
REGISTRATION RECORD SERIES
TEAL SHEETS

**International Alloy Designations
and
Chemical Composition Limits
for
Wrought Aluminum and
Wrought Aluminum Alloys**



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FOREWORD

Listed herein are designations and chemical composition limits for wrought aluminum and wrought aluminum alloys registered with The Aluminum Association. Numerical designations are assigned in accordance with the *Recommendation—International Designation System for Wrought Aluminum and Wrought Aluminum Alloys*, which is printed on pages 25 through 27. Additions may be made in accordance with the rules outlined in the Declaration of Accord printed on page 28, and alloys will be deleted when no longer in commercial use (see table of inactive alloys printed on pages 21-22).

Since the International Designation System for Wrought Aluminum and Wrought Aluminum Alloys is based on USA's national standard "*American National Standard Alloy and Temper Designation System for Aluminum ANSI H35.1*," the system limits introduction of experimental alloy compositions to USA registrations. An experimental alloy registered by USA under this system is indicated by the prefix "X" and is subject to the following rules:

1. A composition shall not be designated as experimental ("X") for more than five years.
2. During its experimental status, the registering organization may request changes in the composition limit of the alloy, provided that it does not invalidate any assigned designation.
3. The "X" is dropped when the alloy is no longer experimental.
4. An experimental composition that is inactivated shall retain the prefix "X" for the duration of its inactive status. If reactivated, the "X" shall be removed.

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 right.

A list of the organizations that are signatories to the Declaration of Accord on the Recommendation is printed on pages ii-iii.

SIGNATORIES TO THE DECLARATION OF ACCORD

The following organizations are signatories to the Declaration of Accord on an International Alloy Designation System for Wrought Aluminum and Wrought Aluminum Alloys which is printed on page 28 of this publication.

<p>The Aluminum Association Inc. 1525 Wilson Boulevard Suite 600 Arlington, VA 22209 <u>USA</u> www.aluminum.org</p>	<p>USA</p>	<p>Associação Brasileira do Alumínio—ABAL Rua Humberto 1, No. 220-4º.Andar Sao Paulo-SP CEP 04018-030 <u>BRAZIL</u> www.abal.org.br</p>	<p>BRAZIL</p>
<p>AFA Association Francaise de l'Aluminium 17, rue Hamelin 75016 Paris <u>FRANCE</u> www.aluminium-info.com</p>	<p>FRANCE</p>	<p>Association for the Dutch Metallurgic Industry (VNMI) P.O. Box 190 NL-2700 AD Zoetermeer <u>NETHERLANDS</u> www.vnmi.nl</p>	<p>NETHERLANDS</p>
<p>All-Russian Institute of Aviation Materials (VIAM) 17 Radio Ulitza 105005 Moscow <u>RUSSIA</u> www.viam.ru</p>	<p>RUSSIA</p>	<p>Assomet - Associazione Nazionale Industrie Metalli non Ferrosi Via dei Missaglia, 97 I-20142 Milano <u>ITALY</u> www.assomet.it</p>	<p>ITALY</p>
<p>Alro S.A. 116 Pitesti Street 230048 Slatina <u>ROMANIA</u> www.alro.ro</p>	<p>ROMANIA</p>	<p>Australian Aluminium Council Limited Level 1, Dickson Square P. O. Box 63 Dickson, ACT 2602 <u>AUSTRALIA</u> www.aluminium.org.au</p>	<p>AUSTRALIA</p>
<p>Aluminium Association of Canada 1010 Sherbrooke Street West, Suite 1600 Montreal, Quebec H3A2R7 <u>CANADA</u> www.aac.aluminium.qc.ca</p>	<p>CANADA</p>	<p>Austrian Non-Ferrous Metals Federation Wiedner Hauptstrasse 63/3317 Postfach 338 A-1045 Vienna <u>AUSTRIA</u> www.nemetall.at</p>	<p>AUSTRIA</p>
<p>Aluminium Center Belgium Z.I. Research Park 310 1731 Zellik <u>BELGIUM</u> www.aluminiumcenter.be</p>	<p>BELGIUM</p>	<p>Centro Nacional de Investigaciones Metalurgicas (CENIM) Avenida Gregorio del Amo, 8 Ciudad Universitaria 28040 Madrid <u>SPAIN</u> www.cenim.csic.es</p>	<p>SPAIN</p>
<p>Aluminium Federation Limited National Metalforming Centre 47 Birmingham Road West Bromwich B70 6PY <u>UNITED KINGDOM</u> www.alfed.org.uk</p>	<p>UK</p>	<p>China Nonferrous Metals Techno-Economic Research Institute No. 9 Xizhang Hutong, Xizhimennei Street Beijing, 100035 <u>PEOPLES REPUBLIC OF CHINA</u> www.cnsmq.com</p>	<p>CHINA</p>
<p>Aluminium Federation of South Africa P. O. Box 423 Isando, 1600 <u>REPUBLIC OF SOUTH AFRICA</u> www.afsa.org.za</p>	<p>SOUTH AFRICA</p>	<p>European Aluminium Association Avenue de Broqueville, 12 B-1150 Brussels <u>BELGIUM</u> www.aluminium.org</p>	<p>EAA</p>
<p>Aluminium – Verband Schweiz Hallenstrasse 15 Postfach CH-8024 Zurich <u>SWITZERLAND</u> www.alu.ch</p>	<p>SWITZERLAND</p>		

Signatories (Continued)

European Organization for Aerospace Standardization 270, Avenue de Tervuren 1150, Brussels <u>BELGIUM</u> www.asd-stan.org	ASD-STAN	IRAM-Instituto Argentino De Normalizacion Peru 556 C1068AAB Buenos Aires <u>ARGENTINA</u> www.iram.org.ar	ARGENTINA
Gesamtverband der Aluminium- industrie e.V. (GDA) Am Bonneshof 5 D-40474 Dusseldorf <u>GERMANY</u> www.aluinfo.de	GERMANY	Japan Aluminium Association Tsukamoto-Sozan Building 2-15, Ginza 4-Chome Chuo-ku, Tokyo 104-0061 <u>JAPAN</u> www.aluminum.or.jp	JAPAN
Institute of Non-Ferrous Metals Light Metals Divison 32-050 Skawina Ul. Pilsudskiego 19 <u>POLAND</u> www.imn.gliwice.pl	POLAND	Swedish Aluminium Association Aluminiumriket Sverige Framtidsvagen 21A SE-351 96 Vaxjo <u>SWEDEN</u> www.svensktaluminium.com	SWEDEN
Instituto Mexicano del Alumino, A.C. Francisco Petrarca No. 133 Piso 9 <u>MEXICO</u> , 11560, DF www.imedal.com.mx	MEXICO		

CHEMICAL COMPOSITION LIMITS^{1, 2}

Only composition limits which are identical to those listed herein for a registered designation are applicable to that designation.

NATURAL IMPURITY LIMITS FOR WROUGHT UNALLOYED ALUMINUM

Registered International Designation			Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Ag	B	Bi	Ga	Li	Pb	Sn	V	Zr	OTHERS ¹³		Al Minimum	
No. ¹⁷	Date	By																			Each	Total ³		
1050	1954	USA	0.25	0.40	0.05	0.05	0.05	...	...	0.05	0.03	...	...	...	...	...	...	...	0.05	...	...	0.03	...	99.50 ⁴
1050A	1972	EAA	0.25	0.40	0.05	0.05	0.05	...	...	0.07	0.05	...	...	...	...	...	...	...	...	...	...	0.03	...	99.50 ⁴
1060	1954	USA	0.25	0.35	0.05	0.03	0.03	...	...	0.05	0.03	...	...	...	...	...	...	...	0.05	...	...	0.03	...	99.60 ⁴
1065	1973	USA	0.25	0.30	0.05	0.03	0.03	...	...	0.05	0.03	...	...	...	...	...	...	...	0.05	...	...	0.03	...	99.65 ⁴
++ 1070	1954	USA	0.20	0.25	0.04	0.03	0.03	...	...	0.04	0.03	...	...	...	...	...	...	...	0.05	...	6	0.03	...	99.70 ⁴
1070A	1972	EAA	0.20	0.25	0.03	0.03	0.03	...	...	0.07	0.03	...	...	...	...	...	...	...	...	...	...	0.03	...	99.70 ⁴
1080	1954	USA	0.15	0.15	0.03	0.02	0.02	...	...	0.03	0.03	...	...	...	0.03	...	...	...	0.05	...	...	0.02	...	99.80 ⁴
1080A	1972	EAA	0.15	0.15	0.03	0.02	0.02	...	...	0.06	0.02	...	...	...	0.03	...	...	...	...	...	6	0.02	...	99.80 ⁴
1085	1954	USA	0.10	0.12	0.03	0.02	0.02	...	...	0.03	0.02	...	...	...	0.03	...	...	...	0.05	...	...	0.01	...	99.85 ⁴
1090	1954	USA	0.07	0.07	0.02	0.01	0.01	...	...	0.03	0.01	...	...	...	0.03	...	...	...	0.05	...	...	0.01	...	99.90 ⁴
1098	1972	GERMANY	0.010	0.006	0.003	...	...	...	...	0.015	0.003	...	...	...	...	...	...	...	...	...	...	0.003	...	99.98 ⁵

REGISTERED COMPOSITIONS

Registered International Designation			Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Ag	B	Bi	Ga	Li	Pb	Sn	V	Zr	OTHERS ¹³		Al Minimum	
No. ¹⁷	Date	By																			Each	Total ³		
1100	1954	USA	...	...	0.05-0.20	0.05	...	...	...	0.10	...	...	...	...	...	...	...	...	...	...	0.95 Si+Fe ⁶	0.05	0.15	99.00 ⁴
1100A	2005	JAPAN	...	...	0.05-0.20	0.05	0.10	...	...	0.10	0.10	...	...	...	...	...	...	...	...	...	1.00 Si+Fe	0.05	0.15	99.00 ⁴
++ 1200	1966	USA	...	...	0.05	0.05	...	...	...	0.10	0.05	...	...	...	...	...	...	...	...	...	1.00 Si+Fe ⁶	0.05	0.15	99.00 ⁴
1200A	1991	NORWAY	...	...	0.10	0.30	0.30	0.10	...	0.10	...	...	...	...	...	...	...	...	...	...	1.00 Si+Fe	0.05	0.15	99.00 ⁴
1300 ¹⁵	2000	FRANCE	0.20	0.30	0.05	0.03	0.03	...	...	0.20-0.50	0.03	...	...	...	...	...	...	...	...	...	...	0.05	0.15	99.00 ⁴
1110	1987	FRANCE	0.30	0.8	0.04	0.01	0.25	0.01	...	...	...	...	0.02	...	...	...	...	...	...	...	0.03 V+Ti	0.03	...	99.10 ⁴
1120	1982	AUSTRALIA	0.10	0.40	0.05-0.35	0.01	0.20	0.01	...	0.05	...	...	0.05	...	0.03	...	...	...	...	...	0.02 V+Ti	0.03	0.10	99.20 ⁴
1230 ¹⁵	1954	USA	...	...	0.10	0.05	0.05	...	...	0.10	0.03	...	...	...	...	...	...	...	0.05	...	0.70 Si+Fe	0.03	...	99.30 ⁴
1230A	2005	JAPAN	...	...	0.10	0.05	0.05	...	...	0.05	...	...	...	...	...	...	...	...	...	...	0.70 Si+Fe	0.03	...	99.30 ⁴
1235	1954	USA	...	...	0.05	0.05	0.05	...	...	0.10	0.06	...	...	...	...	...	...	...	0.05	...	0.65 Si+Fe	0.03	...	99.35 ⁴
1435	1958	USA	0.15	0.30-0.50	0.02	0.05	0.05	...	...	0.10	0.03	...	...	...	...	...	...	...	0.05	...	...	0.03	...	99.35 ⁴
1145	1954	USA	...	...	0.05	0.05	0.05	...	...	0.05	0.03	...	...	...	...	...	...	...	0.05	...	0.55 Si+Fe	0.03	...	99.45 ⁴
1345	1956	USA	0.30	0.40	0.10	0.05	0.05	...	...	0.05	0.03	...	...	...	...	...	...	...	0.05	...	...	0.03	...	99.45 ⁴
1445	1973	AUSTRALIA	...	...	0.04	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0.50 Si+Fe	...	0.05	99.45 ⁴
1150	1973	AUSTRALIA	...	...	0.05-0.20	0.05	0.05	...	...	0.05	0.03	...	...	...	...	...	...	...	...	...	0.50 Si+Fe+Cu	0.03	...	99.50 ⁴
1350 ¹¹	1975	USA	0.10	0.40	0.05	0.01	...	0.01	...	0.05	...	...	0.05	...	0.03	...	...	...	...	...	0.45 Si+Fe	0.03	0.10	99.50 ⁴

See footnotes on page 14.

CHEMICAL COMPOSITION LIMITS^{1, 2}

REGISTERED COMPOSITION—Continued

Only composition limits which are identical to those listed herein for a registered designation are applicable to that designation.

