.0	0.6	0.10	0.05	0.45-0.6	...	...	0.05	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
361.0	1978-06-30	D	9.5-10.5	1.1	0.50	0.25	0.40-0.6	0.20-0.30	0.20-0.30	0.50	0.20	...	...	...	0.10	...	...	...	0.05	0.15	Rem.
361.1[14]	1978-06-30	Ingot	9.5-10.5	0.8	0.50	0.25	0.45-0.6	0.20-0.30	0.20-0.30	0.40	0.20	...	...	...	0.10	...	...	...	0.05	0.15	Rem.
+ 362.0	2011-05-03	D	10.5-11.5	0.40	0.20	0.25-0.35	0.50-0.7	...	0.10	0.10	0.20	...	...	...	0.10	...	...	19	0.05	0.15	Rem.
+ 362.1[15]	2011-05-03	Ingot	10.5-11.5	0.30	0.20	0.25-0.35	0.6-0.7	...	0.10	0.10	0.20	...	...	...	0.10	...	...	19	0.05	0.15	Rem.
363.0	1970-01-16	S&P	4.5-6.0	1.1	2.5-3.5	...	0.15-0.40	...	0.25	3.0-4.5	0.20	...	...	0.25	0.25	...	0.8 Mn+Cr	...	...	0.30	Rem.
363.1[14]	1970-01-16	Ingot	4.5-6.0	0.8	2.5-3.5	...	0.20-0.40	...	0.25	3.0-4.5	0.20	...	...	0.25	0.25	...	0.8 Mn+Cr	...	...	0.30	Rem.
364.0	....	D	7.5-9.5	1.5	0.20	0.10	0.20-0.40	0.25-0.50	0.15	0.15	...	...	0.02-0.04	...	0.15	...	...	...	0.05	0.15	Rem.
364.2[14]	....	Ingot	7.5-9.5	0.7-1.1	0.20	0.10	0.25-0.40	0.25-0.50	0.15	0.15	...	...	0.02-0.04	...	0.15	...	...	...	0.05	0.15	Rem.
365.0	1996-01-05	D	9.5-11.5	0.15	0.03	0.50-0.8	0.10-0.50	...	...	0.07	0.04-0.15	...	...	...	...	...	...	9	0.03	0.10	Rem.
365.1[15]	1996-01-05	Ingot	9.5-11.5	0.12	0.03	0.50-0.8	0.15-0.50	...	...	0.07	0.04-0.15	...	...	...	...	...	...	9	0.03	0.10	Rem.
A365.0	2008-10-17	D	9.5-11.5	0.15-0.25	0.02	0.30-0.6	0.10-0.6	...	...	0.03	0.10	...	...	...	...	...	...	20	0.05	0.15	Rem.
A365.1[15]	2008-10-17	Ingot	9.5-11.5	0.15-0.20	0.02	0.30-0.6	0.15-0.6	...	...	0.03	0.10	...	...	...	...	...	...	20	0.05	0.15	Rem.
366.0	2003-03-27	....	6.5-7.5	0.15	0.05	0.03	0.5-1.2	...	...	0.05	0.20	...	...	...	...	...	...	...	0.05	0.15	Rem.
366.1[14]	2003-03-27	Ingot[16]	6.5-7.5	0.12	0.05	0.03	0.6-1.2	...	...	0.05	0.20	...	...	...	...	...	...	...	0.05	0.15	Rem.
367.0	2007-01-10	D	8.5-9.5	0.25	0.25	0.25-0.35	0.30-0.50	...	...	0.10	0.20	...	...	...	...	...	...	19	0.05	0.15	Rem.
367.1[15]	2007-01-10	Ingot	8.5-9.5	0.20	0.25	0.25-0.35	0.35-0.50	...	...	0.10	0.20	...	...	...	...	...	...	19	0.05	0.15	Rem.
368.0	2007-01-10	D	8.5-9.5	0.25	0.25	0.25-0.35	0.10-0.30	...	...	0.10	0.20	...	...	...	...	...	...	19	0.05	0.15	Rem.

See footnotes on pages 11-12.

CHEMICAL COMPOSITION LIMITS[1,2]

Only composition limits which are identical to those listed herein or are registered with The Aluminum Association should be designated as "AA" alloys.

REGISTERED ALLOYS IN THE FORM OF xxx.0 CASTINGS, xxx.1 INGOT AND xxx.2 INGOT.

