

## CHEMICAL COMPOSITION LIMITS<sup>1,2</sup>

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		PRO-DUCTS <sup>5</sup>	Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Ag	Be	Pb	Sn	Zr	FNs	OTHERS <sup>12</sup>		Al Min.	
AA No.	DATE REGISTERED																	Each	Total <sup>3</sup>		
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 <sup>14</sup>	....	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 <sup>14</sup>	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 <sup>14</sup>	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 <sup>6</sup>	...	...	0.10	0.20	...	...	...	...	...	...	0.10	0.20	Rem.	
390.2 <sup>14</sup>	....	Ingot	16.0-18.0	0.6-1.0	4.0-5.0	0.10	0.50-0.65 <sup>6</sup>	...	...	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 <sup>6</sup>	...	...	0.10	0.20	...	...	...	...	...	...	0.10	0.20	Rem.	
A390.1 <sup>14</sup>	....	Ingot	16.0-18.0	0.40	4.0-5.0	0.10	0.50-0.65 <sup>6</sup>	...	...	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 <sup>6</sup>	...	0.10	1.5	0.20	...	...	...	...	...	...	0.10	0.20	Rem.	
B390.1 <sup>14</sup>	1979-03-29	Ingot	16.0-18.0	1.0	4.0-5.0	0.50	0.50-0.65 <sup>6</sup>	...	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 <sup>14</sup>	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 <sup>7</sup>	0.40-0.7	...	...	0.10	0.20	...	...	...	...	...	...	0.10	0.20	Rem.	
A391.1 <sup>14</sup>	2001-01-30	Ingot	18.0-20.0	0.50	0.20	0.30 <sup>7</sup>	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 <sup>14</sup>	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 <sup>14</sup>	....	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 <sup>14</sup>	....	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 <sup>14</sup>	....	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.	
+ 394.0	2017-08-03	Casting	18.0-20.0	0.45	0.20	0.25-0.35	0.40-1.1	...	0.50	0.10	0.20	...	...	...	0.15	...	0.05-0.07 Sr	...	0.05	0.15	Rem.
+ 394.1	2017-08-03	Ingot	18.0-20.0	0.35	0.20	0.25-0.35	0.45-1.1	...	0.50	0.10	0.20	...	...	...	0.15	...	0.06-0.10 Sr	...	0.05	0.15	Rem.
409.2 <sup>10, 14</sup>	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 <sup>8</sup>	....	D	11.0-13.0	2.0	1.0	0.35	0.10	...	0.50	0.50	...	...	...	...	0.15	...	...	...	0.25	Rem.	
413.2 <sup>14</sup>	....	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 <sup>8</sup>	....	D	11.0-13.0	1.3	1.0	0.35	0.10	...	0.50	0.50	...	...	...	...	0.15	...	...	...	0.25	Rem.	
A413.1 <sup>8, 14</sup>	....	Ingot	11.0-13.0	1.0	1.0	0.35	0.10	...	0.50	0.40	...	...	...	...	0.15	...	...	...	0.25	Rem.	
A413.2 <sup>14</sup>	....	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 <sup>14</sup>	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.	

See footnotes on pages 11-12

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

DESIGNATION		PRO- DUCTS <sup>5</sup>	Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Ag	Be	Pb	Sn	Zr		FNs	OTHERS <sup>12</sup>		Al Min.
AA No.	DATE REGISTERED																		Each	Total <sup>3</sup>	
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.
518.1	....	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.
+ 560.0	2017-08-09	Castings	0.25	0.20	...	1.1-1.4	2.8-3.6	...	...	0.05	0.15	...	...	...	...	...	...	...	0.05	0.15	Rem.
+ 560.1	2017-08-09	Ingot	0.25	0.15	...	1.1-1.4	2.9-3.6	...	...	0.05	0.15	...	...	...	...	...	...	...	0.05	0.15	Rem.
+ 701.0	2017-02-28	Castings	0.12	0.12	0.003	...	...	...	...	4.8-6.0	...	...	...	...	...	...	0.002 Cd 0.01-0.03 In	...	0.02	0.05	Rem.
+ 701.1	2017-02-28	Ingot	0.12	0.09	0.003	...	...	...	...	4.8-6.0	...	...	...	...	...	...	0.002 Cd 0.01-0.03 In	...	0.02	0.05	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 <sup>17</sup>	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 <sup>17</sup>	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.
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 <sup>6</sup>	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 <sup>6</sup>	0.40-0.6	...	5.0-6.5	0.15-0.25	...	...	...	...	...	...	...	0.05	0.20	Rem.

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