Registered International Designation			Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Ag	B	Bi	Ga	Li	Pb	Sn	V	Zr	OTHERS ¹³	Al		
No. ¹⁷	Date	By																				Each	Total ⁵	Minimum
1350A	1979	GERMANY	0.25	0.40	0.02	...	0.05	...	...	0.05	...	...	...	...	...	...	...	...	...	...	0.03 Cr+Mn+Ti+V	0.03	...	99.50 ⁴
1450	1990	EAA	0.25	0.40	0.05	0.05	0.05	...	...	0.07	0.10-0.20	...	...	...	...	...	...	...	...	...	...	0.03	...	99.50 ⁴
1370	1976	FRANCE	0.10	0.25	0.02	0.01	0.02	0.01	...	0.04	...	...	0.02	...	0.03	...	...	...	...	...	0.02 V+Ti	0.02	0.10	99.70 ⁴
1275	1986	SPAIN	0.08	0.12	0.05-0.10	0.02	0.02	...	...	0.03	0.02	...	...	...	0.03	...	...	...	0.03	...	...	0.01	...	99.75 ⁴
1185	1954	USA	...	...	0.01	0.02	0.02	...	...	0.03	0.02	...	...	...	0.03	...	...	...	0.05	...	0.15 Si+Fe	0.01	...	99.85 ⁴
1285	1954	USA	0.08	0.08	0.02	0.01	0.01	...	...	0.03	0.02	...	...	...	0.03	...	...	...	0.05	...	0.14 Si+Fe	0.01	...	99.85 ⁴
1385	1987	FRANCE	0.05	0.12	0.02	0.01	0.02	0.01	...	0.03	...	...	0.02	...	0.03	...	...	...	...	...	0.03 V+Ti	0.01	...	99.85 ⁴
1188	1954	USA	0.06	0.06	0.005	0.01	0.01	...	...	0.03	0.01	...	...	...	0.03	...	...	...	0.05	...	...	0.01	...	99.88 ⁴
1190	1987	FRANCE	0.05	0.07	0.01	0.01	0.01	0.01	...	0.02	...	...	0.01	...	0.02	...	...	...	...	...	0.01 V+Ti	0.01	...	99.90 ⁴
1290	2005	JAPAN	0.050	0.030	0.050	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0.01	...	99.90 ⁵
1193	1964	USA	0.04	0.04	0.006	0.01	0.01	...	...	0.03	0.01	...	...	...	0.03	...	...	...	0.05	...	...	0.01	...	99.93 ⁴
1198	1990	FRANCE	0.010	0.006	0.006	0.006	...	...	...	0.010	0.006	...	...	...	0.006	...	...	...	...	...	...	0.003	...	99.98 ⁴
1199	1956	USA	0.006	0.006	0.006	0.002	0.006	...	...	0.006	0.002	...	...	...	0.005	...	...	...	0.005	...	...	0.002	...	99.99 ⁵
2001	1979	FRANCE	0.20	0.20	5.2-6.0	0.15-0.50	0.20-0.45	0.10	0.05	0.10	0.20	...	...	...	...	...	0.003	...	...	0.05	...	0.05	0.15	Rem.
2002	1975	FRANCE	0.35-0.8	0.30	1.5-2.5	0.20	0.50-1.0	0.20	...	0.20	0.20	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
2004	1980	UK	0.20	0.20	5.5-6.5	0.10	0.50	...	...	0.10	0.05	...	...	...	...	...	...	...	...	0.30-0.50	...	0.05	0.15	Rem.
2005	1983	ARGENTINA	0.8	0.7	3.5-5.0	1.0	0.20-1.0	0.10	0.20	0.50	0.20	...	...	0.20	...	...	1.0-2.0	...	...	...	...	0.05	0.15	Rem.
2006	1983	ARGENTINA	0.8-1.3	0.7	1.0-2.0	0.6-1.0	0.50-1.4	...	0.20	0.20	0.30	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
2007	1979	GERMANY	0.8	0.8	3.3-4.6	0.50-1.0	0.40-1.8	0.10	0.20	0.8	0.20	...	...	0.20	...	...	0.8-1.5	0.20	...	...	...	0.10	0.30	Rem.
2007A	2001	ITALY	0.8	0.8	3.3-4.6	0.20-1.0	0.40-1.8	0.10	0.20	0.8	0.20	...	...	0.20	...	...	0.05	0.8-1.5	...	...	...	0.10	0.30	Rem.
2007B	2006	SLOVENIA	0.8	0.7	3.3-4.6	0.50-1.0	0.40-1.8	0.10	0.10	0.8	0.20	...	...	0.10	...	...	0.10	0.40-1.9	...	...	...	0.05	0.15	Rem.
2008	1987	USA	0.50-0.8	0.40	0.7-1.1	0.30	0.25-0.50	0.10	...	0.25	0.10	...	...	...	...	...	...	...	0.05	...	...	0.05	0.15	Rem.
2009	1990	USA	0.25	0.05	3.2-4.4	...	1.0-1.6	...	...	0.10	...	...	...	...	...	...	...	...	...	...	0.6 O	0.05	0.15	Rem.
2010	1990	USA	0.50	0.50	0.7-1.3	0.10-0.40	0.40-1.0	0.15	...	0.30	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
2011	1954	USA	0.40	0.7	5.0-6.0	...	...	...	...	0.30	...	...	...	0.20-0.6	...	...	0.20-0.6	...	...	...	...	0.05	0.15	Rem.
2011A	1982	SWITZERLAND	0.40	0.50	4.5-6.0	...	...	...	...	0.30	...	...	...	0.20-0.6	...	...	0.20-0.6	...	...	...	...	0.05	0.15	Rem.
2111	1993	USA	0.40	0.7	5.0-6.0	...	...	...	...	0.30	...	...	...	0.20-0.8	...	...	...	0.10-0.50	...	...	...	0.05	0.15	Rem.
2111A	2001	ITALY	0.40	0.7	5.0-6.0	0.15	0.15	...	...	0.30	0.05	...	...	0.20-0.6	...	...	0.05	0.20-0.6	...	...	...	0.05	0.15	Rem.
2111B	2001	SWITZERLAND	0.30	0.50	4.6-6.0	0.05	0.05	...	...	...	...	...	...	0.30-0.6	...	...	...	0.30-0.7	...	...	...	0.05	0.15	Rem.
2012	1993	USA	0.40	0.7	4.0-5.5	...	...	...	...	0.30	...	...	...	0.20-0.7	...	...	...	0.20-0.6	...	...	...	0.05	0.15	Rem.
2013	2003	JAPAN	0.6-1.0	0.40	1.5-2.0	0.25	0.8-1.2	0.04-0.35	...	0.25	0.15	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
2014	1954	USA	0.50-1.2	0.7	3.9-5.0	0.40-1.2	0.20-0.8	0.10	...	0.25	0.15	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
2014A	1976	AECMA	0.50-0.9	0.50	3.9-5.0	0.40-1.2	0.20-0.8	0.10	0.10	0.25	0.15	...	...	...	...	...	...	...	...	...	0.20 Zr+Ti	0.05	0.15	Rem.
2214	1954	USA	0.50-1.2	0.30	3.9-5.0	0.40-1.2	0.20-0.8	0.10	...	0.25	0.15	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
2015	2003	SWITZERLAND	0.8	0.8	3.9-5.2	0.30-1.0	0.30-1.3	0.15	0.20	0.7	0.20	...	...	0.40	...	...	0.20	0.7-1.5	...	...	...	0.05	0.15	Rem.
2016	2003	GERMANY	0.30-0.7	0.15	3.5-4.5	0.10-0.50	0.30-0.8	...	...	...	0.05-0.15	0.30-0.7	...	...	...	...	...	...	...	0.10-0.25	...	0.05	0.15	Rem.
2017	1954	USA	0.20-0.8	0.7	3.5-4.5	0.40-1.0	0.40-0.8	0.10	...	0.25	0.15	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.

See footnotes on page 14.

CHEMICAL COMPOSITION LIMITS^{1, 2}
REGISTERED COMPOSITION—Continued

Only composition limits which are identical to those listed herein for a registered designation are applicable to that designation.

Registered International Designation			Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Ag	B	Bi	Ga	Li	Pb	Sn	V	Zr	OTHERS ¹³	Al				
No. ¹⁷	Date	By																				Each	Total ³	Minimum		
2017A	1972	EAA	0.20-0.8	0.7	3.5-4.5	0.40-1.0	0.40-1.0	0.10	...	0.25	...	...	...	...	...	...	...	...	...	...	0.25 Zr+Ti	0.05	0.15	Rem.	
2117	1954	USA	0.8	0.7	2.2-3.0	0.20	0.20-0.50	0.10	...	0.25	...	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
2018	1954	USA	0.9	1.0	3.5-4.5	0.20	0.45-0.9	0.10	1.7-2.3	0.25	...	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
2218	1954	USA	0.9	1.0	3.5-4.5	0.20	1.2-1.8	0.10	1.7-2.3	0.25	...	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
2618	1954	USA	0.10-0.25	0.9-1.3	1.9-2.7	...	1.3-1.8	...	0.9-1.2	0.10	0.04-0.10	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
2618A	1972	EAA	0.15-0.25	0.9-1.4	1.8-2.7	0.25	1.2-1.8	...	0.8-1.4	0.15	0.20	...	...	...	...	...	...	...	...	...	...	0.25 Zr+Ti	0.05	0.15	Rem.
2219 ⁸	1954	USA	0.20	0.30	5.8-6.8	0.20-0.40	0.02	...	...	0.10	0.02-0.10	...	...	...	...	...	...	0.05-0.15	0.10-0.25	...	...	...	0.05	0.15	Rem.
2319	1958	USA	0.20	0.30	5.8-6.8	0.20-0.40	0.02	...	...	0.10	0.10-0.20	...	...	...	...	...	...	0.05-0.15	0.10-0.25	6	...	...	0.05	0.15	Rem.
2419	1972	USA	0.15	0.18	5.8-6.8	0.20-0.40	0.02	...	...	0.10	0.02-0.10	...	...	...	...	...	...	0.05-0.15	0.10-0.25	...	...	...	0.05	0.15	Rem.
2519	1985	USA	0.25	0.30	5.3-6.4	0.10-0.50	0.05-0.40	...	...	0.10	0.02-0.10	...	...	...	...	...	...	0.05-0.15	0.10-0.25	0.40 Si+Fe	...	...	0.05	0.15	Rem.
2021	1981	UK	0.20	0.30	5.8-6.8	0.20-0.40	0.02	0.10	0.02-0.10	0.03-0.08	0.05-0.15	0.10-0.25	0.05-0.20 Cd	0.05	0.15	Rem.
2022	2004	FRANCE	0.15	0.20	4.5-5.5	0.15-0.50	0.10-0.45	0.05	...	0.05-0.30	0.15	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
2023	2004	FRANCE	0.10	0.15	3.6-4.5	0.30	1.0-1.6	0.10	...	...	0.05	...	...	...	...	...	...	...	...	0.05-0.15	0.01-0.06 Sc	...	0.05	0.15	Rem.
2024	1954	USA	0.50	0.50	3.8-4.9	0.30-0.9	1.2-1.8	0.10	...	0.25	0.15	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
2024A	1996	FRANCE	0.15	0.20	3.7-4.5	0.15-0.8	1.2-1.5	0.10	...	0.25	0.15	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
2124	1970	USA	0.20	0.30	3.8-4.9	0.30-0.9	1.2-1.8	0.10	...	0.25	0.15	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
2224	1978	USA	0.12	0.15	3.8-4.4	0.30-0.9	1.2-1.8	0.10	...	0.25	0.15	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
2224A	1997	RUSSIA	0.10	0.15	3.8-4.5	0.40-0.8	1.2-1.6	...	0.05	0.10	0.01-0.07	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
2324	1978	USA	0.10	0.12	3.8-4.4	0.30-0.9	1.2-1.8	0.10	...	0.25	0.15	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
2424	1994	USA	0.10	0.12	3.8-4.4	0.30-0.6	1.2-1.6	...	...	0.20	0.10	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
2524	1995	USA	0.06	0.12	4.0-4.5	0.45-0.7	1.2-1.6	0.05	...	0.15	0.10	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
2025	1954	USA	0.50-1.2	1.0	3.9-5.0	0.40-1.2	0.05	0.10	...	0.25	0.15	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
2026	1999	USA	0.05	0.07	3.6-4.3	0.30-0.8	1.0-1.6	...	...	0.10	0.06	...	...	...	...	...	...	...	...	0.05-0.25	...	...	0.05	0.15	Rem.
2027	2001	FRANCE	0.12	0.15	3.9-4.9	0.50-1.2	1.0-1.5	...	...	0.20	0.08	...	...	...	...	...	...	...	...	0.05-0.15	...	...	0.05	0.15	Rem.
2028	2005	GERMANY	0.8	0.8	3.3-4.6	0.50-1.0	0.40-1.8	0.10	0.20	0.8	0.20	...	...	0.10-1.0	...	...	1.0	0.10-1.0	...	...	...	...	0.10	0.30	Rem.
+ 2028A	2006	SLOVENIA	0.8	0.7	3.3-4.5	0.20-1.0	0.50-1.3	0.10	0.10	0.50	0.20	...	...	0.50-0.7	...	...	0.20-0.40	...	...	...	...	...	0.05	0.15	Rem.
+ 2028B	2006	SLOVENIA	0.8	0.8	3.3-4.6	0.50-1.0	0.40-1.8	0.10	0.10	0.8	0.20	...	...	0.50-0.7	...	...	0.20-0.40	...	...	...	...	...	0.05	0.15	Rem.
+ 2028C	2006	BELGIUM	0.8	0.7	3.3-5.0	0.20-1.0	0.50-1.3	0.10	...	0.50	0.20	...	...	0.40-1.0	...	...	0.05	0.20-1.0	...	...	...	...	0.10	0.30	Rem.
2030	1972	EAA	0.8	0.7	3.3-4.5	0.20-1.0	0.50-1.3	0.10	...	0.50	0.20	...	...	0.20	...	...	0.8-1.5	...	...	...	...	...	0.10	0.30	Rem.
2031	1974	UK	0.50-1.3	0.6-1.2	1.8-2.8	0.50	0.6-1.2	...	0.6-1.4	0.20	0.20	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
2032	2005	JAPAN	0.50-1.3	0.6-1.5	1.5-2.5	0.20	1.2-1.8	...	0.6-1.4	0.20	0.20	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
2034	1983	USA	0.10	0.12	4.2-4.8	0.8-1.3	1.3-1.9	0.05	...	0.20	0.15	...	...	...	...	...	...	...	...	0.08-0.15	...	...	0.05	0.15	Rem.
2036	1970	USA	0.50	0.50	2.2-3.0	0.10-0.40	0.30-0.6	0.10	...	0.25	0.15	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
2037	1977	USA	0.50	0.50	1.4-2.2	0.10-0.40	0.30-0.8	0.10	...	0.25	0.15	...	...	...	...	...	...	0.05	...	...	...	...	0.05	0.15	Rem.
2038	1980	USA	0.50-1.3	0.6	0.8-1.8	0.10-0.40	0.40-1.0	0.20	...	0.50	0.15	...	...	...	0.05	...	...	0.05	...	...	...	...	0.05	0.15	Rem.
2039	1999	SWITZERLAND	0.20	0.30	4.5-5.5	0.20-0.50	0.40-0.8	...	...	...	0.15	0.05-0.50	...	...	...	...	...	...	...	0.10-0.25	...	...	0.05	0.15	Rem.
2139	2004	FRANCE	0.10	0.15	4.5-5.5	0.20-0.6	0.20-0.8	0.05	...	0.25	0.15	0.15-0.6	...	...	...	...	...	0.05	...	...	...	...	0.05	0.15	Rem.
2040	2003	USA	0.08	0.10	4.8-5.4	0.45-0.8	0.7-1.1	...	...	0.25	0.06	0.40-0.7	...	...	...	...	...	...	...	0.08-0.15	0.0001 Be	...	0.05	0.15	Rem.
+ 2041	2006	SLOVENIA	0.40	0.7	5.0-6.0	...	...	...	...	0.30	...	...	...	0.50-0.7	...	...	0.05	0.50-0.7	...	...	...	...	0.05	0.15	Rem.
+ 2044	2006	SLOVENIA	0.8	0.7	3.3-4.5	0.20-1.0	0.50-1.3	0.10	0.10	0.50	0.20	...	...	0.20-0.40	...	...	0.05	0.9-1.3	...	...	...	...	0.05	0.15	Rem.

See footnotes on page 14.