DESIGNATION																		OTHERS[12]		Al
AA No.	DATE REGISTERED	PRO-DUCTS[5]	Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Ag	Be	Pb	Sn	Zr		FNs	Each	Total[3]	Min.
368.1[15]	2007-01-10	Ingot	8.5-9.5	0.20	0.25	0.25-0.35	0.15-0.30	...	...	0.10	0.20	...	...	...	...	...	...	[19] ...	0.05	0.15	Rem.
369.0	1978-04-04	D	11.0-12.0	1.3	0.50	0.35	0.25-0.45	0.30-0.40	0.05	1.0	...	...	...	...	0.10	...	...	...	0.05	0.15	Rem.
369.1[14]	1978-04-04	Ingot	11.0-12.0	1.0	0.50	0.35	0.30-0.45	0.30-0.40	0.05	0.9	...	...	...	...	0.10	...	...	...	0.05	0.15	Rem.
380.0[8]	2006-07-13[18]	D	7.5-9.5	2.0	3.0-4.0	0.50	0.10	...	0.50	3.0	...	...	...	...	0.35	...	...	...	...	0.50	Rem.
380.2[14]	2006-07-13[18]	Ingot	7.5-9.5	0.7-1.1	3.0-4.0	0.10	0.10	...	0.10	0.10	...	...	...	...	0.10	...	...	...	...	0.20	Rem.
A380.0[8]	....	D	7.5-9.5	1.3	3.0-4.0	0.50	0.10	...	0.50	3.0	...	...	...	...	0.35	...	...	...	...	0.50	Rem.
A380.1[8, 14]	....	Ingot	7.5-9.5	1.0	3.0-4.0	0.50	0.10	...	0.50	2.9	...	...	...	...	0.35	...	...	...	...	0.50	Rem.
A380.2[14]	....	Ingot	7.5-9.5	0.6	3.0-4.0	0.10	0.10	...	0.10	0.10	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
B380.0	....	D	7.5-9.5	1.3	3.0-4.0	0.50	0.10	...	0.50	1.0	...	...	...	...	0.35	...	...	...	...	0.50	Rem.
B380.1[14]	....	Ingot	7.5-9.5	1.0	3.0-4.0	0.50	0.10	...	0.50	0.9	...	...	...	...	0.35	...	...	...	...	0.50	Rem.
C380.0	1991-01-29	D	7.5-9.5	1.3	3.0-4.0	0.50	0.10-0.30	...	0.50	3.0	...	...	...	...	0.35	...	...	...	...	0.50	Rem.
C380.1[14]	1991-01-29	Ingot	7.5-9.5	1.0	3.0-4.0	0.50	0.15-0.30	...	0.50	2.9	...	...	...	...	0.35	...	...	...	...	0.50	Rem.
D380.0	1991-01-29	D	7.5-9.5	1.3	3.0-4. 0	0.50	0.10-0.30	...	0.50	1.0	...	...	...	...	0.35	...	...	...	...	0.50	Rem.
D380.1[14]	1991-01-29	Ingot	7.5-9.5	1.0	3.0-4.0	0.50	0.15-0.30	...	0.50	0.9	...	...	...	...	0.35	...	...	...	...	0.50	Rem.
E380.0	2006-10-12	D	7.5-9.5	1.3	3.0-4.0	0.50	0.30	...	0.50	3.0	...	...	...	...	0.35	...	...	...	...	0.50	Rem.
E380.1[14]	2006-10-12	Ingot	7.5-9.5	1.0	3.0-4.0	0.50	0.30	...	0.50	2.9	...	...	...	...	0.35	...	...	...	...	0.50	Rem.
381.0	1997-06-12	D	9.0-10.0	1.3	3.0-4.0	0.50	0.13	0.15	0.50	3.0	0.20	...	...	0.15	0.15	...	0.15 Sb	...	...	0.50	Rem.
381.2[14]	1997-06-12	Ingot	9.0-10.0	0.7-1.0	3.0-4.0	0.50	0.13	0.15	0.50	2.9	0.20	...	...	0.15	0.15	...	0.15 Sb	...	...	0.50	Rem.
383.0	....	D	9.5-11.5	1.3	2.0-3.0	0.50	0.10	...	0.30	3.0	...	...	...	...	0.15	...	...	...	...	0.50	Rem.
383.1[14]	....	Ingot	9.5-11.5	1.0	2.0-3.0	0.50	0.10	...	0.30	2.9	...	...	...	...	0.15	...	...	...	...	0.50	Rem.
383.2[14]	....	Ingot	9.5-11.5	0.6-1.0	2.0-3.0	0.10	0.10	...	0.10	0.10	...	...	...	...	0.10	...	...	...	...	0.20	Rem.
A383.0	1991-01-29	D	9.5-11.5	1.3	2.0-3.0	0.50	0.10-0.30	...	0.30	3.0	...	...	...	...	0.15	...	...	...	...	0.50	Rem.
A383.1[14]	1991-01-29	Ingot	9.5-11.5	1.0	2.0-3.0	0.50	0.15-0.30	...	0.30	2.9	...	...	...	...	0.15	...	...	...	...	0.50	Rem.
B383.0	2006-10-12	D	9.5-11.5	1.3	2.0-3.0	0.50	0.30	...	0.30	3.0	...	...	...	...	0.15	...	...	...	...	0.50	Rem.
B383.1[14]	2006-10-12	Ingot	9.5-11.5	1.0	2.0-3.0	0.50	0.30	...	0.30	2.9	...	...	...	...	0.15	...	...	...	...	0.50	Rem.
384.0	....	D	10.5-12.0	1.3	3.0-4.5	0.50	0.10	...	0.50	3.0	...	...	...	...	0.35	...	...	...	...	0.50	Rem.
384.1[14]	....	Ingot	10.5-12.0	1.0	3.0-4.5	0.50	0.10	...	0.50	2.9	...	...	...	...	0.35	...	...	...	...	0.50	Rem.
384.2[14]	....	Ingot	10.5-12.0	0.6-1.0	3.0-4.5	0.10	0.10	...	0.10	0.10	...	...	...	...	0.10	...	...	...	...	0.20	Rem.

See footnotes on pages 11-12.

CHEMICAL COMPOSITION LIMITS[1,2]

Only composition limits which are identical to those listed herein or are registered with The Aluminum Association should be designated as "AA" alloys.

REGISTERED ALLOYS IN THE FORM OF xxx.0 CASTINGS, xxx.1 INGOT AND xxx.2 INGOT.

DESIGNATION																			OTHERS[12]		Al
AA No.	DATE REGISTERED	PRO-DUCTS[5]	Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Ag	Be	Pb	Sn	Zr		FNs	Each	Total[3]	Min.
A384.0	....	D	10.5-12.0	1.3	3.0-4.5	0.50	0.10	...	0.50	1.0	...	...	...	...	0.35	...	...	...	...	0.50	Rem.
A384.1[14]	....	Ingot	10.5-12.0	1.0	3.0-4.5	0.50	0.10	...	0.50	0.9	...	...	...	...	0.35	...	...	...	...	0.50	Rem.
B384.0	1991-01-29	D	10.5-12.0	1.3	3.0-4.5	0.50	0.10-0.30	...	0.50	1.0	...	...	...	...	0.35	...	...	...	...	0.50	Rem.
B384.1[14]	1991-01-29	Ingot	10.5-12.0	1.0	3.0-4.5	0.50	0.15-0.30	...	0.50	0.9	...	...	...	...	0.35	...	...	...	...	0.50	Rem.
C384.0	1991-01-29	D	10.5-12.0	1.3	3.0-4.5	0.50	0.10-0.30	...	0.50	3.0	...	...	...	...	0.35	...	...	...	...	0.50	Rem.
C384.1[14]	1991-01-29	Ingot	10.5-12.0	1.0	3.0-4.5	0.50	0.15-0.30	...	0.50	2.9	...	...	...	...	0.35	...	...	...	...	0.50	Rem.
390.0	....	D	16.0-18.0	1.3	4.0-5.0	0.10	0.45-0.65[6]	...	...	0.10	0.20	...	...	...	...	...	...	...	0.10	0.20	Rem.
390.2[14]	....	Ingot	16.0-18.0	0.6-1.0	4.0-5.0	0.10	0.50-0.65[6]	...	...	0.10	0.20	...	...	...	...	...	...	...	0.10	0.20	Rem.
A390.0	....	S&P	16.0-18.0	0.50	4.0-5.0	0.10	0.45-0.65[6]	...	...	0.10	0.20	...	...	...	...	...	...	...	0.10	0.20	Rem.
A390.1[14]	....	Ingot	16.0-18.0	0.40	4.0-5.0	0.10	0.50-0.65[6]	...	...	0.10	0.20	...	...	...	...	...	...	...	0.10	0.20	Rem.
B390.0	1979-03-29	D	16.0-18.0	1.3	4.0-5.0	0.50	0.45-0.65[6]	...	0.10	1.5	0.20	...	...	...	...	...	...	...	0.10	0.20	Rem.
B390.1[14]	1979-03-29	Ingot	16.0-18.0	1.0	4.0-5.0	0.50	0.50-0.65[6]	...	0.10	1.4	0.20	...	...	...	...	...	...	...	0.10	0.20	Rem.
391.0	2001-01-30	D	18.0-20.0	1.2	0.20	0.30	0.40-0.7	...	...	0.10	0.20	...	...	...	...	...	...	...	0.10	0.20	Rem.
391.1[14]	2001-01-30	Ingot	18.0-20.0	0.9	0.20	0.30	0.45-0.7	...	...	0.10	0.20	...	...	...	...	...	...	...	0.10	0.20	Rem.
A391.0	2001-01-30	P	18.0-20.0	0.6	0.20	0.30[7]	0.40-0.7	...	...	0.10	0.20	...	...	...	...	...	...	...	0.10	0.20	Rem.
A391.1[14]	2001-01-30	Ingot	18.0-20.0	0.50	0.20	0.30[7]	0.45-0.7	...	...	0.10	0.20	...	...	...	...	...	...	...	0.10	0.20	Rem.
B391.0	2001-01-30	S	18.0-20.0	0.20	0.20	0.30	0.40-0.7	...	...	0.10	0.20	...	...	...	...	...	...	...	0.10	0.20	Rem.
B391.1[14]	2001-01-30	Ingot	18.0-20.0	0.15	0.20	0.30	0.45-0.7	...	...	0.10	0.20	...	...	...	...	...	...	...	0.10	0.20	Rem.
392.0	....	D	18.0-20.0	1.5	0.40-0.8	0.20-0.6	0.8-1.2	...	0.50	0.50	0.20	...	...	...	0.30	...	...	...	0.15	0.50	Rem.
392.1[14]	....	Ingot	18.0-20.0	1.1	0.40-0.8	0.20-0.6	0.9-1.2	...	0.50	0.40	0.20	...	...	...	0.30	...	...	...	0.15	0.50	Rem.
393.0	....	S, P & D	21.0-23.0	1.3	0.7-1.1	0.10	0.7-1.3	...	2.0-2.5	0.10	0.10-0.20	...	...	...	...	...	0.08-0.15 V	...	0.05	0.15	Rem.
393.1[14]	....	Ingot	21.0-23.0	1.0	0.7-1.1	0.10	0.8-1.3	...	2.0-2.5	0.10	0.10-0.20	...	...	...	...	...	0.08-0.15 V	...	0.05	0.15	Rem.
393.2[14]	....	Ingot	21.0-23.0	0.8	0.7-1.1	0.10	0.8-1.3	...	2.0-2.5	0.10	0.10-0.20	...	...	...	...	...	0.08-0.15 V	...	0.05	0.15	Rem.
409.2[10, 14]	1973-09-24	Ingot	9.0-10.0	0.6-1.3	0.10	0.10	...	...	...	0.10	...	...	...	...	...	...	...	...	0.10	0.20	Rem.
413.0[8]	....	D	11.0-13.0	2.0	1.0	0.35	0.10	...	0.50	0.50	...	...	...	...	0.15	...	...	...	...	0.25	Rem.
413.2[14]	....	Ingot	11.0-13.0	0.7-1.1	0.10	0.10	0.07	...	0.10	0.10	...	...	...	...	0.10	...	...	..	...	0.20	Rem.
A413.0[8]	....	D	11.0-13.0	1.3	1.0	0.35	0.10	...	0.50	0.50	...	...	...	...	0.15	...	...	...	...	0.25	Rem.
A413.1[8, 14]	....	Ingot	11.0-13.0	1.0	1.0	0.35	0.10	...	0.50	0.40	...	...	...	...	0.15	...	...	...	...	0.25	Rem.

See footnotes on pages 11-12.

CHEMICAL COMPOSITION LIMITS[1,2]

Only composition limits which are identical to those listed herein or are registered with The Aluminum Association should be designated as "AA" alloys.

REGISTERED ALLOYS IN THE FORM OF xxx.0 CASTINGS, xxx.1 INGOT AND xxx.2 INGOT.

DESIGNATION																		OTHERS[12]		Al
AA No.	DATE REGISTERED	PRO-DUCTS[5]	Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Ag	Be	Pb	Sn	Zr		FNs	Each	Total[3]	Min.
A413.2[14]	....	Ingot	11.0-13.0	0.6	0.10	0.05	0.05	...	0.05	0.05	...	...	...	...	0.05	...	...	...	...	0.10	Rem.
B413.0	1984-11-06	S&P	11.0-13.0	0.50	0.10	0.35	0.05	...	0.05	0.10	0.25	...	...	...	...	...	...	...	0.05	0.20	Rem.
B413.1[14]	1984-11-06	Ingot	11.0-13.0	0.40	0.10	0.35	0.05	...	0.05	0.10	0.25	...	...	...	...	...	...	...	0.05	0.20	Rem.
435.2[11,14]	1981-12-18	Ingot	3.3-3.9	0.40	0.05	0.05	0.05	...	...	0.10	...	...	...	...	...	...	...	...	0.05	0.20	Rem.
443.0	....	S&P	4.5-6.0	0.8	0.6	0.50	0.05	0.25	...	0.50	0.25	...	...	...	...	...	...	...	...	0.35	Rem.
443.1[14]	....	Ingot	4.5-6.0	0.6	0.6	0.50	0.05	0.25	...	0.50	0.25	...	...	...	...	...	...	...	...	0.35	Rem.
443.2[14]	....	Ingot	4.5-6.0	0.6	0.10	0.10	0.05	...	...	0.10	0.20	...	...	...	...	...	...	...	0.05	0.15	Rem.
A443.0	....	S	4.5-6.0	0.8	0.30	0.50	0.05	0.25	...	0.50	0.25	...	...	...	...	...	...	...	...	0.35	Rem.
A443.1[14]	....	Ingot	4.5-6.0	0.6	0.30	0.50	0.05	0.25	...	0.50	0.25	...	...	...	...	...	...	...	...	0.35	Rem.
B443.0	....	S&P	4.5-6.0	0.8	0.15	0.35	0.05	...	...	0.35	0.25	...	...	...	...	...	...	...	0.05	0.15	Rem.
B443.1[14]	....	Ingot	4.5-6.0	0.6	0.15	0.35	0.05	...	...	0.35	0.25	...	...	...	...	...	...	...	0.05	0.15	Rem.
C443.0	....	D	4.5-6.0	2.0	0.6	0.35	0.10	...	0.50	0.50	...	...	...	...	0.15	...	...	...	...	0.25	Rem.
C443.1[14]	....	Ingot	4.5-6.0	1.1	0.6	0.35	0.10	...	0.50	0.40	...	...	...	...	0.15	...	...	...	...	0.25	Rem.
C443.2[14]	....	Ingot	4.5-6.0	0.7-1.1	0.10	0.10	0.05	...	...	0.10	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
444.0	1974-11-05	S&P	6.5-7.5	0.6	0.25	0.35	0.10	...	...	0.35	0.25	...	...	...	...	...	...	...	0.05	0.15	Rem.
444.2[14]	1973-09-24	Ingot	6.5-7.5	0.13-0.25	0.10	0.05	0.05	...	...	0.05	0.20	...	...	...	...	...	...	...	0.05	0.15	Rem.
A444.0	....	P	6.5-7.5	0.20	0.10	0.10	0.05	...	...	0.10	0.20	...	...	...	...	...	...	...	0.05	0.15	Rem.
A444.1[14]	1974-06-04	Ingot	6.5-7.5	0.15	0.10	0.10	0.05	...	...	0.10	0.20	...	...	...	...	...	...	...	0.05	0.15	Rem.
A444.2[14]	....	Ingot	6.5-7.5	0.12	0.05	0.05	0.05	...	...	0.05	0.20	...	...	...	...	...	...	...	0.05	0.15	Rem.
445.2[10, 14]	1973-09-24	Ingot	6.5-7.5	0.6-1.3	0.10	0.10	...	...	...	0.10	...	...	...	...	...	...	...	...	0.10	0.20	Rem.
505.0	2004-04-12	....	0.40-0.8	0.7	0.15-0.40	0.15	0.8-1.2	0.04-0.35	...	0.25	0.15	...	...	...	...	...	...	...	0.05	0.15	Rem.
505.1	2004-04-12	Ingot[17]	0.40-0.8	0.50	0.15-0.40	0.15	0.9-1.2	0.04-0.35	...	0.25	0.15	...	...	...	...	...	...	...	0.05	0.15	Rem.
511.0	....	S	0.30-0.7	0.50	0.15	0.35	3.5-4.5	...	...	0.15	0.25	...	...	...	...	...	...	...	0.05	0.15	Rem.
511.1	....	Ingot	0.30-0.7	0.40	0.15	0.35	3.6-4.5	...	...	0.15	0.25	...	...	...	...	...	...	...	0.05	0.15	Rem.
511.2	....	Ingot	0.30-0.7	0.30	0.10	0.10	3.6-4.5	...	...	0.10	0.20	...	...	...	...	...	...	...	0.05	0.15	Rem.
512.0	....	S	1.4-2.2	0.6	0.35	0.8	3.5-4.5	0.25	...	0.35	0.25	...	...	...	...	...	...	...	0.05	0.15	Rem.
512.2	....	Ingot	1.4-2.2	0.30	0.10	0.10	3.6-4.5	...	...	0.10	0.20	...	...	...	...	...	...	...	0.05	0.15	Rem.