CHEMICAL COMPOSITION LIMITS^{1, 2}

REGISTERED COMPOSITION—Continued

Only composition limits which are identical to those listed herein for a registered designation are applicable to that designation.

Registered International Designation			Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Ag	B	Bi	Ga	Li	Pb	Sn	V	Zr	OTHERS ¹³		Al Minimum		
No. ¹⁷	Date	By																			Each	Total ³			
+	2045	2006	SLOVENIA	0.8	0.8	3.3-4.6	0.50-1.0	0.40-1.8	0.10	0.10	0.8	0.20	...	...	0.20-0.40	...	0.05	0.9-1.3	...	...	...	0.05	0.15	Rem.
	2050	2004	USA	0.08	0.10	3.2-3.9	0.20-0.50	0.20-0.6	0.05	0.05	0.25	0.10	0.20-0.7	...	...	0.05	0.7-1.3	...	0.05	0.06-0.14	...	0.05	0.15	Rem.
	2056	2003	FRANCE	0.10	0.12	3.3-4.3	0.10-0.50	0.6-1.4	...	...	0.40-0.8	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
	2090	1984	USA	0.10	0.12	2.4-3.0	0.05	0.25	0.05	...	0.10	0.15	...	...	...	...	1.9-2.6	...	...	0.08-0.15	...	0.05	0.15	Rem.
	2091	1985	FRANCE	0.20	0.30	1.8-2.5	0.10	1.1-1.9	0.10	...	0.25	0.10	1.7-2.3	0.04-0.16	...	0.05	0.15	Rem.
	2094	1990	USA	0.12	0.15	4.4-5.2	0.25	0.25-0.8	...	...	0.25	0.10	0.25-0.6	...	...	...	0.7-1.4	...	...	0.04-0.18	...	0.05	0.15	Rem.
	2095	1990	USA	0.12	0.15	3.9-4.6	0.25	0.25-0.8	...	...	0.25	0.10	0.25-0.6	...	...	...	0.7-1.5	...	...	0.04-0.18	...	0.05	0.15	Rem.
	2195	1992	USA	0.12	0.15	3.7-4.3	0.25	0.25-0.8	...	...	0.25	0.10	0.25-0.6	...	...	...	0.8-1.2	...	...	0.08-0.16	...	0.05	0.15	Rem.
	2196	2000	USA	0.12	0.15	2.5-3.3	0.35	0.25-0.8	...	...	0.35	0.10	0.25-0.6	...	...	...	1.4-2.1	...	...	0.04-0.18	...	0.05	0.15	Rem.
	2097	1993	USA	0.12	0.15	2.5-3.1	0.10-0.6	0.35	...	...	0.35	0.15	...	...	...	...	1.2-1.8	...	...	0.08-0.16	...	0.05	0.15	Rem.
	2197	1993	USA	0.10	0.10	2.5-3.1	0.10-0.50	0.25	...	...	0.05	0.12	...	...	...	...	1.3-1.7	...	...	0.08-0.15	...	0.05	0.15	Rem.
	2297	1997	USA	0.10	0.10	2.5-3.1	0.10-0.50	0.25	...	...	0.05	0.12	...	...	...	...	1.1-1.7	...	...	0.08-0.15	...	0.05	0.15	Rem.
	2397	2002	USA	0.10	0.10	2.5-3.1	0.10-0.50	0.25	...	...	0.05-0.15	0.12	...	...	...	...	1.1-1.7	...	...	0.08-0.15	...	0.05	0.15	Rem.
	2098	2000	USA	0.12	0.15	3.2-3.8	0.35	0.25-0.8	...	...	0.35	0.10	0.25-0.6	...	...	...	0.8-1.3	...	...	0.04-0.18	...	0.05	0.15	Rem.
	2198	2005	USA	0.08	0.10	2.9-3.5	0.50	0.25-0.8	0.05	...	0.35	0.10	0.10-0.50	...	...	...	0.8-1.1	...	...	0.04-0.18	...	0.05	0.15	Rem.
	2099	2003	USA	0.05	0.07	2.4-3.0	0.10-0.50	0.10-0.50	...	...	0.40-1.0	0.10	...	...	...	...	1.6-2.0	...	...	0.05-0.12	0.0001 Be	0.05	0.15	Rem.
	2199	2005	USA	0.05	0.07	2.3-2.9	0.10-0.50	0.05-0.40	...	...	0.20-0.9	0.10	...	...	...	...	1.4-1.8	...	...	0.05-0.12	0.0001 Be	0.05	0.12	Rem.
	++	3002	1961	USA	0.08	0.10	0.15	0.05-0.25	0.05-0.20	0.05	0.03	0.05	0.03	0.10	Rem.
		3102	1972	USA	0.40	0.7	0.10	0.05-0.40	0.30	0.10	0.05	0.15	Rem.
		3003	1954	USA	0.6	0.7	0.05-0.20	1.0-1.5	0.10	0.05	0.15	Rem.
3103		1972	EAA	0.50	0.7	0.10	0.9-1.5	0.30	0.10	...	0.20	...	...	...	...	...	...	...	...	...	0.10 Zr+Ti ⁶	0.05	0.15	Rem.
3103A		1991	NORWAY	0.50	0.7	0.10	0.7-1.4	0.30	0.10	...	0.20	...	...	...	...	...	...	...	...	...	0.10 Zr+Ti	0.05	0.15	Rem.
3103B		2002	USA	0.50-1.3	0.8	0.50	0.7-1.3	0.50	...	...	0.50	0.20	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
3203		1973	AUSTRALIA	0.6	0.7	0.05	1.0-1.5	...	...	...	0.10	...	...	...	...	...	...	...	...	...	6	0.05	0.15	Rem.
3403		2001	USA	1.3	0.8	0.50	0.8-1.5	0.6	0.10	...	0.40	0.10	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
3004		1954	USA	0.30	0.7	0.25	1.0-1.5	0.8-1.3	...	...	0.25	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
3004A		1985	AUSTRALIA	0.40	0.7	0.25	0.8-1.5	0.8-1.5	0.10	...	0.25	0.05	...	...	...	...	...	0.03	...	...	...	0.05	0.15	Rem.
3104		1978	USA	0.6	0.8	0.05-0.25	0.8-1.4	0.8-1.3	0.25	0.10	0.05	0.05	0.05	0.15	Rem.
3204		1991	USA	0.30	0.7	0.10-0.25	0.8-1.5	0.8-1.5	...	...	0.25	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
3304		2001	USA	0.7	0.8	0.6	0.8-1.4	0.8-1.4	0.10	...	0.40	0.10	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
3005		1954	USA	0.6	0.7	0.30	1.0-1.5	0.20-0.6	0.10	...	0.25	0.10	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
3005A		1997	NORWAY	0.7	0.8	0.30	1.0-1.5	0.20-0.6	0.10	...	0.40	0.10	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
3105		1960	USA	0.6	0.7	0.30	0.30-0.8	0.20-0.8	0.20	...	0.40	0.10	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
3105A		1990	FRANCE	0.6	0.7	0.30	0.30-0.8	0.20-0.8	0.20	...	0.25	0.10	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
3105B		1997	NORWAY	0.7	0.9	0.30	0.30-0.9	0.20-0.8	0.20	...	0.50	0.10	...	...	...	...	...	0.10	...	...	...	0.05	0.15	Rem.
3007		1976	USA	0.50	0.7	0.05-0.30	0.30-0.8	0.6	0.20	...	0.40	0.10	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
3107		1977	SPAIN	0.6	0.7	0.05-0.15	0.40-0.9	...	...	...	0.20	0.10	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
3207		1979	GERMANY	0.30	0.45	0.10	0.40-0.8	0.10	...	...	0.10	...	...	...	...	...	...	...	...	...	...	0.05	0.10	Rem.
3207A		1990	NORWAY	0.35	0.6	0.25	0.30-0.8	0.40	0.20	...	0.25	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
3307		1986	USA	0.6	0.8	0.30	0.50-0.9	0.30	0.20	...	0.40	0.10	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
3009		1978	GERMANY	1.0-1.8	0.7	0.10	1.2-1.8	0.10	0.05	0.05	0.05	0.10	...	...	...	...	...	...	...	0.10	...	0.05	0.15	Rem.

See footnotes on page 14.

CHEMICAL COMPOSITION LIMITS^{1, 2}

REGISTERED COMPOSITION—Continued

Only composition limits which are identical to those listed herein for a registered designation are applicable to that designation.

Registered International Designation			Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Ag	B	Bi	Ga	Li	Pb	Sn	V	Zr	OTHERS ¹³		AI		
No. ¹⁷	Date	By																			Each	Total ³		Minimum	
3010	1978	USA	0.10	0.20	0.03	0.20-0.9	...	0.05-0.40	...	0.05	0.05	...	...	...	...	...	...	...	0.05	...	...	0.03	0.10	Rem.
3110	2004	USA	0.25	0.05-0.35	0.05	0.30-0.7	0.05	0.05-0.25	...	0.05	0.05-0.30	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
3011	1978	USA	0.40	0.7	0.05-0.20	0.8-1.2	...	0.10-0.40	...	0.10	0.10	...	...	...	...	...	...	...	...	0.10-0.30	...	0.05	0.15	Rem.
3012	1983	ARGENTINA	0.6	0.7	0.10	0.50-1.1	0.10	0.20	...	0.10	0.10	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
+ 3012A	2006	CANADA	0.30	0.20	0.05	0.7-1.2	0.05	0.05	0.05	0.05	0.05	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
3013	1983	ARGENTINA	0.6	1.0	0.50	0.9-1.4	0.20-0.6	...	...	0.50-1.0	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
3014	1993	ARGENTINA	0.6	1.0	0.50	1.0-1.5	0.10	...	...	0.50-1.0	0.10	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
3015	1986	USA	0.6	0.8	0.30	0.50-0.9	0.20-0.7	0.10	...	0.25	0.10	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
3016	1986	USA	0.6	0.8	0.30	0.50-0.9	0.50-0.8	0.10	...	0.25	0.10	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
3017	1989	NETHERLANDS	0.25	0.25-0.45	0.25-0.40	0.8-1.2	0.10	0.15	...	0.10	0.05	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
3019	2000	ROMANIA	0.6	0.7	0.9	0.30-0.9	0.20-0.9	0.20	0.10	0.20-0.9	0.10	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
3020	1998	USA	0.50	0.6	0.10	0.6-1.2	0.20	0.20	...	0.05-0.50	0.05-0.25	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
3025	1997	USA	0.6	0.50-0.9	0.30	0.40-1.0	0.20-0.8	0.20	0.05	0.25	0.10	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
3026	2003	USA	0.25	0.10-0.40	0.05	0.40-0.9	0.10	0.05	...	0.05-0.30	0.05-0.30	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
3030	1996	USA	0.15	0.35	0.10	0.10-0.7	0.05	0.05	...	0.05-0.50	0.05-0.35	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
3130	2002	USA	0.15	0.20	0.05	0.10-0.40	0.05	...	...	0.05-0.30	0.05	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
4004 ¹⁵	1971	USA	9.0-10.5	0.8	0.25	0.10	1.0-2.0	...	...	0.20	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
4104	1974	USA	9.0-10.5	0.8	0.25	0.10	1.0-2.0	...	...	0.20	...	...	0.02-0.20	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
4006	1977	FRANCE	0.8-1.2	0.50-0.8	0.10	0.05	0.01	0.20	...	0.05	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
4007	1978	FRANCE	1.0-1.7	0.40-1.0	0.20	0.8-1.5	0.20	0.05-0.25	0.15-0.7	0.10	...	...	...	...	...	...	...	...	...	...	0.05 Co	0.05	0.15	Rem.
4008	1985	USA	6.5-7.5	0.09	0.05	0.05	0.30-0.45	0.05	0.04-0.15	6	0.05	0.15	Rem.
4009	1987	USA	4.5-5.5	0.20	1.0-1.5	0.10	0.45-0.6	0.10	0.20	6	0.05	0.15	Rem.
4010	1988	USA	6.5-7.5	0.20	0.20	0.10	0.30-0.45	0.10	0.20	6	0.05	0.15	Rem.
4013	1988	USA	3.5-4.5	0.35	0.05-0.20	0.03	0.05-0.20	0.05	0.02	0.6-1.5	0.05 Cd	0.05	0.15	Rem.
4014	1989	NORWAY	1.4-2.2	0.7	0.20	0.35	0.30-0.8	0.20	0.05	0.15	Rem.
4015	1989	NORWAY	1.4-2.2	0.7	0.20	0.6-1.2	0.10-0.50	0.20	0.05	0.15	Rem.
+ 4015A	2007	USA	1.4-2.2	0.7	0.35	0.6-1.2	0.10-0.50	0.05	...	0.20	0.05	0.05	0.15	Rem.
+ 4115	2006	SWEDEN	1.8-2.2	0.7	0.10-0.50	0.6-1.2	0.10-0.50	0.20	0.05	0.15	Rem.
4016	1993	NORWAY	1.4-2.2	0.7	0.20	0.6-1.2	0.10	0.50-1.3	0.05	0.15	Rem.
4017	1995	NORWAY	0.6-1.6	0.7	0.10-0.50	0.6-1.2	0.10-0.50	0.20	0.05	0.15	Rem.
4018	1995	GERMANY	6.5-7.5	0.20	0.05	0.10	0.50-0.8	0.10	0.20	6	0.05	0.15	Rem.
4019	1999	UK	18.5-21.5	4.6-5.4	1.8-2.2	0.05	0.15	Rem.
4020	2005	AUSTRIA	2.5-3.5	0.20	0.03	0.8-1.2	0.01	0.01	...	...	0.005	...	0.005	...	...	...	...	...	...	0.01	0.005 Na, 0.005 P ⁶	0.02	0.10	Rem.
4026	2001	USA	9.0-11.5	0.50	2.5-3.5	...	0.7-1.4	0.10	0.05	1.0-2.0	0.05	0.15	Rem.
4032	1954	USA	11.0-13.5	1.0	0.50-1.3	...	0.8-1.3	0.10	0.50-1.3	0.25	6	0.05	0.15	Rem.
4043	1954	USA	4.5-6.0	0.8	0.30	0.05	0.05	0.10	0.20	6	0.05	0.15	Rem.
4043A	1976	EAA	4.5-6.0	0.6	0.30	0.15	0.20	0.10	0.15	6	0.05	0.15	Rem.
4343	1954	USA	6.8-8.2	0.8	0.25	0.10	0.20	0.05	0.15	Rem.
4643	1963	USA	3.6-4.6	0.8	0.10	0.05	0.10-0.30	0.10	0.15	6	0.05	0.15	Rem.
4044 ¹⁵	1969	USA	7.8-9.2	0.8	0.25	0.10	0.20	0.05	0.15	Rem.

See footnotes on page 14.