See footnotes on pages 11-12.

CHEMICAL COMPOSITION LIMITS[1,2]

Only composition limits which are identical to those listed herein or are registered with The Aluminum Association should be designated as "AA" alloys.

REGISTERED ALLOYS IN THE FORM OF xxx.0 CASTINGS, xxx.1 INGOT AND xxx.2 INGOT.

DESIGNATION																		OTHERS[12]		Al
AA No.	DATE REGISTERED	PRO-DUCTS[5]	Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Ag	Be	Pb	Sn	Zr		FNs	Each	Total[3]	Min.
513.0	....	P	0.30	0.40	0.10	0.30	3.5-4.5	...	...	1.4-2.2	0.20	...	...	...	...	...	...	...	0.05	0.15	Rem.
513.2	....	Ingot	0.30	0.30	0.10	0.10	3.6-4.5	...	...	1.4-2.2	0.20	...	...	...	...	...	...	...	0.05	0.15	Rem.
514.0	....	S	0.35	0.50	0.15	0.35	3.5-4.5	...	...	0.15	0.25	...	...	...	...	...	...	...	0.05	0.15	Rem.
514.1	....	Ingot	0.35	0.40	0.15	0.35	3.6-4.5	...	...	0.15	0.25	...	...	...	...	...	...	...	0.05	0.15	Rem.
514.2	....	Ingot	0.30	0.30	0.10	0.10	3.6-4.5	...	...	0.10	0.20	...	...	...	...	...	...	...	0.05	0.15	Rem.
515.0	1970-01-02	D	0.50-1.0	1.3	0.20	0.40-0.6	2.5-4.0	...	...	0.10	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
515.2	1970-01-02	Ingot	0.50-1.0	0.6-1.0	0.10	0.40-0.6	2.7-4.0	...	...	0.05	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
516.0	1983-09-30	D	0.30-1.5	0.35-1.0	0.30	0.15-0.40	2.5-4.5	...	0.25-0.40	0.20	0.10-0.20	...	...	0.10	0.10	...	...	...	0.05	—	Rem.
516.1	1983-09-30	Ingot	0.30-1.5	0.35-0.7	0.30	0.15-0.40	2.6-4.5	...	0.25-0.40	0.20	0.10-0.20	...	...	0.10	0.10	...	...	...	0.05	—	Rem.
518.0	....	D	0.35	1.8	0.25	0.35	7.5-8.5	...	0.15	0.15	...	...	...	...	0.15	...	...	...	...	0.25	Rem.
518.1	....	Ingot	0.35	1.1	0.25	0.35	7.6-8.5	...	0.15	0.15	...	...	...	...	0.15	...	...	...	...	0.25	Rem.
518.2	....	Ingot	0.25	0.7	0.10	0.10	7.6-8.5	...	0.05	...	...	...	...	...	0.05	...	...	...	...	0.10	Rem.
520.0	....	S	0.25	0.30	0.25	0.15	9.5-10.6	...	...	0.15	0.25	...	...	...	...	...	...	...	0.05	0.15	Rem.
520.2	....	Ingot	0.15	0.20	0.20	0.10	9.6-10.6	...	...	0.10	0.20	...	...	...	...	...	...	...	0.05	0.15	Rem.
535.0	....	S	0.15	0.15	0.05	0.10-0.25	6.2-7.5	...	...	...	0.10-0.25	...	0.003-0.007	...	...	...	0.005 B	...	0.05	0.15	Rem.
535.2	....	Ingot	0.10	0.10	0.05	0.10-0.25	6.6-7.5	...	...	...	0.10-0.25	...	0.003-0.007	...	...	...	0.002 B	...	0.05	0.15	Rem.
A535.0	....	S	0.20	0.20	0.10	0.10-0.25	6.5-7.5	...	...	...	0.25	...	...	...	...	...	...	...	0.05	0.15	Rem.
A535.1	....	Ingot	0.20	0.15	0.10	0.10-0.25	6.6-7.5	...	...	...	0.25	...	...	...	...	...	...	...	0.05	0.15	Rem.
B535.0	....	S	0.15	0.15	0.10	0.05	6.5-7.5	...	...	...	0.10-0.25	...	...	...	...	...	...	...	0.05	0.15	Rem.
B535.2	....	Ingot	0.10	0.12	0.05	0.05	6.6-7.5	...	...	...	0.10-0.25	...	...	...	...	...	...	...	0.05	0.15	Rem.
705.0	....	S&P	0.20	0.8	0.20	0.40-0.6	1.4-1.8	0.20-0.40	...	2.7-3.3	0.25	...	...	...	...	...	...	...	0.05	0.15	Rem.
705.1	....	Ingot	0.20	0.6	0.20	0.40-0.6	1.5-1.8	0.20-0.40	...	2.7-3.3	0.25	...	...	...	...	...	...	...	0.05	0.15	Rem.
707.0	....	S&P	0.20	0.8	0.20	0.40-0.6	1.8-2.4	0.20-0.40	...	4.0-4.5	0.25	...	...	...	...	...	...	...	0.05	0.15	Rem.
707.1	....	Ingot	0.20	0.6	0.20	0.40-0.6	1.9-2.4	0.20-0.40	...	4.0-4.5	0.25	...	...	...	...	...	...	...	0.05	0.15	Rem.
709.0	2004-04-12	....	0.40	0.50	1.2-2.0	0.30	2.1-2.9	0.18-0.28	...	5.1-6.1	0.20	...	...	...	...	...	...	...	0.05	0.15	Rem.
709.1	2004-04-12	Ingot[17]	0.40	0.40	1.2-2.0	0.30	2.2-2.9	0.18-0.28	...	5.1-6.1	0.20	...	...	...	...	...	...	...	0.05	0.15	Rem.
709.2	2004-04-12	Ingot[17]	0.15	0.20	1.2-2.0	0.15	2.2-2.9	0.18-0.28	...	5.1-6.0	0.20	...	...	...	...	...	...	...	0.05	0.15	Rem.
710.0	....	S	0.15	0.50	0.35-0.6	0.05	0.6-0.8	...	...	6.0-7.0	0.25	...	...	...	...	...	...	...	0.05	0.15	Rem.

See footnotes on pages 11-12.

CHEMICAL COMPOSITION LIMITS[1,2]

Only composition limits which are identical to those listed herein or are registered with The Aluminum Association should be designated as "AA" alloys.

REGISTERED ALLOYS IN THE FORM OF xxx.0 CASTINGS, xxx.1 INGOT AND xxx.2 INGOT.

DESIGNATION																			OTHERS[12]		Al
AA No.	DATE REGISTERED	PRO-DUCTS[5]	Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Ag	Be	Pb	Sn	Zr		FNs	Each	Total[3]	Min.
710.1	....	Ingot	0.15	0.40	0.35-0.6	0.05	0.65-0.8	...	...	6.0-7.0	0.25	...	...	...	...	...	...	...	0.05	0.15	Rem.
711.0	....	P	0.30	0.7-1.4	0.35-0.6	0.05	0.25-0.45	...	...	6.0-7.0	0.20	...	...	...	...	...	...	...	0.05	0.15	Rem.
711.1	....	Ingot	0.30	0.7-1.1	0.35-0.6	0.05	0.30-0.45	...	...	6.0-7.0	0.20	...	...	...	...	...	...	...	0.05	0.15	Rem.
712.0	....	S	0.30	0.50	0.25	0.10	0.50-0.65[6]	0.40-0.6	...	5.0-6.5	0.15-0.25	...	...	...	...	...	...	...	0.05	0.20	Rem.
712.2	....	Ingot	0.15	0.40	0.25	0.10	0.50-0.65[6]	0.40-0.6	...	5.0-6.5	0.15-0.25	...	...	...	...	...	...	...	0.05	0.20	Rem.
713.0	....	S&P	0.25	1.1	0.40-1.0	0.6	0.20-0.50	0.35	0.15	7.0-8.0	0.25	...	...	...	...	...	...	...	0.10	0.25	Rem.
713.1	....	Ingot	0.25	0.8	0.40-1.0	0.6	0.25-0.50	0.35	0.15	7.0-8.0	0.25	...	...	...	...	...	...	...	0.10	0.25	Rem.
771.0	....	S	0.15	0.15	0.10	0.10	0.8-1.0	0.06-0.20	...	6.5-7.5	0.10-0.20	...	...	...	...	...	...	...	0.05	0.15	Rem.
771.2	....	Ingot	0.10	0.10	0.10	0.10	0.85-1.0	0.06-0.20	...	6.5-7.5	0.10-0.20	...	...	...	...	...	...	...	0.05	0.15	Rem.
772.0	....	S	0.15	0.15	0.10	0.10	0.6-0.8	0.06-0.20	...	6.0-7.0	0.10-0.20	...	...	...	...	...	...	...	0.05	0.15	Rem.
772.2	...	Ingot	0.10	0.10	0.10	0.10	0.65-0.8	0.06-0.20	...	6.0-7.0	0.10-0.20	...	...	...	...	...	...	...	0.05	0.15	Rem.
850.0	....	S&P	0.7	0.7	0.7-1.3	0.10	0.10	...	0.7-1.3	...	0.20	...	...	...	5.5-7.0	...	...	...	...	0.30	Rem.
850.1	....	Ingot	0.7	0.50	0.7-1.3	0.10	0.10	...	0.7-1.3	...	0.20	...	...	...	5.5-7.0	...	...	...	...	0.30	Rem.
851.0	....	S&P	2.0-3.0	0.7	0.7-1.3	0.10	0.10	...	0.30-0.7	...	0.20	...	...	...	5.5-7.0	...	...	...	...	0.30	Rem.
851.1	....	Ingot	2.0-3.0	0.50	0.7-1.3	0.10	0.10	...	0.30-0.7	...	0.20	...	...	...	5.5-7.0	...	...	...	...	0.30	Rem.
852.0	....	S&P	0.40	0.7	1.7-2.3	0.10	0.6-0.9	...	0.9-1.5	...	0.20	...	...	...	5.5-7.0	...	...	...	...	0.30	Rem.
852.1	....	Ingot	0.40	0.50	1.7-2.3	0.10	0.7-0.9	...	0.9-1.5	...	0.20	...	...	...	5.5-7.0	...	...	...	...	0.30	Rem.
853.0	....	S&P	5.5-6.5	0.7	3.0-4.0	0.50	...	...	...	...	0.20	...	...	...	5.5-7.0	...	...	...	...	0.30	Rem.
853.2	....	Ingot	5.5-6.5	0.50	3.0-4.0	0.10	...	...	...	...	0.20	...	...	...	5.5-7.0	...	...	...	...	0.30	Rem.

See footnotes on pages 11-12.

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FOOTNOTES

1. Composition in weight percent maximum unless shown as a range or a minimum.

   Standard limits for alloying elements and impurities are expressed to the following places:

   Less than 0.001 percent 0.000X
   0.001 but less than 0.01 percent 0.00X
   0.01 but less than 0.10 percent:

   Unalloyed aluminum made by a refining process 0.0XX

   Alloys and unalloyed aluminum not made by a refining process..... 0.0X

   0.10-0.55 percent 0.XX
   (It is customary to express limits of 0.30 percent through 0.55 percent as 0.X0 or 0.X5)

   Over 0.55 percent..... 0.X, X.X, etc.
   (NOTE: Mg percent for some long standing alloys is an exception to this rule.)

2. Except for "Aluminum" and "Others", analysis is required for elements for which specific limits are shown. For purposes of determining conformance to these limits, an observed value or calculated value obtained from analysis is rounded off to the nearest unit in the last right-hand digit used in expressing the specified limit, in accordance with the following:

   When the digit next beyond the last place to be retained is less than 5, retain unchanged the digit in the last place retained.

   When the digit next beyond the last place to be retained is greater than 5, increase by 1 the digit in the last place retained.

   When the digit next beyond the last place to be retained is 5, and there are no digits beyond this 5, or only zeros, increase by 1 the digit in the last place retained if it is odd, leave the digit unchanged if is even. Increase by 1 the digit in the last place retained if there are non-zero digits beyond this 5.

3. The sum of those "Others" metallic elements 0.010 percent or more each, expressed to the second decimal before determining the sum.

4. The aluminum content for unalloyed aluminum not made by a refining process is the difference between 100.00 percent and the sum of all other analyzed metallic elements together with silicon present in amounts of 0.010 percent or more each, expressed to the second decimal before determining the sum. For alloys and unalloyed aluminum not made by a refining process, when the specified maximum limit is 0.XX, an observed value or a calculated value greater than 0.005 but less than 0.010% is rounded off and shown as "less than 0.01".