CHEMICAL COMPOSITION LIMITS^{1, 2}
REGISTERED COMPOSITION—Continued

Only composition limits which are identical to those listed herein for a registered designation are applicable to that designation.

Registered International Designation			Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Ag	B	Bi	Ga	Li	Pb	Sn	V	Zr	OTHERS ¹³		AI		
No. ¹⁷	Date	By																			Each	Total ³		Minimum	
4045	1964	USA	9.0-11.0	0.8	0.30	0.05	0.05	...	...	0.10	0.20	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.	
4145	1957	USA	9.3-10.7	0.8	3.3-4.7	0.15	0.15	0.15	...	0.20	...	...	...	...	...	...	...	...	...	...	...	6	0.05	0.15	Rem.
4145A	1976	UK	9.0-11.0	0.6	3.0-5.0	0.15	0.10	...	...	0.20	0.15	...	...	...	...	...	...	...	...	...	...	6	0.05	0.15	Rem.
4046	1990	EAA	9.0-11.0	0.50	0.03	0.40	0.20-0.50	...	...	0.10	0.15	...	...	...	...	...	...	...	...	...	...	6	0.05	0.15	Rem.
4047	1964	USA	11.0-13.0	0.8	0.30	0.15	0.10	...	...	0.20	...	...	...	...	...	...	...	...	...	...	...	6	0.05	0.15	Rem.
4047A	1976	EAA	11.0-13.0	0.6	0.30	0.15	0.10	...	...	0.20	0.15	...	...	...	...	...	...	...	...	...	...	6	0.05	0.15	Rem.
4147	1989	USA	11.0-13.0	0.8	0.25	0.10	0.10-0.50	...	...	0.20	...	...	...	...	...	...	...	...	...	...	...	6	0.05	0.15	Rem.
5005	1954	USA	0.30	0.7	0.20	0.20	0.50-1.1	0.10	...	0.25	...	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
5005A	1979	GERMANY	0.30	0.45	0.05	0.15	0.7-1.1	0.10	...	0.20	...	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
5205	1967	USA	0.15	0.7	0.03-0.10	0.10	0.6-1.0	0.10	...	0.05	...	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
5305	1990	EAA	0.08	0.08	...	0.03	0.7-1.1	...	...	0.05	0.02	...	...	...	...	...	...	...	...	...	...	...	0.02	...	Rem.
5505	1990	EAA	0.06	0.04	...	0.03	0.8-1.1	...	...	0.04	0.01	...	...	...	...	...	...	...	...	...	...	...	0.01	...	Rem.
5605	1990	EAA	0.01	0.008	...	...	0.8-1.1	...	...	0.01	0.008	...	...	...	...	...	...	...	...	...	...	0.008 Fe+Ti	0.003	...	Rem.
5006	1997	USA	0.40	0.8	0.10	0.40-0.8	0.8-1.3	0.10	...	0.25	0.10	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
5106	2001	USA	0.40	0.7	0.30	0.40-0.7	0.8-1.2	0.10	...	0.10	0.10	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
5010	1961	USA	0.40	0.7	0.25	0.10-0.30	0.20-0.6	0.15	...	0.30	0.10	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
5110	1990	EAA	0.08	0.08	...	0.03	0.30-0.6	...	...	0.05	0.02	...	...	...	...	...	...	...	...	...	...	...	0.02	...	Rem.
5110A	2005	JAPAN	0.15	0.25	0.20	0.20	0.20-0.6	...	...	0.03	...	...	...	...	...	...	...	...	...	...	...	...	0.05	0.10	Rem.
5210	1990	EAA	0.06	0.04	...	0.03	0.35-0.6	...	...	0.04	0.01	...	...	...	...	...	...	...	...	...	...	...	0.01	...	Rem.
5310	1990	EAA	0.01	0.008	...	...	0.35-0.6	...	...	0.01	0.008	...	...	...	...	...	...	...	...	...	...	0.008 Fe+Ti	0.003	...	Rem.
5016	1982	USA	0.25	0.6	0.20	0.40-0.7	1.4-1.9	0.10	...	0.15	0.05	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
5017	1986	USA	0.40	0.7	0.18-0.28	0.6-0.8	1.9-2.2	...	...	0.09	...	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
5018	1992	GERMANY	0.25	0.40	0.05	0.20-0.6	2.6-3.6	0.30	...	0.20	0.15	...	...	...	...	...	...	...	...	...	...	0.20-0.6 Mn+Cr ⁵	0.05	0.15	Rem.
5018A	1999	ROMANIA	0.40	0.40	0.10	0.35-0.50	3.0-3.6	0.30	...	0.20	0.15	...	...	...	...	...	...	...	...	...	...	0.35-0.7 Mn+Cr	0.05	0.15	Rem.
5019 ¹⁴	1972	EAA	0.40	0.50	0.10	0.10-0.6	4.5-5.6	0.20	...	0.20	0.20	...	...	...	...	...	...	...	...	...	...	0.10-0.6 Mn+Cr	0.05	0.15	Rem.
5019A	1998	USA	0.20	0.35	0.15	0.20-0.50	4.4-5.4	0.10	...	0.25	0.10	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
5119	1992	GERMANY	0.25	0.40	0.05	0.20-0.6	4.5-5.6	0.30	...	0.20	0.15	...	...	...	...	...	...	...	...	...	...	0.20-0.6 Mn+Cr ⁵	0.05	0.15	Rem.
5119A	2001	EAA	0.25	0.40	0.05	0.20-0.6	4.5-5.6	0.30	...	0.20	0.15	...	...	...	...	...	...	...	...	...	...	0.20-0.6 Mn+Cr ¹⁶	0.05	0.15	Rem.
5021	1993	NORWAY	0.40	0.50	0.15	0.10-0.50	2.2-2.8	0.15	...	0.15	...	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
5022	1995	JAPAN	0.25	0.40	0.20-0.50	0.20	3.5-4.9	0.10	...	0.25	0.10	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
5023	1995	JAPAN	0.25	0.40	0.20-0.50	0.20	5.0-6.2	0.10	...	0.25	0.10	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
+ 5024	2008	GERMANY	0.25	0.40	0.20	0.20	3.9-5.1	0.10	...	0.25	0.20	...	...	...	...	...	...	...	...	0.05-0.20	0.10-0.40Sc	0.05	0.15	Rem.	
5026	2001	GERMANY	0.55-1.4	0.20-1.0	0.10-0.8	0.6-1.8	3.9-4.9	0.30	...	1.0	0.20	...	...	...	...	...	...	...	...	0.30	...	0.05	0.15	Rem.	
5027	2002	GERMANY	0.05-0.20	0.20-0.40	0.05-0.15	0.40-0.8	4.7-5.4	0.10	...	0.25	0.15	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.	
5040	1961	USA	0.30	0.7	0.25	0.9-1.4	1.0-1.5	0.10-0.30	...	0.25	...	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
5140	2001	USA	0.7	0.6	0.6	0.7-1.3	1.1-1.5	0.10	...	0.40	0.10	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
5041	2005	JAPAN	0.40	0.40	0.10	0.30-1.0	3.0-4.0	0.50	...	0.10	0.20	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
5042	1980	USA	0.20	0.35	0.15	0.20-0.50	3.0-4.0	0.10	...	0.25	0.10	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
5043	1982	USA	0.40	0.7	0.05-0.35	0.7-1.2	0.7-1.3	0.05	...	0.25	0.10	...	...	...	0.05	...	...	...	0.05	...	...	...	0.05	0.15	Rem.

See footnotes on page 14.

CHEMICAL COMPOSITION LIMITS^{1, 2}

REGISTERED COMPOSITION—Continued

Only composition limits which are identical to those listed herein for a registered designation are applicable to that designation.

Registered International Designation			Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Ag	B	Bi	Ga	Li	Pb	Sn	V	Zr	OTHERS ¹³		Al	
No. ¹⁷	Date	By																			Each	Total ³		Minimum
5049	1979	EAA	0.40	0.50	0.10	0.50-1.1	1.6-2.5	0.30	...	0.20	0.10	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
5149	1990	EAA	0.25	0.40	0.05	0.50-1.1	1.6-2.5	0.30	...	0.20	0.15	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
5249	1990	EAA	0.25	0.40	0.05	0.50-1.1	1.6-2.5	0.30	...	0.20	0.15	...	...	...	...	...	...	...	...	0.10-0.20	⁶	0.05	0.15	Rem.
5349	1992	USA	0.40	0.7	0.18-0.28	0.6-1.2	1.7-2.6	...	...	0.20	0.09	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
5449	1994	BELGIUM	0.40	0.7	0.30	0.6-1.1	1.6-2.6	0.30	...	0.30	0.10	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
5050	1954	USA	0.40	0.7	0.20	0.10	1.1-1.8	0.10	...	0.25	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
5050A	1973	AUSTRALIA	0.40	0.7	0.20	0.30	1.1-1.8	0.10	...	0.25	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
5150	1972	FRANCE	0.08	0.10	0.10	0.03	1.3-1.7	...	...	0.10	0.06	...	...	...	...	...	...	...	...	...	...	0.03	0.10	Rem.
5051	1967	USA	0.40	0.7	0.25	0.20	1.7-2.2	0.10	...	0.25	0.10	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
5051A	1983	GERMANY	0.30	0.45	0.05	0.25	1.4-2.1	0.30	...	0.20	0.10	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
5151	1970	USA	0.20	0.35	0.15	0.10	1.5-2.1	0.10	...	0.15	0.10	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
5251	1972	EAA	0.40	0.50	0.15	0.10-0.50	1.7-2.4	0.15	...	0.15	0.15	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
5251A	1990	ARGENTINA	0.50	0.7	0.25	0.20-0.7	1.6-2.2	0.10	...	0.25	0.10	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
5351	1978	USA	0.08	0.10	0.10	0.10	1.6-2.2	...	...	0.05	...	...	...	...	...	...	...	...	0.05	...	...	0.03	0.10	Rem.
5451	1981	USA	0.25	0.40	0.10	0.10	1.8-2.4	0.15-0.35	0.05	0.10	0.05	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
5052	1954	USA	0.25	0.40	0.10	0.10	2.2-2.8	0.15-0.35	...	0.10	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
5252	1961	USA	0.08	0.10	0.10	0.10	2.2-2.8	...	...	0.05	...	...	...	...	...	...	...	...	0.05	...	...	0.03	0.10	Rem.
5352	1971	USA	...	...	0.10	0.10	2.2-2.8	0.10	...	0.10	0.10	...	...	...	...	...	...	...	...	...	0.45 Si+Fe	0.05	0.15	Rem.
5154 ⁸	1954	USA	0.25	0.40	0.10	0.10	3.1-3.9	0.15-0.35	...	0.20	0.20	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
5154A	1972	UK	0.50	0.50	0.10	0.50	3.1-3.9	0.25	...	0.20	0.20	...	...	...	...	...	...	...	...	...	0.10-0.50 Mn+Cr ⁶	0.05	0.15	Rem.
+ 5154B	1978	ITALY	0.35	0.45	0.05	0.15-0.45	3.2-3.8	0.10	0.01	0.15	0.15	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
5154C	2008	CHINA	0.20	0.30	0.10	0.05-0.25	3.2-3.7	0.01	...	0.01	0.01	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
5254	1954	USA	...	...	0.05	0.01	3.1-3.9	0.15-0.35	...	0.20	0.05	...	...	...	...	...	...	...	...	...	0.45 Si+Fe	0.05	0.15	Rem.
5354	1990	EAA	0.25	0.40	0.05	0.50-1.0	2.4-3.0	0.05-0.20	...	0.25	0.15	...	...	...	...	...	...	...	...	0.10-0.20	...	0.05	0.15	Rem.
5454	1957	USA	0.25	0.40	0.10	0.50-1.0	2.4-3.0	0.05-0.20	...	0.25	0.20	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
5554	1958	USA	0.25	0.40	0.10	0.50-1.0	2.4-3.0	0.05-0.20	...	0.25	0.05-0.20	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
5654	1968	USA	...	...	0.05	0.01	3.1-3.9	0.15-0.35	...	0.20	0.05-0.15	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
5654A	2001	EAA	...	...	0.05	0.01	3.1-3.9	0.15-0.35	...	0.20	0.05-0.15	...	...	...	...	...	...	...	...	...	0.45 Si+Fe ¹⁶	0.05	0.15	Rem.
+ 5754	1970	USA	0.40	0.40	0.10	0.50	2.6-3.6	0.30	...	0.20	0.15	...	...	...	...	...	...	...	...	...	0.10-0.6 Mn+Cr ⁶	0.05	0.15	Rem.
5954	1988	USA	0.25	0.40	0.10	0.10	3.3-4.1	0.10	...	0.20	0.20	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
5056	1954	USA	0.30	0.40	0.10	0.05-0.20	4.5-5.6	0.05-0.20	...	0.10	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
5356	1954	USA	0.25	0.40	0.10	0.05-0.20	4.5-5.5	0.05-0.20	...	0.10	0.06-0.20	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
5356A	2001	EAA	0.25	0.40	0.10	0.05-0.20	4.5-5.5	0.05-0.20	...	0.10	0.06-0.20	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
5456	1956	USA	0.25	0.40	0.10	0.50-1.0	4.7-5.5	0.05-0.20	...	0.25	0.20	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
5456A	1992	GERMANY	0.25	0.40	0.05	0.7-1.1	4.5-5.2	0.05-0.25	...	0.25	0.15	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
5456B	2001	EAA	0.25	0.40	0.05	0.7-1.1	4.5-5.2	0.05-0.25	...	0.25	0.15	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
5556	1956	USA	0.25	0.40	0.10	0.50-1.0	4.7-5.5	0.05-0.20	...	0.25	0.05-0.20	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
5556A	1972	UK	0.25	0.40	0.10	0.6-1.0	5.0-5.5	0.05-0.20	...	0.20	0.05-0.20	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
5556B	2001	EAA	0.25	0.40	0.10	0.6-1.0	5.0-5.5	0.05-0.20	...	0.20	0.05-0.20	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
5556C	2001	FRANCE	0.25	0.40	0.10	0.50-1.0	4.7-5.5	0.05-0.20	...	0.25	0.05-0.20	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.

See footnotes on page 14.

CHEMICAL COMPOSITION LIMITS^{1, 2}
REGISTERED COMPOSITION—Continued

Only composition limits which are identical to those listed herein for a registered designation are applicable to that designation.