5. D = Die Casting. P = Permanent Mold. S = Sand. I = Investment Casting.
   Other products may pertain to the composition shown even though not listed.

6. The number of decimal places to which Mg percent is expressed is exempted by the Note stated in Footnote1.

7. If iron exceeds 0.45, manganese content shall not be less than one-half iron content.

8. A360.1, A380.1 and A413.1 ingot is used to produce 360.0 and A360.0; 380.0 and A380.0; 413.0 and A413.0 castings, respectively.

9. Casting: 0.001max. P, 0.005-0.015 Sr.
   Ingot: 0.001max. P, 0.010-0.020 Sr.

10. Used to coat steel.

11. Used with zinc to coat steel.

12. "Others" includes listed elements for which no specific limit is shown as well as unlisted metallic elements. The producer may analyze samples for trace elements not specified in the registration or specification. However, such analysis is not required and may not cover all metallic "others" elements. Should any analysis by the producer or the purchaser establish that an "others" element exceeds the limit of "Each" or that the aggregate of several "others" elements exceeds the limit of "Total", the material shall be considered non conforming.

13. Primarily used for making metal matrix composite.

14. Identifiers for Certain 3xx.x and 4xx.x Foundry Ingot Containing Structure Modifiers:

    One of the applicable suffixes in the table below should be added to the registered alloy designation whenever a structure modifier is intentionally added to that alloy.

Alloy Designation Suffix	Structure Modifying Element	Chemical Composition Limits Min. (%)	Max.(%)
N	Na	0.003	0.08
S	Sr	0.005	0.08
C	Ca	0.005	0.15
P	P	——	0.060

    •The letter suffix follows and is separated from the registered foundry ingot designations by a hyphen (e.g.,"A356.1-S").

    •In cases where more than one modifier is Intentionally added, only the modifier of greater concentration shall be identified by suffix letter affixed to the registered alloy designation.

    •When a foundry alloy is sold with a suffix added to its alloy designation, the modifying element's concentration is not to be included in "Others, Each" or "Others, Total".

    •It is not intended that these structure modifier identifiers be treated as new alloy registration, nor should these designations be listed in the Registration Record.

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FOOTNOTES

15. Identifiers for Certain 3xx.x and 4xx.x Foundry Ingot Containing Structure Modifiers:

One of the applicable suffixes in the table below should be added to the registered alloy designation whenever a structure modifier is intentionally added to that alloy.

Alloy Designation Suffix	Structure Modifying Element	Chemical Composition Limits Min. (%)	Max.(%)
N	Na	0.003	0.08
C	Ca	0.005	0.15

•The letter suffix follows and is separated from the registered foundry ingot designations by a hyphen (e.g.,"365.1-N").

•In cases where more than one modifier is Intentionally added, only the modifier of greater concentration shall be identified by suffix letter affixed to the registered alloy designation.

•When a foundry alloy is sold with a suffix added to its alloy designation, the modifying element's concentration is not to be included in "Others, Each" or "Others, Total".

•It is not intended that these structure modifier identifiers be treated as new alloy registration, nor should these designations be listed in the Registration Record.

16. Used for semi-solid formed products.

17. Used for centrifugally cast products.

18. Reactivation date of alloy designation.

19. Casting: 0.001% max. P, 0.05-0.07 Sr.
Ingot: 0.001% max. P; Sr range to be determined between producer and purchaser to allow for potential burn out at caster's facility.

20. Casting: 0.001max. P, 0.01-0.018 Sr.
Ingot: 0.001max. P.

* *Rated minimum conductivities for rotor ingot (electrical motor armatures) and other high conductivity applications:*

Ingot	Percent IACS
100.1	54
130.1	55
150.1	57
170.1	59

The rating of ingot metal for minimum conductivity characteristic is based on established relations between electrical conductivity and metal composition.

\+ Designation added since previous issue.

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INACTIVE ALLOYS

DESIGNATION	DATE RECLASSIFIED
202.0	04/22/88
202.2	04/22/88
208.0	08/15/95
208.1	08/15/95
208.2	08/15/95
213.0	08/15/95
213.1	08/15/95
222.0	08/15/95
222.1	08/15/95
224.0	08/15/95
224.2	08/15/95
238.0	04/22/88
238.1	04/22/88
238.2	04/22/88
243.0	08/15/95
243.1	08/15/95
249.0	04/22/88
249.2	04/22/88
305.0	08/15/95
305.2	08/15/95
A305.0	08/15/95
A305.1	08/15/95
A305.2	08/15/95
324.0	08/15/95
324.1	08/15/95
324.2	08/15/95
343.0	08/15/95
343.1	08/15/95
D355.2	11/18/74
385.0	01/20/03
385.1	01/20/03
408.2	01/20/03
411.2	01/20/03