Registered International Designation			Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Ag	B	Bi	Ga	Li	Pb	Sn	V	Zr	OTHERS ¹³		Al Minimum		
No. ¹⁷	Date	By																			Each	Total ³			
5257 ⁸	1961	USA	0.08	0.10	0.10	0.03	0.20-0.6	...	...	0.03	...	...	...	...	...	...	...	...	...	...	...	0.02	0.05	Rem.
5457	1957	USA	0.08	0.10	0.20	0.15-0.45	0.8-1.2	...	...	0.05	...	...	...	...	...	...	...	...	0.05	...	...	0.03	0.10	Rem.
5557	1977	USA	0.10	0.12	0.15	0.10-0.40	0.40-0.8	...	...	...	...	...	...	...	...	...	...	...	0.05	...	...	0.03	0.10	Rem.
5657	1960	USA	0.08	0.10	0.10	0.03	0.6-1.0	...	...	0.05	...	...	...	...	0.03	...	...	...	0.05	...	...	0.02	0.05	Rem.
5058	1991	GERMANY	0.40	0.50	0.10	0.20	4.5-5.6	0.10	...	0.20	0.20	...	...	...	...	...	1.2-1.8	...	...	...	...	0.05	0.15	Rem.
5059	1999	GERMANY	0.45	0.50	0.25	0.6-1.2	5.0-6.0	0.25	...	0.40-0.9	0.20	...	...	...	...	...	...	...	...	0.05-0.25	...	0.05	0.15	Rem.
5070	2003	BELGIUM	0.25	0.40	0.25	0.40-0.8	3.5-4.5	0.30	...	0.40-0.8	0.15	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
5180	1963	USA	...	...	0.10	0.20-0.7	3.5-4.5	0.10	...	1.7-2.8	0.06-0.20	...	...	...	...	...	...	...	...	0.08-0.25	0.35 Si+Fe ⁶	0.05	0.15	Rem.
5180A	2001	FRANCE	...	...	0.10	0.20-0.7	3.5-4.5	0.10	...	1.7-2.8	0.06-0.20	...	...	...	...	...	...	...	...	0.08-0.25	0.35 Si+Fe ¹⁶	0.05	0.15	Rem.
5082	1963	USA	0.20	0.35	0.15	0.15	4.0-5.0	0.15	...	0.25	0.10	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
5182	1967	USA	0.20	0.35	0.15	0.20-0.50	4.0-5.0	0.10	...	0.25	0.10	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
5083	1954	USA	0.40	0.40	0.10	0.40-1.0	4.0-4.9	0.05-0.25	...	0.25	0.15	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
5183	1957	USA	0.40	0.40	0.10	0.50-1.0	4.3-5.2	0.05-0.25	...	0.25	0.15	6	0.05	0.15	Rem.
5183A	2001	EAA	0.40	0.40	0.10	0.50-1.0	4.3-5.2	0.05-0.25	...	0.25	0.15	16	0.05	0.15	Rem.
5283	1976	FRANCE	0.30	0.30	0.03	0.50-1.0	4.5-5.1	0.05	0.03	0.10	0.03	...	...	...	...	...	...	...	...	0.05	...	0.05	0.15	Rem.
5283A	1987	EAA	0.30	0.30	0.03	0.50-1.0	4.5-5.1	0.05	0.03	0.10	0.03	...	...	...	...	...	0.003	...	...	0.05	...	0.05	0.15	Rem.
5283B	1999	USA	0.15	0.35	0.15	0.30-0.9	4.2-5.2	0.10	...	0.25	0.15	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
5383	1995	FRANCE	0.25	0.25	0.20	0.7-1.0	4.0-5.2	0.25	...	0.40	0.15	...	...	...	...	...	...	...	...	0.20	...	0.05	0.15	Rem.
5483	2001	USA	0.30	0.25	0.10	0.7-1.0	4.3-5.2	0.15	...	0.40	0.15	...	...	...	...	...	...	...	...	0.05-0.20	...	0.05	0.15	Rem.
5086	1954	USA	0.40	0.50	0.10	0.20-0.7	3.5-4.5	0.05-0.25	...	0.25	0.15	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
5186	1996	FRANCE	0.40	0.45	0.25	0.20-0.50	3.8-4.8	0.15	...	0.40	0.15	0.05	...	6	0.05	0.15	Rem.
5087	1990	EAA	0.25	0.40	0.05	0.7-1.1	4.5-5.2	0.05-0.25	...	0.25	0.15	...	...	...	...	...	...	...	...	0.10-0.20	6	0.05	0.15	Rem.
5187	2001	EAA	0.25	0.40	0.05	0.7-1.1	4.5-5.2	0.05-0.25	...	0.25	0.15	...	...	...	...	...	...	...	...	0.10-0.20	16	0.05	0.15	Rem.
5088	2002	FRANCE	0.20	0.10-0.35	0.25	0.20-0.50	4.7-5.5	0.15	...	0.20-0.40	...	...	...	...	...	...	...	...	...	0.15	...	0.05	0.15	Rem.
6101	1955	USA	0.30-0.7	0.50	0.10	0.03	0.35-0.8	0.03	...	0.10	...	...	0.06	...	...	...	...	...	...	...	...	0.03	0.10	Rem.
6101A	1974	UK	0.30-0.7	0.40	0.05	...	0.40-0.9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0.03	0.10	Rem.
6101B	1979	GERMANY	0.30-0.6	0.10-0.30	0.05	0.05	0.35-0.6	...	...	0.10	...	...	...	...	...	...	...	...	...	...	...	0.03	0.10	Rem.
6201	1960	USA	0.50-0.9	0.50	0.10	0.03	0.6-0.9	0.03	...	0.10	...	...	0.06	...	...	...	...	...	...	...	...	0.03	0.10	Rem.
6201A	1973	AUSTRALIA	0.50-0.7	0.50	0.04	...	0.6-0.9	...	...	...	...	...	0.06	...	...	...	...	...	...	...	...	0.03	0.10	Rem.
6401	1990	EAA	0.35-0.7	0.04	0.05-0.20	0.03	0.35-0.7	...	...	0.04	0.01	...	...	...	...	...	...	...	...	...	...	0.01	...	Rem.
6501	2005	SWITZERLAND	0.20-0.6	0.35	0.20	0.05-0.20	0.20-0.6	0.05	...	0.15	0.15	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
6002	1983	ITALY	0.6-0.9	0.25	0.10-0.25	0.10-0.20	0.45-0.7	0.05	...	...	0.08	...	...	...	...	...	...	...	...	0.09-0.14	...	0.05	0.15	Rem.
6003 ¹⁵	1954	USA	0.35-1.0	0.6	0.10	0.8	0.8-1.5	0.35	...	0.20	0.10	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
6103	1984	AUSTRALIA	0.35-1.0	0.6	0.20-0.30	0.8	0.8-1.5	0.35	...	0.20	0.10	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
6005	1962	USA	0.6-0.9	0.35	0.10	0.10	0.40-0.6	0.10	...	0.10	0.10	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
6005A	1972	FRANCE	0.50-0.9	0.35	0.30	0.50	0.40-0.7	0.30	...	0.20	0.10	...	...	...	...	...	...	...	...	...	0.12-0.50 Mn+Cr	0.05	0.15	Rem.
6005B	1989	NETHERLANDS	0.45-0.8	0.30	0.10	0.10	0.40-0.8	0.10	...	0.10	0.10	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
6005C	2005	JAPAN	0.40-0.9	0.35	0.35	0.50	0.40-0.8	0.30	...	0.25	0.10	...	...	...	...	...	...	...	...	...	0.50 Mn+Cr	0.05	0.15	Rem.
6105	1965	USA	0.6-1.0	0.35	0.10	0.15	0.45-0.8	0.10	...	0.10	0.10	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
6205	1970	USA	0.6-0.9	0.7	0.20	0.05-0.15	0.40-0.6	0.05-0.15	...	0.25	0.15	...	...	...	...	...	...	...	...	0.05-0.15	...	0.05	0.15	Rem.

See footnotes on page 14.

CHEMICAL COMPOSITION LIMITS^{1, 2}

REGISTERED COMPOSITION—Continued

Only composition limits which are identical to those listed herein for a registered designation are applicable to that designation.

Registered International Designation			Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Ag	B	Bi	Ga	Li	Pb	Sn	V	Zr	OTHERS ¹³		AI		
No. ¹⁷	Date	By																			Each	Total ³		Minimum	
6006	1971	USA	0.20-0.6	0.35	0.15-0.30	0.05-0.20	0.45-0.9	0.10	...	0.10	0.10	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.	
6106	1979	FRANCE	0.30-0.6	0.35	0.25	0.05-0.20	0.40-0.8	0.20	...	0.10	...	...	...	...	...	...	...	...	...	...	...	...	0.05	0.10	Rem.
6206	1984	USA	0.35-0.7	0.35	0.20-0.50	0.13-0.30	0.45-0.8	0.10	...	0.20	0.10	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
6306	1991	USA	0.20-0.6	0.10	0.05-0.16	0.10-0.40	0.45-0.9	...	...	0.05	0.05	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
6008	1983	SWITZERLAND	0.50-0.9	0.35	0.30	0.30	0.40-0.7	0.30	...	0.20	0.10	...	...	...	...	...	...	0.05-0.20	...	...	...	...	0.05	0.15	Rem.
6009	1976	USA	0.6-1.0	0.50	0.15-0.6	0.20-0.8	0.40-0.8	0.10	...	0.25	0.10	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
6010	1976	USA	0.8-1.2	0.50	0.15-0.6	0.20-0.8	0.6-1.0	0.10	...	0.25	0.10	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
6110	1979	USA	0.7-1.5	0.8	0.20-0.7	0.20-0.7	0.50-1.1	0.04-0.25	...	0.30	0.15	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
6110A	1996	GERMANY	0.7-1.1	0.50	0.30-0.8	0.30-0.9	0.7-1.1	0.05-0.25	...	0.20	...	...	...	...	...	...	...	...	...	...	0.20 Zr+Ti	...	0.05	0.15	Rem.
6011	1954	USA	0.6-1.2	1.0	0.40-0.9	0.8	0.6-1.2	0.30	0.20	1.5	0.20	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
6111	1982	USA	0.6-1.1	0.40	0.50-0.9	0.10-0.45	0.50-1.0	0.10	...	0.15	0.10	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
6012	1979	GERMANY	0.6-1.4	0.50	0.10	0.40-1.0	0.6-1.2	0.30	...	0.30	0.20	...	...	0.7	...	...	0.40-2.0	...	...	...	...	...	0.05	0.15	Rem.
6012A	1999	ITALY	0.6-1.4	0.50	0.40	0.20-1.0	0.6-1.2	0.30	...	0.30	0.20	...	...	0.7	...	...	...	0.40-2.0	...	...	...	...	0.05	0.15	Rem.
6013	1983	USA	0.6-1.0	0.50	0.6-1.1	0.20-0.8	0.8-1.2	0.10	...	0.25	0.10	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
6113	1991	USA	0.6-1.0	0.30	0.6-1.1	0.10-0.6	0.8-1.2	0.10	...	0.25	0.10	...	...	...	...	...	...	...	...	...	0.05-0.50 O	...	0.05	0.15	Rem.
6014	1983	SWITZERLAND	0.30-0.6	0.35	0.25	0.05-0.20	0.40-0.8	0.20	...	0.10	0.10	...	...	...	...	...	...	0.05-0.20	...	...	...	...	0.05	0.15	Rem.
6015	1984	ITALY	0.20-0.40	0.10-0.30	0.10-0.25	0.10	0.8-1.1	0.10	...	0.10	0.10	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
6016	1984	SWITZERLAND	1.0-1.5	0.50	0.20	0.20	0.25-0.6	0.10	...	0.20	0.15	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
6016A	1995	FRANCE	0.9-1.5	0.50	0.25	0.20	0.20-0.6	0.10	...	0.20	0.15	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
6116	1996	SWITZERLAND	0.9-1.3	0.25	0.20	0.15	0.25-0.6	0.15	...	0.20	0.15	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
6018	1991	SWITZERLAND	0.50-1.2	0.7	0.15-0.40	0.30-0.8	0.6-1.2	0.10	...	0.30	0.20	...	...	0.40-0.7	...	...	0.40-1.2	...	...	...	...	...	0.05	0.15	Rem.
6019	1996	USA	0.6-1.0	0.50	0.20-0.6	0.10	0.8-1.2	0.05-0.35	...	0.40-1.0	0.15	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
6020	1995	USA	0.40-0.9	0.50	0.30-0.9	0.35	0.6-1.2	0.15	...	0.20	0.15	...	...	...	...	...	0.05	0.9-1.5	...	...	...	...	0.05	0.15	Rem.
6021	2000	GERMANY	0.6-1.5	0.40	0.20	0.40-1.0	0.8-1.5	0.25	...	0.20	0.10	...	...	...	...	...	...	0.6-1.5	...	...	...	...	0.05	0.15	Rem.
6022	1995	USA	0.8-1.5	0.05-0.20	0.01-0.11	0.02-0.10	0.45-0.7	0.10	...	0.25	0.15	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
6023	2001	SWITZERLAND	0.6-1.4	0.50	0.20-0.50	0.20-0.6	0.40-0.9	0.20	...	...	...	...	...	0.30-0.8	...	...	...	0.6-1.2	...	...	...	...	0.05	0.15	Rem.
6024	2001	KOREA	0.7-1.3	0.05-0.7	0.30-0.9	0.30-1.2	0.30-1.0	0.20	...	0.20	0.20	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
6025	2002	GERMANY	0.8-1.5	0.7	0.20-0.7	0.6-1.4	2.1-3.0	...	...	0.50	0.20	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
6026	2004	ITALY	0.6-1.4	0.7	0.20-0.50	0.20-1.0	0.6-1.2	0.30	...	0.30	0.20	...	...	0.50-1.5	...	...	0.40	0.05	...	...	...	...	0.05	0.15	Rem.
+ 6028	2006	SLOVENIA	1.0-1.3	0.50	0.25-0.40	0.6-0.9	0.7-1.0	0.04-0.10	...	0.30	0.20	...	...	0.6-0.8	...	...	...	0.6-0.8	...	...	...	...	0.05	0.15	Rem.
6033	2002	USA	0.8-1.3	0.50	0.40-1.0	0.05	0.7-1.3	0.10	...	0.50-1.0	0.15	...	...	0.30-1.0	...	...	0.05	...	...	...	...	...	0.05	0.15	Rem.
6040	2002	USA	0.40-0.8	0.7	0.20-0.8	0.15	0.8-1.2	0.15	...	0.25	0.15	...	...	0.15-0.7	...	...	...	0.30-1.2	...	...	...	...	0.05	0.15	Rem.
+ 6041	2006	USA	0.50-0.9	0.15-0.7	0.15-0.6	0.05-0.20	0.8-1.2	0.05-0.15	...	0.25	0.15	...	...	0.30-0.9	...	...	...	0.35-1.2	...	...	...	...	0.05	0.15	Rem.
+ 6042	2006	USA	0.50-1.2	0.7	0.20-0.6	0.40	0.7-1.2	0.04-0.35	...	0.25	0.15	...	...	0.20-0.8	...	...	0.15-0.40	...	...	...	...	...	0.05	0.15	Rem.
+ 6043	2006	CHINA	0.40-0.9	0.50	0.30-0.9	0.35	0.6-1.2	0.15	...	0.20	0.15	...	...	0.40-0.7	...	...	...	0.20-0.40	...	...	...	...	0.05	0.15	Rem.
6151	1954	USA	0.6-1.2	1.0	0.35	0.20	0.45-0.8	0.15-0.35	...	0.25	0.15	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
6351	1958	USA	0.7-1.3	0.50	0.10	0.40-0.8	0.40-0.8	...	...	0.20	0.20	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
6351A	1988	FRANCE	0.7-1.3	0.50	0.10	0.40-0.8	0.40-0.8	...	...	0.20	0.20	...	...	...	...	...	0.003	...	...	...	...	...	0.05	0.15	Rem.
6451	2005	USA	0.6-1.0	0.40	0.40	0.05-0.40	0.40-0.8	0.10	...	0.15	...	...	...	...	...	...	...	...	0.10	...	...	...	0.05	0.15	Rem.
6951	1954	USA	0.20-0.50	0.8	0.15-0.40	0.10	0.40-0.8	...	...	0.20	...	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
6053	1954	USA	0.35	0.10	...	1.1-1.4	0.15-0.35	...	...	0.10	...	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.