REGISTERED CHEMICAL COMPOSITION LIMITS OF INACTIVE ORIGINAL ALLOYS

Registered International Designation																		OTHERS[12]		Al Min.
AA No.	Products[5]	Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Ag	Be	Pb	Sn	Zr		FNs	Each	Total[3]	
202.0	S	0.10	0.15	4.0-5.2	0.20-0.8	0.15-0.55	0.20-0.6	-	-	0.15-0.35	0.40-1.0	-	-	-	-	-	-	0.05	0.10	Rem.
202.2	Ingot	0.10	0.10	4.0-5.2	0.20-0.8	0.20-0.55	0.20-0.6	-	-	0.15-0.35	0.40-1.0	-	-	-	-	-	-	0.05	0.10	Rem.
208.0	S&P	2.5-3.5	1.2	3.5-4.5	0.50	0.10	-	0.35	1.0	0.25	-	-	-	-	-	-	-	-	0.50	Rem.
208.1	Ingot	2.5-3.5	0.9	3.5-4.5	0.50	0.10	-	0.35	1.0	0.25	-	-	-	-	-	-	-	-	0.50	Rem.
208.2	Ingot	2.5-3.5	0.8	3.5-4.5	0.30	0.03	-	-	0.20	0.20	-	-	-	-	-	-	-	-	0.30	Rem.
213.0	S&P	1.0-3.0	1.2	6.0-8.0	0.6	0.10	-	0.35	2.5	0.25	-	-	-	-	-	-	-	-	0.50	Rem.
213.1	Ingot	1.0-3.0	0.9	6.0-8.0	0.6	0.10	-	0.35	2.5	0.25	-	-	-	-	-	-	-	-	0.50	Rem.
222.0	S&P	2.0	1.5	9.2-10.7	0.50	0.15-0.35	-	0.50	0.8	0.25	-	-	-	-	-	-	-	-	0.35	Rem.
222.1	Ingot	2.0	1.2	9.2-10.7	0.50	0.20-0.35	-	0.50	0.8	0.25	-	-	-	-	-	-	-	-	0.35	Rem.
224.0	S&P	0.06	0.10	4.5-5.5	0.20-0.50	-	-	-	-	0.35	-	-	-	-	0.10-0.25	0.05-0.15 V	-	0.03	0.10	Rem.
224.2	Ingot	0.02	0.04	4.5-5.5	0.20-0.50	-	-	-	-	0.25	-	-	-	-	0.10-0.25	0.05-0.15 V	-	0.03	0.10	Rem.
238.0	P	3.5-4.5	1.5	9.0-11.0	0.6	0.15-0.35	-	1.0	1.5	0.25	-	-	-	-	-	-	-	-	0.50	Rem.
238.1	Ingot	3.5-4.5	1.2	9.0-11.0	0.6	0.20-0.35	-	1.0	1.5	0.25	-	-	-	-	-	-	-	-	0.50	Rem.
238.2	Ingot	3.5-4.5	1.2	9.5-10.5	0.50	0.20-0.35	-	0.50	0.50	0.20	-	-	-	-	-	-	-	-	0.50	Rem.
243.0	S	0.35	0.40	3.5-4.5	0.15-0.45	1.8-2.3	0.20-0.40	1.9-2.3	0.05	0.06-0.20	-	-	-	-	-	0.06-0.20 V	-	0.05	0.15	Rem.
243.1	Ingot	0.35	0.30	3.5-4.5	0.15-0.45	1.9-2.3	0.20-0.40	1.9-2.3	0.05	0.06-0.20	-	-	-	-	-	0.06-0.20 V	-	0.05	0.15	Rem.
249.0	P	0.05	0.10	3.8-4.6	0.25-0.50	0.25-0.50	-	-	2.5-3.5	0.02-0.35	-	-	-	-	-	-	-	0.03	0.10	Rem.
249.2	Ingot	0.05	0.07	3.8-4.6	0.25-0.50	0.30-0.50	-	-	2.5-3.5	0.02-0.12	-	-	-	-	-	-	-	0.03	0.10	Rem.
305.0	S&P	4.5-5.5	0.6	1.0-1.5	0.50	0.10	0.25	-	0.35	0.25	-	-	-	-	-	-	-	0.05	0.15	Rem.
305.2	Ingot	4.5-5.5	0.14-0.25	1.0-1.5	0.05	-	-	-	0.05	0.20	-	-	-	-	-	-	-	0.05	0.15	Rem.
324.0	P	7.0-8.0	1.2	0.40-0.6	0.50	0.40-0.7	-	0.30	1.0	0.20	-	-	-	-	-	-	-	0.15	0.20	Rem.
324.1	Ingot	7.0-8.0	0.9	0.40-0.6	0.50	0.45-0.7	-	0.30	1.0	0.20	-	-	-	-	-	-	-	0.15	0.20	Rem.
324.2	Ingot	7.0-8.0	0.6	0.40-0.6	0.10	0.45-0.7	-	0.10	0.10	0.20	-	-	-	-	-	-	-	0.05	0.15	Rem.
343.0	D	6.7-7.7	1.2	0.50-0.9	0.50	0.10	0.10	-	1.2-2.0	-	-	-	-	0.50	-	-	-	0.10	0.35	Rem.
343.1	Ingot	6.7-7.7	0.9	0.50-0.9	0.50	0.10	0.10	-	1.2-1.9	-	-	-	-	0.50	-	-	-	0.10	0.35	Rem.
385.0	D	11.0-13.0	2.0	2.0-4.0	0.50	0.30	-	0.50	3.0	-	-	-	-	0.30	-	-	-	-	0.50	Rem.
385.1[14]	Ingot	11.0-13.0	1.1	2.0-4.0	0.50	0.30	-	0.50	2.9	-	-	-	-	0.30	-	-	-	-	0.50	Rem.
408.2 [10, 14]	Ingot	8.5-9.5	0.6-1.3	0.10	0.10	-	-	-	0.10	-	-	-	-	-	-	-	-	0.10	0.20	Rem.
411.2[10, 14]	Ingot	10.0-12.0	0.6-1.3	0.20	0.10	-	-	-	0.10	-	-	-	-	-	-	-	-	0.10	0.20	Rem.

See footnotes on pages 11-12.

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CROSS REFERENCE OF CURRENT AND FORMER DESIGNATIONS

AA Designation	Former Designation	AA Designation	Former Designation	AA Designation	Former Designation
A201.1	A201.2	359.0	359	A443.0	43 (0.30 max Cu)
203.0	Hiduminium 350	359.2	359	A443.1	43 (0.30 max Cu)
203.2	Hiduminium 350	360.0	360	B443.0	43 (0.15 max Cu)
204.0	A-U5GT	360.2	360	B443.1	43 (0.15 max Cu)
204.2	A-U5GT	A360.0	A360	C443.0	A43
240.0	A240.0, A140	A360.1	A360	C443.1	A43
240.1	A240.1, A140	A360.2	A360	C443.2	A43
242.0	142	362.0	XK360	A444.0	A344
242.1	142	362.1	XK360	A444.2	A344
242.2	142	363.0	363	445.2	B444.2
A242.0	A142	363.1	363	511.0	F514.0, F214
A242.1	A142	364.0	364	511.1	F514.1, F214
A242.2	A142	364.2	364	511.2	F514.2, F214
295.0	195	365.0	Silafont-36	512.0	B514.0, B214
295.1	195	365.1	Silafont-36	512.2	B514.2, B214
295.2	195	A365.0	Aural 2	513.0	A514.0, A214
296.0	B295.0, B195	A365.1	Aural 2	513.2	A514.2, A214
296.1	B295.1, B195	367.0	Mercalloy 367	514.0	214
296.2	B295.2, B195	367.1	Mercalloy 367	514.1	214
304.0	K-Alloy	368.0	Mercalloy 366	514.2	214
304.1	K-Alloy	368.1	Mercalloy 366	515.0	L514.0, L214
308.0	A108	369.0	Special K-9	515.2	L514.2, L214
308.1	A108	369.1	Special K-9	518.0	218
308.2	A108	380.0	380	518.1	218
319.0	319, All Cast	380.2	380	518.2	218
319.1	319, All Cast	A380.0	A380	520.0	220
319.2	319, All Cast	A380.1	A380	520.2	220
B319.0	SAE 329	A380.2	A380	535.0	Almag 35
328.0	Red X-8	B380.0	A380	535.2	Almag 35
328.1	Red X-8	B380.1	A380	A535.0	A218
332.0	F332.0, F132	384.0	384	A535.1	A218
332.1	F332.1, F132	384.1	384	B535.0	B218
332.2	F332.2, F132	384.2	384	B535.2	B218
333.0	333	A384.0	384	705.0	603, Ternalloy 5
333.1	333	A384.1	384	705.1	603, Ternalloy 5
336.0	A332.0, A132	390.0	390	707.0	607, Ternalloy 7
336.1	A332.1, A132	390.2	390	707.1	607, Ternalloy 7
336.2	A332.2, A132	A390.0	A390	710.0	A712.0, A612
339.0	Z332.0, Z132	A390.1	A390	710.1	A712.1, A612
339.1	Z332.1, Z132	391.0	Mercosil	711.0	C712.0, C612
354.0	354	391.1	Mercosil	711.1	C712.1, C612
354.1	354	A391.0	Mercosil	712.0	D712.0, D612, 40E
355.0	355	A391.1	Mercosil	712.2	D712.2, D612, 40E
355.1	355	B391.0	Mercosil	713.0	613, Tenzaloy
355.2	355	B391.1	Mercosil	713.1	613, Tenzaloy
C355.0	C355	392.0	392	771.0	Precedent 71A
C355.2	C355	392.1	392	771.2	Precedent 71A
356.0	356	393.0	Vanasil	772.0	B771.0, Precedent 71B
356.1	356	393.1	Vanasil	772.2	B771.2, Precedent 71B
356.2	356	393.2	Vanasil	850.0	750
A356.0	A356	413.0	13	850.1	750
A356.2	A356	413.2	13	851.0	A850.0, A750
357.0	357	A413.0	A13	851.1	A850.1, A750
357.1	357	A413.1	A13	852.0	B850.0, B750
A357.0	A357	A413.2	A13	852.1	B850.1, B750
A357.2	A357	443.0	43	853.0	XC850.0, XC750
358.0	B358.0, Tens-50	443.1	43	853.2	XC850.2, XC750
358.2	B358.2, Tens-50	443.2	43		