See footnotes on page 14.

CHEMICAL COMPOSITION LIMITS^{1, 2}

REGISTERED COMPOSITION—Continued

Only composition limits which are identical to those listed herein for a registered designation are applicable to that designation.

Registered International Designation			Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Ag	B	Bi	Ga	Li	Pb	Sn	V	Zr	OTHERS ¹³		Al		
No. ¹⁷	Date	By																			Each	Total ³		Minimum	
6056	1988	FRANCE	0.7-1.3	0.50	0.50-1.1	0.40-1.0	0.6-1.2	0.25	...	0.10-0.7	...	...	...	...	...	...	...	...	...	...	0.20 Zr+Ti	0.05	0.15	Rem.	
6156	2003	FRANCE	0.7-1.3	0.20	0.7-1.1	0.40-0.7	0.6-1.2	0.25	...	0.10-0.7	...	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
6060	1972	EAA	0.30-0.6	0.10-0.30	0.10	0.10	0.35-0.6	0.05	...	0.15	0.10	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
6160	1993	USA	0.30-0.6	0.15	0.20	0.05	0.35-0.6	0.05	...	0.05	...	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
6260	1996	USA	0.40-0.6	0.15-0.40	0.10	0.03	0.45-0.7	0.03	...	0.05	0.10	...	...	...	...	...	...	...	0.10-0.25	0.05	...	...	0.05	0.15	Rem.
6360	2001	USA	0.35-0.8	0.10-0.30	0.15	0.02-0.15	0.25-0.45	0.05	...	0.10	0.10	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
6460	2001	USA	0.30-0.7	0.15	0.20	0.20	0.20-0.6	0.05	...	0.05	0.10	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
6560	2001	USA	0.30-0.7	0.10-0.30	0.05-0.20	0.20	0.20-0.6	0.05	...	0.15	0.10	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
6061	1954	USA	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.
6061A	1991	EAA	0.40-0.8	0.7	0.15-0.40	0.15	0.8-1.2	0.04-0.35	...	0.25	0.15	...	...	...	...	...	...	...	...	...	0.003	...	0.05	0.15	Rem.
6261	1968	USA	0.40-0.7	0.40	0.15-0.40	0.20-0.35	0.7-1.0	0.10	...	0.20	0.10	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
6162	1959	USA	0.40-0.8	0.50	0.20	0.10	0.7-1.1	0.10	...	0.25	0.10	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
6262	1960	USA	0.40-0.8	0.7	0.15-0.40	0.15	0.8-1.2	0.04-0.14	...	0.25	0.15	...	...	0.40-0.7	...	...	...	...	...	...	0.40-0.7	...	0.05	0.15	Rem.
6262A	2005	BELGIUM	0.40-0.8	0.7	0.15-0.40	0.15	0.8-1.2	0.04-0.14	...	0.25	0.10	...	...	0.40-0.9	...	...	...	...	...	...	0.40-1.0	...	0.05	0.15	Rem.
6063	1954	USA	0.20-0.6	0.35	0.10	0.10	0.45-0.9	0.10	...	0.10	0.10	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
6063A	1979	UK	0.30-0.6	0.15-0.35	0.10	0.15	0.6-0.9	0.05	...	0.15	0.10	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
6463	1957	USA	0.20-0.6	0.15	0.20	0.05	0.45-0.9	...	...	0.05	...	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
6463A	1973	AUSTRALIA	0.20-0.6	0.15	0.25	0.05	0.30-0.9	...	...	0.05	...	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
6763	1972	USA	0.20-0.6	0.08	0.04-0.16	0.03	0.45-0.9	...	...	0.03	...	...	...	...	...	...	...	...	...	0.05	...	...	0.03	0.10	Rem.
6963	1994	USA	0.40-0.6	0.25	0.15-0.25	0.05	0.35-0.7	0.10	...	0.10	0.10	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
+ 6064	2006	SLOVENIA	0.40-0.8	0.7	0.15-0.40	0.15	0.8-1.2	0.05-0.14	...	0.25	0.15	...	...	0.50-0.7	...	...	...	...	...	...	0.20-0.40	...	0.05	0.15	Rem.
+ 6064A	2007	SWITZERLAND	0.40-0.8	0.7	0.15-0.40	0.15	0.8-1.2	0.04-0.14	...	0.25	0.15	...	...	0.40-0.8	...	...	...	...	...	...	0.20-0.40	...	0.05	0.15	Rem.
6065	2005	BELGIUM	0.40-0.8	0.7	0.15-0.40	0.15	0.8-1.2	0.15	...	0.25	0.10	...	...	0.50-1.5	...	...	...	...	...	...	0.05	...	0.05	0.15	Rem.
6066	1954	USA	0.9-1.8	0.50	0.7-1.2	0.6-1.1	0.8-1.4	0.40	...	0.25	0.20	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
6069	1994	USA	0.6-1.2	0.40	0.55-1.0	0.05	1.2-1.6	0.05-0.30	...	0.05	0.10	...	...	...	...	...	...	...	0.10-0.30	...	0.05 Sr	...	0.05	0.15	Rem.
6070	1962	USA	1.0-1.7	0.50	0.15-0.40	0.40-1.0	0.50-1.2	0.10	...	0.25	0.15	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
6081	1972	FRANCE	0.7-1.1	0.50	0.10	0.10-0.45	0.6-1.0	0.10	...	0.20	0.15	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
6181	1972	EAA	0.8-1.2	0.45	0.10	0.15	0.6-1.0	0.10	...	0.20	0.10	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
6181A	1997	SWITZERLAND	0.7-1.1	0.15-0.50	0.25	0.40	0.6-1.0	0.15	...	0.30	0.25	...	...	...	...	...	...	...	...	...	0.10	...	0.05	0.15	Rem.
6082	1972	EAA	0.7-1.3	0.50	0.10	0.40-1.0	0.6-1.2	0.25	...	0.20	0.10	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
6182	2005	BELGIUM	0.9-1.3	0.50	0.10	0.50-1.0	0.7-1.2	0.25	...	0.20	0.10	...	...	...	...	...	...	...	...	...	0.05-0.20	...	0.05	0.15	Rem.
6082A	1987	FRANCE	0.7-1.3	0.50	0.10	0.40-1.0	0.6-1.2	0.25	...	0.20	0.10	...	...	...	...	...	...	...	...	...	0.003	...	0.05	0.15	Rem.
6091	1992	USA	0.40-0.8	0.7	0.15-0.40	0.15	0.8-1.2	0.15	...	0.25	0.15	...	...	...	...	...	...	...	...	...	0.05-0.50 O	...	0.05	0.15	Rem.
6092	1992	USA	0.40-0.8	0.30	0.7-1.0	0.15	0.8-1.2	0.15	...	0.25	0.15	...	...	...	...	...	...	...	...	...	0.05-0.50 O	...	0.05	0.15	Rem.
7003	1975	JAPAN	0.30	0.35	0.20	0.30	0.50-1.0	0.20	...	5.0-6.5	0.20	...	...	...	...	...	...	...	...	0.05-0.25	...	0.05	0.15	Rem.	
7004	1964	USA	0.25	0.35	0.05	0.20-0.7	1.0-2.0	0.05	...	3.8-4.6	0.05	...	...	...	...	...	...	...	...	0.10-0.20	...	0.05	0.15	Rem.	
7204	2005	JAPAN	0.30	0.35	0.20	0.20-0.7	1.0-2.0	0.30	...	4.0-5.0	0.20	...	...	...	...	...	...	...	0.10	0.25	...	0.05	0.15	Rem.	
7005	1962	USA	0.35	0.40	0.10	0.20-0.7	1.0-1.8	0.06-0.20	...	4.0-5.0	0.01-0.06	...	...	...	...	...	...	...	...	0.08-0.20	...	0.05	0.15	Rem.	
7108 ¹⁵	1983	USA	0.10	0.10	0.05	0.05	0.7-1.4	...	...	4.5-5.5	0.05	...	...	...	...	...	...	...	...	0.12-0.25	...	0.05	0.15	Rem.	
7108A	1987	NORWAY	0.20	0.30	0.05	0.05	0.7-1.5	0.04	...	4.8-5.8	0.03	...	...	0.03	...	...	...	...	...	0.15-0.25	...	0.05	0.15	Rem.	
7009	1974	GERMANY	0.20	0.20	0.6-1.3	0.10	2.1-2.9	0.10-0.25	...	5.5-6.5	0.20	0.25-0.40	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.	
7010	1975	UK	0.12	0.15	1.5-2.0	0.10	2.1-2.6	0.05	0.05	5.7-6.7	0.06	...	...	...	...	...	...	...	...	0.10-0.16	...	0.05	0.15	Rem.	

See footnotes on page 14.

CHEMICAL COMPOSITION LIMITS^{1, 2}

REGISTERED COMPOSITION—Continued

Only composition limits which are identical to those listed herein for a registered designation are applicable to that designation.

Registered International Designation			Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Ag	B	Bi	Ga	Li	Pb	Sn	V	Zr	OTHERS ¹³		Al		
No. ¹⁷	Date	By																			Each	Total ³		Minimum	
7012	1975	ITALY	0.15	0.25	0.8-1.2	0.08-0.15	1.8-2.2	0.04	...	5.8-6.5	0.02-0.08	...	...	...	...	...	...	...	...	0.10-0.18	...	0.05	0.15	Rem.
7014	1977	UK	0.50	0.50	0.30-0.7	0.30-0.7	2.2-3.2	...	0.10	5.2-6.2	0.20 Zr+Ti	0.05	0.15	Rem.
7015	1977	SPAIN	0.20	0.30	0.06-0.15	0.10	1.3-2.1	0.15	...	4.6-5.2	0.10	...	...	...	...	...	...	...	...	0.10-0.20	...	0.05	0.15	Rem.
7016	1972	USA	0.10	0.12	0.45-1.0	0.03	0.8-1.4	...	...	4.0-5.0	0.03	...	...	...	...	...	...	...	0.05	...	...	0.03	0.10	Rem.
7116	1975	USA	0.15	0.30	0.50-1.1	0.05	0.8-1.4	...	...	4.2-5.2	0.05	...	...	...	0.03	...	...	...	0.05	...	...	0.05	0.15	Rem.
7017	1978	UK	0.35	0.45	0.20	0.05-0.50	2.0-3.0	0.35	0.10	4.0-5.2	0.15	...	...	...	...	...	...	...	...	0.10-0.25	0.15 min Mn+Cr	0.05	0.15	Rem.
7018	1978	UK	0.35	0.45	0.20	0.15-0.50	0.7-1.5	0.20	0.10	4.5-5.5	0.15	...	...	...	...	...	...	...	...	0.10-0.25	...	0.05	0.15	Rem.
7019	1978	UK	0.35	0.45	0.20	0.15-0.50	1.5-2.5	0.20	0.10	3.5-4.5	0.15	...	...	...	...	...	...	...	...	0.10-0.25	...	0.05	0.15	Rem.
7019A	1983	ARGENTINA	0.30	0.40	0.10	0.10-0.6	1.5-2.5	0.05-0.35	...	3.0-5.0	0.10	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
7020	1972	EAA	0.35	0.40	0.20	0.05-0.50	1.0-1.4	0.10-0.35	...	4.0-5.0	...	...	...	...	...	...	...	...	...	0.08-0.20	0.08-0.25 Zr+Ti	0.05	0.15	Rem.
7021	1976	USA	0.25	0.40	0.25	0.10	1.2-1.8	0.05	...	5.0-6.0	0.10	...	...	...	...	...	...	...	...	0.08-0.18	...	0.05	0.15	Rem.
7022	1979	EAA	0.50	0.50	0.50-1.0	0.10-0.40	2.6-3.7	0.10-0.30	...	4.3-5.2	...	...	...	...	...	...	...	...	...	...	0.20 Zr+Ti	0.05	0.15	Rem.
7122	2000	SWITZERLAND	0.25	0.35	0.50-1.0	0.10	2.6-3.7	0.10	...	4.3-5.2	0.15	...	...	...	...	...	...	...	...	0.10-0.25	...	0.05	0.15	Rem.
7023	1983	ARGENTINA	0.50	0.50	0.50-1.0	0.10-0.6	2.0-3.0	0.05-0.35	...	4.0-6.0	0.10	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
7024	1983	ARGENTINA	0.30	0.40	0.10	0.10-0.6	0.50-1.0	0.05-0.35	...	3.0-5.0	0.10	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
7025	1983	ARGENTINA	0.30	0.40	0.10	0.10-0.6	0.8-1.5	0.05-0.35	...	3.0-5.0	0.10	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
7026	1983	ITALY	0.08	0.12	0.6-0.9	0.05-0.20	1.5-1.9	...	...	4.6-5.2	0.05	...	...	...	...	...	...	...	...	0.09-0.14	...	0.03	0.10	Rem.
7028	1987	SPAIN	0.35	0.50	0.10-0.30	0.15-0.6	1.5-2.3	0.20	...	4.5-5.2	0.05	...	...	...	...	...	...	...	...	...	0.08-0.25 Zr+Ti	0.05	0.15	Rem.
7029	1975	USA	0.10	0.12	0.50-0.9	0.03	1.3-2.0	...	...	4.2-5.2	0.05	...	...	...	...	...	...	...	0.05	...	...	0.03	0.10	Rem.
7129	1977	USA	0.15	0.30	0.50-0.9	0.10	1.3-2.0	0.10	...	4.2-5.2	0.05	...	...	...	0.03	...	...	...	0.05	...	...	0.05	0.15	Rem.
7229	1988	USA	0.06	0.08	0.50-0.9	0.03	1.3-2.0	...	...	4.2-5.2	0.05	...	...	...	...	...	...	...	0.05	...	...	0.03	0.10	Rem.
7030	1987	NORWAY	0.20	0.30	0.20-0.40	0.05	1.0-1.5	0.04	...	4.8-5.9	0.03	...	...	...	0.03	...	...	...	...	0.03	...	0.05	0.15	Rem.
7031	1988	USA	0.30	0.8-1.4	0.10	0.10-0.40	0.10	...	...	0.8-1.8	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
7032	1995	USA	0.10	0.12	1.7-2.3	0.05	1.5-2.5	0.15-0.25	...	5.5-6.5	0.10	...	...	0.01	...	...	0.01	...	...	...	...	0.05	0.15	Rem.
7033	1996	USA	0.15	0.30	0.7-1.3	0.10	1.3-2.2	0.20	...	4.6-5.6	0.10	...	...	...	0.03	...	...	...	0.05	0.08-0.15	...	0.05	0.15	Rem.
7034	1999	UK	0.10	0.12	0.8-1.2	0.25	2.0-3.0	0.20	...	11.0-12.0	...	...	...	...	...	...	...	...	...	0.08-0.30	...	0.05	0.15	Rem.
7035	2003	SWITZERLAND	0.15	0.25	0.05-0.30	0.10	2.5-3.5	0.05	...	4.3-5.5	0.02-0.05	...	...	...	...	...	...	...	...	0.08-0.20	...	0.05	0.15	Rem.
+ 7035A	2008	FRANCE	0.15	0.25	0.05-0.30	0.10	2.5-3.5	0.05	...	4.3-5.5	0.02-0.05	...	...	...	...	...	...	...	...	0.04-0.20	...	0.05	0.15	Rem.
7036	2004	USA	0.12	0.15	1.9-2.5	0.05	1.8-2.5	0.08-0.13	...	8.4-9.4	0.10	...	...	...	...	...	...	...	...	0.10-0.20	...	0.05	0.15	Rem.
7136	2004	USA	0.12	0.15	1.9-2.5	0.05	1.8-2.5	0.05	...	8.4-9.4	0.10	...	...	...	...	...	...	...	...	0.10-0.20	...	0.05	0.15	Rem.
+ 7037	2006	GERMANY	0.10	0.10	0.6-1.1	0.50	1.3-2.1	0.04	...	7.8-9.0	0.10	...	...	...	...	...	...	...	...	0.06-0.25	...	0.05	0.15	Rem.
7039	1962	USA	0.30	0.40	0.10	0.10-0.40	2.3-3.3	0.15-0.25	...	3.5-4.5	0.10	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
7040	1996	FRANCE	0.10	0.13	1.5-2.3	0.04	1.7-2.4	0.04	...	5.7-6.7	0.06	...	...	...	...	...	...	...	...	0.05-0.12	...	0.05	0.15	Rem.
7140	2005	FRANCE	0.10	0.13	1.3-2.3	0.04	1.5-2.4	0.04	...	6.2-7.0	0.06	...	...	...	...	...	...	...	...	0.05-0.12	...	0.05	0.15	Rem.
+ 7041	2008	FRANCE	0.15	0.25	0.40-0.9	0.04	1.5-2.3	0.04	...	5.7-6.7	0.06	...	...	...	...	...	...	...	...	0.05-0.12	...	0.05	0.15	Rem.
7046	1973	USA	0.20	0.40	0.25	0.30	1.0-1.6	0.20	...	6.6-7.6	0.06	...	...	...	...	...	...	...	...	0.10-0.18	...	0.05	0.15	Rem.
7046A	1999	NORWAY	0.20	0.40	0.35	0.30	0.8-1.6	0.20	...	6.1-7.3	0.06	...	...	...	...	...	...	...	...	0.10-0.25	...	0.05	0.15	Rem.
7049	1968	USA	0.25	0.35	1.2-1.9	0.20	2.0-2.9	0.10-0.22	...	7.2-8.2	0.10	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
7049A	1972	FRANCE	0.40	0.50	1.2-1.9	0.50	2.1-3.1	0.05-0.25	...	7.2-8.4	...	...	...	...	...	...	...	...	...	...	0.25 Zr+Ti	0.05	0.15	Rem.
7149	1975	USA	0.15	0.20	1.2-1.9	0.20	2.0-2.9	0.10-0.22	...	7.2-8.2	0.10	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.