NOTE: This table is included for information purposes only.

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The Aluminum Association
1400 Crystal Drive
Arlington, VA 22202
USA

RECOMMENDATION

DESIGNATION SYSTEM FOR CAST ALUMINUM AND ALUMINUM ALLOYS

7 December 2015

This Recommendation is based on the designation system for cast aluminum and aluminum alloys which was adopted in the U.S.A. in 1954, and became its national standard in 1957.

Designations, registered in accordance with this Recommendation, may be used by any country. For use, see Appendixes A, B, and C.

A designation assigned in conformance with this Recommendation should only be used to indicate an aluminum or an aluminum alloy having chemical composition limits identical to those registered with the Aluminum Association and published herein.

No changes in the composition limits are allowed after the registration is final.

1. Scope

This recommendation describes a four digit numerical system for designating aluminum and aluminum alloys in the form of castings and foundry ingot.

2. Alloy Groups[1-3]

The first digit indicates the alloy group as follows:

Aluminum, 99.00 percent minimum and greater 1xx.x
Aluminum alloys grouped by major alloying elements
- Copper 2xx.x
- Silicon, with added copper and/or magnesium 3xx.x
- Silicon 4xx.x
- Magnesium 5xx.x
- Zinc 7xx.x
- Tin 8xx.x
- Other element 9xx.x

Unused series 6xx.x

3. 1xx.x Group

The designation assigned shall be in the 1xx.x group whenever the minimum aluminum content is specified as 99.00 percent and greater. In the 1xx.x group, the second two of the four digits in the designation shall indicate the minimum aluminum percentage.[5] These digits are the same as the two digits to the right of the decimal point in the minimum aluminum percentage when it is expressed to the nearest 0.01 percent. The last digit, which is to the right of the decimal point, shall indicate the product form: 1xx.0 indicates castings, and 1xx.1 indicates ingot.

4. 2xx.x – 9xx.x Groups

The alloy designation in the 2xx.x through 9xx.x excluding 6xx.x alloys is determined by the alloying element present in the greatest mean percentage, except in cases in which the alloy being registered qualified as a modification of a previously registered alloy. If the greatest mean percentage is common to more than one alloying element, choice of group shall be in order of group sequence Cu, Si with added Cu and/or Mg, Si, Mg, Zn, Sn or Others. In the 2xx.x through 9xx.x alloy groups the second two of the four digits in the designation have no special significance but serve only to identify the different aluminum alloys in the group. The last digit, which is to the right of the decimal point, indicates the product form: xxx.0 indicates castings, xxx.1 and xxx.2 indicate ingot. Ingot designated xxx.1 has chemical composition limits identical to those assigned to the casting (xxx.0) except grain refining elements and except for the following provisions:

Maximum Iron Percentage:

For All Forms of Castings	For Ingot, Fe Shall be At Least
Up thru 0.15	0.03 less than castings
Over 0.15 thru 0.25	0.05 less than castings
Over 0.25 thru 0.6	0.10 less than castings
Over 0.6 thru 1.0	0.2 less than castings
Over 1.0	0.3 less than castings

Minimum Magnesium Percentage[6]:

For All Forms of Castings	For Ingot
Less than 0.50	0.05 more than castings
0.50 and greater	0.1 more than castings

Maximum Zinc Percentage:

For Die Castings	For Ingot
Over 0.25 thru 0.6	0.10 less than castings
Over 0.6	0.1 less than castings

Ingot designated xxx.2 has chemical composition limits which differ from, but fall within, those prescribed for xxx.1 ingot.

5. Modifications

A modification of the original alloy[4] or impurity limits is indicated by a serial letter before the numerical designation. The serial letters are assigned in alphabetical sequence starting with A but omitting I, O, Q and X. A modification of the original alloy is limited to any one or a combination of the following:

(a) Change of not more than the following amounts in the arithmetic mean of the limits for an individual alloying element or combination of elements expressed as an alloying element or both:

Arithmetic Mean of Limits for Alloying Elements in Original Alloy	Maximum Change
Up thru 1.0 percent	0.15
Over 1.0 thru 2.0 percent	0.20
Over 2.0 thru 3.0 percent	0.25
Over 3.0 thru 4.0 percent	0.30
Over 4.0 thru 5.0 percent	0.35
Over 5.0 thru 6.0 percent	0.40
Over 6.0 percent	0.50

To determine compliance when maximum and minimum limits are specified for a combination of two or more elements in one alloy composition, the arithmetic mean of such a combination is compared to the sum of the mean values of the same individual elements, or any combination thereof, in another alloy composition.

(b) Addition or deletion of not more than one alloying element with limits having an arithmetic mean of not more than 0.30 percent or addition or deletion of not more than one combination of elements expressed as an alloying element with limits having a combined arithmetic mean of not more than 0.40 percent.

(c) Substitution of one alloying element for another element serving the same purpose.

(d) Change in limits for impurities expressed singly or as a combination.

(e) Change in limits for grain refining elements.

(f) Iron or silicon maximum limits of 0.12 percent and 0.10 percent, or less, respectively, reflecting use of high purity base metal.

6. Identifiers for Certain 3xx.x and 4xx.x Foundry Ingot containing Structure Modifiers

One of the applicable suffixes in the table below should be added to the registered alloy designation whenever a structure modifier is intentionally added to that alloy.

Alloy Designation Suffix	Structure Modifying Element	Chemical Composition Limits	
		Minimum (%)	Maximum (%)
N	Na	0.003	0.08
S	Sr	0.005	0.08
C	Ca	0.005	0.15
P	P	—	0.060

(a) The letter suffix follows and is separated from the registered foundry ingot designation by a hyphen (e.g., “A356.1-S”)

(b) In cases where more than one modifier is intentionally added, only the modifier of greater concentration shall be identified by suffix letter affixed to the registered alloy designation.

(c) Where foundry alloy is sold with a suffix added to its alloy designation, the modifying element’s concentration is not to be included in “Others, Each” or “Others, Total”.

(d) It is not intended that these structure modifier identifiers be treated as new alloy registration, nor should these designations be listed in the Registration Record.