See footnotes on page 14.

CHEMICAL COMPOSITION LIMITS^{1, 2}

REGISTERED COMPOSITION—Continued

Only composition limits which are identical to those listed herein for a registered designation are applicable to that designation.

Registered International Designation			Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Ag	B	Bi	Ga	Li	Pb	Sn	V	Zr	OTHERS ¹³		Al	
No. ¹⁷	Date	By																			Each	Total ³		Minimum
7249	1992	USA	0.10	0.12	1.3-1.9	0.10	2.0-2.4	0.12-0.18	...	7.5-8.2	0.06	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
7349	1994	FRANCE	0.12	0.15	1.4-2.1	0.20	1.8-2.7	0.10-0.22	...	7.5-8.7	...	...	...	...	...	...	...	...	...	...	0.25 Zr+Ti	0.05	0.15	Rem.
7449	1994	FRANCE	0.12	0.15	1.4-2.1	0.20	1.8-2.7	...	...	7.5-8.7	...	...	...	...	...	...	...	...	...	...	0.25 Zr+Ti	0.05	0.15	Rem.
7050	1971	USA	0.12	0.15	2.0-2.6	0.10	1.9-2.6	0.04	...	5.7-6.7	0.06	...	...	...	...	...	...	...	...	0.08-0.15	...	0.05	0.15	Rem.
7050A	1996	FRANCE	0.12	0.15	1.7-2.4	0.04	1.7-2.6	0.04	0.03	5.7-6.9	0.06	...	...	...	...	...	...	...	...	0.05-0.12	...	0.05	0.15	Rem.
7150	1978	USA	0.12	0.15	1.9-2.5	0.10	2.0-2.7	0.04	...	5.9-6.9	0.06	...	...	...	...	...	...	...	...	0.08-0.15	...	0.05	0.15	Rem.
7250	2001	USA	0.08	0.10	2.0-2.4	0.10	1.9-2.3	0.04	...	5.7-6.5	0.06	...	...	...	...	...	...	...	...	0.08-0.13	...	0.05	0.15	Rem.
7055	1991	USA	0.10	0.15	2.0-2.6	0.05	1.8-2.3	0.04	...	7.6-8.4	0.06	...	...	...	...	...	...	...	...	0.08-0.25	...	0.05	0.15	Rem.
+ 7155	2008	USA	0.25	0.25	2.0-2.6	0.10	1.8-2.3	0.05	...	7.6-8.4	0.10	...	...	...	...	...	...	...	...	0.08-0.15	...	0.05	0.15	Rem.
7056	2004	FRANCE	0.10	0.12	1.2-1.9	0.20	1.5-2.3	...	...	8.5-9.7	0.08	...	...	...	...	...	...	...	...	0.05-0.15	...	0.05	0.15	Rem.
7060	1986	FRANCE	0.15	0.20	1.8-2.6	0.20	1.3-2.1	0.15-0.25	...	6.1-7.5	0.05	...	...	...	...	...	...	...	...	0.05	...	0.05	0.15	Rem.
7064	1985	USA	0.12	0.15	1.8-2.4	...	1.9-2.9	0.06-0.25	...	6.8-8.0	...	...	...	...	...	...	...	...	...	0.10-0.50	0.10-0.40 Co, 0.05-0.30 O	0.05	0.15	Rem.
7068	1996	USA	0.12	0.15	1.6-2.4	0.10	2.2-3.0	0.05	...	7.3-8.3	0.10	...	...	...	...	...	...	...	...	0.05-0.15	...	0.05	0.15	Rem.
7168	2002	USA	0.10	0.12	1.6-2.4	0.05	2.0-2.8	0.04	...	7.8-8.8	0.10	...	...	...	...	...	...	...	...	0.05-0.15	...	0.05	0.15	Rem.
7072 ¹⁵	1954	USA	...	...	0.10	0.10	0.10	...	...	0.8-1.3	...	...	...	...	...	...	...	...	...	...	0.7 Si+Fe ¹⁰	0.05	0.15	Rem.
7075	1954	USA	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.
7175	1957	USA	0.15	0.20	1.2-2.0	0.10	2.1-2.9	0.18-0.28	...	5.1-6.1	0.10	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
7475	1969	USA	0.10	0.12	1.2-1.9	0.06	1.9-2.6	0.18-0.25	...	5.2-6.2	0.06	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
7076	1954	USA	0.40	0.6	0.30-1.0	0.30-0.8	1.2-2.0	...	...	7.0-8.0	0.20	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
7178 ⁸	1954	USA	0.40	0.50	1.6-2.4	0.30	2.4-3.1	0.18-0.28	...	6.3-7.3	0.20	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
7278	1981	NORWAY	0.15	0.20	1.6-2.2	0.02	2.5-3.2	0.17-0.25	...	6.6-7.4	0.03	...	...	0.03	...	...	...	...	0.05	...	...	0.03	0.10	Rem.
7278A	1991	SWITZERLAND	0.12	0.15	1.3-2.1	0.25	2.3-3.2	0.05	...	6.4-7.4	0.05	...	...	...	...	...	...	...	...	0.05-0.25	...	0.05	0.15	Rem.
7081	2005	GERMANY	0.12	0.15	1.2-1.8	0.25	1.8-2.2	0.04	...	6.9-7.5	0.06	...	...	...	...	...	...	...	...	0.06-0.15	...	0.05	0.15	Rem.
7085	2002	USA	0.06	0.08	1.3-2.0	0.04	1.2-1.8	0.04	...	7.0-8.0	0.06	...	...	...	...	...	...	...	...	0.08-0.15	...	0.05	0.15	Rem.
7090	1980	USA	0.12	0.15	0.6-1.3	...	2.0-3.0	...	...	7.3-8.7	...	...	...	...	...	...	...	...	...	...	1.0-1.9 Co, 0.20-0.50 O	0.05	0.15	Rem.
7093	1990	USA	0.12	0.15	1.1-1.9	...	2.0-3.0	...	0.04-0.16	8.3-9.7	...	...	...	...	...	...	...	...	...	0.08-0.20	0.05-0.50 O	0.05	0.15	Rem.
7095	2005	USA	0.10	0.12	2.0-2.8	0.05	1.4-2.0	...	...	8.6-9.8	0.06	...	...	...	...	...	...	...	...	0.08-0.15	...	0.05	0.15	Rem.
8005	1976	ITALY	0.20-0.50	0.40-0.8	0.05	...	0.05	...	...	0.05	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
8006	1978	USA	0.40	1.2-2.0	0.30	0.30-1.0	0.10	...	...	0.10	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
8007	1978	USA	0.40	1.2-2.0	0.10	0.30-1.0	0.10	...	...	0.8-1.8	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
8008	1979	SPAIN	0.6	0.9-1.6	0.20	0.50-1.0	...	...	...	0.10	0.10	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
8010	1988	USA	0.40	0.35-0.7	0.10-0.30	0.10-0.8	0.10-0.50	0.20	...	0.40	0.10	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
8011 ⁸	1970	USA	0.50-0.9	0.6-1.0	0.10	0.20	0.05	0.05	...	0.10	0.08	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
8011A	1979	GERMANY	0.40-0.8	0.50-1.0	0.10	0.10	0.10	0.10	...	0.10	0.05	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
8111	1979	USA	0.30-1.1	0.40-1.0	0.10	0.10	0.05	0.05	...	0.10	0.08	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
8211	1990	NETHERLANDS	0.40-0.8	0.50-1.0	0.10	0.05-0.20	0.10	0.15	...	0.10	0.05	...	...	...	...	...	...	...	...	...	...	0.06	0.15	Rem.
8112 ⁸	1954	USA	1.0	1.0	0.40	0.6	0.7	0.20	...	1.0	0.20	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
8014	1983	USA	0.30	1.2-1.6	0.20	0.20-0.6	0.10	...	...	0.10	0.10	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
8015	1988	USA	0.30	0.8-1.4	0.10	0.10-0.40	0.10	...	...	0.10	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.

See footnotes on page 14.

CHEMICAL COMPOSITION LIMITS^{1, 2}
REGISTERED COMPOSITION—Continued

Only composition limits which are identical to those listed herein for a registered designation are applicable to that designation.

Registered International Designation			Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Ag	B	Bi	Ga	Li	Pb	Sn	V	Zr	OTHERS ¹³		Al	
No. ¹⁷	Date	By																			Each	Total ³		Minimum
8016	1989	NORWAY	0.20	0.7-1.1	0.10	0.10-0.30	0.10	...	...	0.10	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
8017	1983	USA	0.10	0.55-0.8	0.10-0.20	...	0.01-0.05	...	...	0.05	...	...	0.04	...	...	0.003	...	...	...	...	...	0.03	0.10	Rem.
8018	1989	UK	0.50-0.9	0.6-1.0	0.30-0.6	0.30	...	...	...	...	0.006-0.06	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
8019	1990	USA	0.20	7.3-9.3	...	0.05	...	...	...	0.05	0.05	...	...	...	...	...	...	...	...	...	3.5-4.5 Ce, 0.05-0.50 O	0.05	0.15	Rem.
8021	1992	JAPAN	0.15	1.2-1.7	0.05	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
8021A	1992	UK	0.20	1.2-1.7	0.05	0.03	0.02	...	...	0.05	0.05	...	...	...	...	...	...	...	...	...	...	0.02	0.15	Rem.
8021B	1996	EAA	0.40	1.1-1.7	0.05	0.03	0.01	0.03	...	0.05	0.05	...	...	...	...	...	...	...	...	...	...	0.03	0.10	Rem.
8022	1991	USA	1.2-1.4	6.2-6.8	...	0.10	...	0.10	...	0.25	0.10	...	...	...	...	...	...	0.40-0.8	...	0.05-0.20 O	0.05	0.15	Rem.	
8023	1997	BRAZIL	0.20	1.3-1.6	0.10-0.40	0.30-0.6	0.005	0.02	...	...	0.05-0.10	...	0.01-0.02	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
8024	1999	UK	0.10	0.12	...	...	...	...	...	...	...	...	...	...	...	3.4-4.2	...	...	...	0.08-0.25	...	0.05	0.15	Rem.
8025	2000	SKAN ALUMINIUM	0.05-0.15	0.06-0.25	0.20	0.03-0.10	0.05	0.18	...	0.50	0.005-0.02	...	...	...	...	...	...	...	...	0.02-0.20	...	0.05	0.15	Rem.
8026	2007	GERMANY	0.6	0.6-1.2	0.30	0.40-1.0	0.20-0.6	0.20	...	0.25	0.10	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
8030	1975	USA	0.10	0.30-0.8	0.15-0.30	...	0.05	...	...	0.05	...	...	0.001-0.04	...	...	...	...	...	...	...	...	0.03	0.10	Rem.
8130	1976	USA	0.15	0.40-1.0	0.05-0.15	...	...	...	...	0.10	...	...	...	...	...	...	...	...	...	...	...	0.03	0.10	Rem.
8040	1962	USA	...	...	0.20	0.05	...	...	...	0.20	...	...	...	...	...	...	...	...	...	0.10-0.30	1.0 Si+Fe	0.05	0.15	Rem.
8050	1988	EAA	0.15-0.30	1.1-1.2	0.05	0.45-0.55	0.05	0.05	...	0.10	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
8150	1998	AUSTRALIA	0.30	0.9-1.3	...	0.20-0.7	...	...	...	...	0.05	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
8076A	2005	GERMANY	0.10	0.40-0.8	0.04	0.02	0.06-0.25	0.02	...	0.05	0.02	...	...	...	...	...	...	...	...	...	...	0.03	0.10	Rem.
8176	1976	USA	0.03-0.15	0.40-1.0	...	...	...	...	...	0.10	...	...	...	...	0.03	...	...	...	...	...	...	0.05	0.15	Rem.
8077	1975	USA	0.10	0.10-0.40	0.05	...	0.10-0.30	...	...	0.05	...	...	0.05	...	...	...	...	...	...	0.02-0.08	...	0.03	0.10	Rem.
8079	1969	USA	0.05-0.30	0.7-1.3	0.05	...	...	...	...	0.10	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
8090	1984	EAA	0.20	0.30	1.0-1.6	0.10	0.6-1.3	0.10	...	0.25	0.10	...	...	...	...	2.2-2.7	...	...	...	0.04-0.16	...	0.05	0.15	Rem.
8091	1985	UK	0.30	0.50	1.6-2.2	0.10	0.50-1.2	0.10	...	0.25	0.10	...	...	...	...	2.4-2.8	...	...	...	0.08-0.16	...	0.05	0.15	Rem.
8093	1990	FRANCE	0.10	0.10	1.0-1.6	0.10	0.9-1.6	0.10	...	0.25	0.10	...	...	...	...	1.9-2.6	...	...	...	0.04-0.14	...	0.05	0.15	Rem.

See footnotes on page 14.

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.....	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 through 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.
(except that combined Si +Fe limits for 1xxx designations must be expressed as 0.XX or 1.XX).	
2. Except for "Aluminum" and "Others," analysis normally is made 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 place of figures used in expressing the specified limit, in accordance with the following:

When the figure next beyond the last figure or place to be retained is less than 5, the figure in the last place retained should be kept unchanged.

When the figure next beyond the last figure or place to be retained is greater than 5, the figure in the last place retained should be increased by 1.

When the figure next beyond the last figure or place to be retained is 5 and

 - (1) there are no figures or only zeros beyond this 5, if the figure in the last place to be retained is odd, it should be increased by 1; if even, it should be kept unchanged;
 - (2) if the 5 next beyond the figure in the last place to be retained is followed by any figures other than zero, the figure in the last place retained should be increased by 1, whether odd or even.
3. The sum of those "Others" metallic elements 0.010 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. The aluminum content for unalloyed aluminum made by a refining process is the difference between 100.00 percent and the sum of all other metallic elements together with silicon present in amounts of 0.0010 percent or more each, expressed to the third decimal before determining the sum, which is rounded to the second decimal before subtracting. When an element's specified maximum limit is 0.0XX, an observed value or a calculated value greater than 0.0005 but less than 0.0010% is rounded off and shown as "less than 0.001".
6. 0.0003 max Be for welding electrode, welding rod and filler wire.
7. A Zr+Ti limit of 0.20 percent maximum may be used with this alloy designation for extruded and forged products only, but only when the supplier or producer and the purchaser have mutually so agreed. Agreement may be indicated, for example, by reference to a standard, by letter, by order note, or other means which allow the Zr+Ti limit.
8. This designation is considered the sole original alloy for this alloy family.
9. 45-65% of Mg.
10. A Zr +Ti limit of 0.25 percent maximum may be used with this alloy designation for extruded and forged products only, but only when the supplier or producer and the purchaser have mutually so agreed.

Agreement may be indicated, for example, by reference to a standard, by letter, by order note, or other means which allow the Zr +Ti limit.
11. Formerly designated EC.
12. Inactive alloys can be reactivated with their original designation and original chemical composition limits. When possible, the original chemical composition limits shall be restored. An inactive experimental alloy can only be reactivated if the "X" is dropped. Inactive designations may be eligible for reassignment for registration of new compositions only if:
 - (a) All available designations in this alloy family have been exhausted.
 - (b) Ten (10) years have passed from the date of deactivation.
 - (c) The alloy is not an "original" alloy. (Note: An inactive "original" alloy may be eligible for registration of new compositions with different limits if it has neither active nor inactive modification nor national variations assigned.)
13. "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 "other" 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.
14. Alloy 5056A redesignated 5019.
15. Cladding is a main use.
16. 0.0005 max Be for welding electrode, welding rod and filler wire.
17. Various organizations include a prefix to these registered designations that do not change the registered composition and should be considered equivalent to those listed in this document. Examples of such equivalent designations are the AW-xxxx used in European EN standards and the A9xxxx designations used in the Unified Numbering System.
18. Designation listed for informational purposes only. Alloy 6064 is considered the sole original alloy for this alloy family.
 - + Designation added since previous issue.
 - ++ Composition limits revised since previous issue.
 - * "X" removed from designation since previous issue.

CALCULATED NOMINAL DENSITIES FOR ACTIVE WROUGHT ALUMINUM AND WROUGHT ALUMINUM ALLOYS

Density is dependent upon composition and nominal density is determined by computation rather than by a weight method. The values shown below have been computed in accordance with the Aluminum and Aluminum Alloy Density Calculation Procedure appearing on pages 2-12 and 2-13 of Aluminum Standards and Data. These calculated densities are nominal values and should not be specified as engineering requirements but may be used in calculating nominal values for weight per unit length, weight per unit area, covering area, etc.

Limiting the expression of nominal density to the number of decimal places indicated is based on the fact that composition variations are discernible from one cast to another for most alloys. The expression of nominal density to more decimal places than allowed by the following implies higher precision than is justified and should not be used.

1. Alloys listed below which have a minimum aluminum content of 99.35% or greater have nominal density values which are rounded in the US customary system (lbs/in³) to the nearest multiple of 0.0005 and in the metric system [(kg/m³) x 10³] to the nearest multiple of 0.005.
2. Alloys listed below which have a minimum aluminum content of less than 99.35% have nominal density values which are rounded in the US customary system (lbs/in³) to the nearest multiple of 0.001 and in the metric system [(kg/m³) x 10³] to the nearest multiple of 0.01.

The US customary (lbs/in³) unit values are derived from metric values and subsequently rounded and are not to be back-converted to metric values.

Designation	Density		Designation	Density	
	lbs/in. ³	(kg/m ³) x 10 ³		lbs/in. ³	(kg/m ³) x 10 ³
1050	0.0975	2.705	1285	0.0975	2.700
1050A	0.0975	2.705	1385	0.0975	2.700
1060	0.0975	2.705	1188	0.0975	2.700
1065	0.0975	2.700	1190	0.0975	2.700
1070	0.0975	2.700	1290	0.0975	2.700
1070A	0.0975	2.700	1193	0.0975	2.700
1080	0.0975	2.700	1198	0.0975	2.700
1080A	0.0975	2.700	1199	0.0975	2.700
1085	0.0975	2.700	2001	0.102	2.82
1090	0.0975	2.700	2002	0.099	2.73
1098	0.0975	2.700	2004	0.102	2.82
1100	0.098	2.71	2005	0.102	2.83
1100A	0.098	2.71	2006	0.099	2.74
1200	0.098	2.70	2007	0.102	2.82
1200A	0.098	2.71	2007A	0.102	2.81
1300	0.098	2.71	+ 2007B	0.102	2.81
1110	0.098	2.70	2008	0.098	2.72
1120	0.098	2.71	2009	0.099	2.75
1230	0.098	2.70	2010	0.098	2.72
1230A	0.098	2.70	2011	0.102	2.83
1235	0.0975	2.705	2011A	0.102	2.82
1435	0.0980	2.710	2111	0.102	2.83
1145	0.0975	2.700	2111A	0.102	2.83
1345	0.0975	2.705	2111B	0.102	2.83
1445	0.0975	2.700	2012	0.102	2.82
1150	0.0975	2.705	2013	0.099	2.73
1350	0.0975	2.705	2014	0.101	2.80
1350A	0.0975	2.700	2014A	0.101	2.80
1450	0.0975	2.705	2214	0.101	2.80
1370	0.0975	2.700	2015	0.102	2.83
1275	0.0975	2.705	2016	0.101	2.79
1185	0.0975	2.700	2017	0.101	2.79

**CALCULATED NOMINAL DENSITIES FOR ACTIVE
WROUGHT ALUMINUM AND WROUGHT ALUMINUM ALLOYS (continued)**

Designation	Density		Designation	Density	
	lbs/in. ³	(kg/m ³) x 10 ³		lbs/in. ³	(kg/m ³) x 10 ³
2017A	0.101	2.79	2397	0.096	2.65
2117	0.099	2.75	2098	0.097	2.70
2018	0.102	2.82	2198	0.097	2.69
2218	0.101	2.81	2099	0.095	2.63
2618	0.100	2.76	2199	0.095	2.64
2618A	0.100	2.77	3002	0.098	2.70
2219	0.103	2.84	3102	0.098	2.71
2319	0.103	2.84	3003	0.099	2.73
2419	0.102	2.84	3103	0.099	2.73
2519	0.102	2.82	3103A	0.098	2.72
2021	0.103	2.84	3103B	0.098	2.73
2022	0.101	2.80	3203	0.098	2.73
2023	0.100	2.77	3403	0.099	2.73
2024	0.100	2.78	3004	0.098	2.72
2024A	0.100	2.77	3004A	0.098	2.71
2124	0.100	2.78	3104	0.098	2.72
2224	0.100	2.77	3204	0.098	2.71
2224A	0.100	2.78	3304	0.098	2.72
2324	0.100	2.77	3005	0.098	2.73
2424	0.100	2.77	3005A	0.099	2.73
2524	0.100	2.78	3105	0.098	2.72
2025	0.101	2.81	3105A	0.098	2.71
2026	0.100	2.77	3105B	0.098	2.72
2027	0.101	2.79	3007	0.098	2.72
2028	0.102	2.83	3107	0.098	2.72
+ 2028A	0.101	2.80	3207	0.098	2.71
+ 2028B	0.102	2.81	3207A	0.098	2.72
+ 2028C	0.102	2.82	3307	0.098	2.72
2030	0.102	2.81	3009	0.099	2.73
2031	0.100	2.77	3010	0.098	2.72
2032	0.100	2.76	3110	0.098	2.72
2034	0.101	2.79	3011	0.099	2.73
2036	0.100	2.75	3012	0.098	2.72
2037	0.099	2.74	+ 3012A	0.098	2.72
2038	0.099	2.73	3013	0.099	2.74
2039	0.101	2.81	3014	0.099	2.75
2139	0.102	2.81	3015	0.098	2.72
2040	0.102	2.81	3016	0.098	2.72
+ 2041	0.103	2.84	3017	0.099	2.73
+ 2044	0.102	2.81	3019	0.099	2.73
+ 2045	0.102	2.82	3020	0.099	2.73
2050	0.098	2.70	3025	0.098	2.72
2056	0.100	2.78	3026	0.098	2.72
2090	0.093	2.59	3030	0.098	2.72
2091	0.093	2.58	3130	0.098	2.71
2094	0.098	2.72	4004	0.096	2.65
2095	0.098	2.70	4104	0.096	2.65
2195	0.098	2.71	4006	0.098	2.71
2196	0.095	2.63	4007	0.099	2.74
2097	0.096	2.65	4008	0.096	2.67
2197	0.095	2.64	4009	0.097	2.70
2297	0.096	2.65	4010	0.096	2.67

**CALCULATED NOMINAL DENSITIES FOR ACTIVE
WROUGHT ALUMINUM AND WROUGHT ALUMINUM ALLOYS (continued)**

Designation	Density		Designation	Density	
	lbs/in. ³	(kg/m ³) x 10 ³		lbs/in. ³	(kg/m ³) x 10 ³
4013	0.098	2.71	5140	0.098	2.71
4014	0.097	2.70	5041	0.097	2.67
4015	0.098	2.71	5042	0.096	2.67
+ 4015A	0.098	2.71	5043	0.098	2.72
+ 4115	0.098	2.72	5049	0.097	2.70
4016	0.099	2.73	5149	0.097	2.69
4017	0.098	2.72	5249	0.097	2.70
4018	0.096	2.67	5349	0.097	2.70
4019	0.099	2.74	5449	0.097	2.70
4020	0.098	2.71	5050	0.097	2.69
4026	0.099	2.73	5050A	0.097	2.69
4032	0.097	2.68	5150	0.097	2.68
4043	0.097	2.69	5051	0.097	2.69
4043A	0.097	2.69	5051A	0.097	2.69
4343	0.097	2.68	5151	0.097	2.68
4643	0.097	2.69	5251	0.097	2.69
4044	0.097	2.67	5251A	0.097	2.69
4045	0.096	2.67	5351	0.097	2.68
4145	0.099	2.74	5451	0.097	2.68
4145A	0.099	2.74	5052	0.097	2.68
4046	0.096	2.66	5252	0.096	2.67
4047	0.096	2.66	5352	0.097	2.67
4047A	0.096	2.66	5154	0.096	2.66
4147	0.096	2.66	5154A	0.096	2.67
5005	0.098	2.70	5154B	0.096	2.67
5005A	0.097	2.69	+ 5154C	0.096	2.66
5205	0.097	2.70	5254	0.096	2.66
5305	0.097	2.69	5354	0.097	2.69
5505	0.097	2.69	5454	0.097	2.69
5605	0.097	2.69	5554	0.097	2.69
5006	0.098	2.71	5654	0.096	2.66
5106	0.098	2.71	5654A	0.096	2.66
5010	0.098	2.71	5754	0.097	2.67
5110	0.097	2.69	5954	0.096	2.66
5110A	0.098	2.70	5056	0.095	2.64
5210	0.097	2.69	5356	0.096	2.64
5310	0.097	2.69	5356A	0.096	2.64
5016	0.097	2.70	5456	0.096	2.66
5017	0.097	2.69	5456A	0.096	2.66
5018	0.096	2.67	5456B	0.096	2.66
5018A	0.097	2.67	5556	0.096	2.66
5019	0.096	2.65	5556A	0.096	2.65
5019A	0.096	2.65	5556B	0.096	2.65
5119	0.096	2.65	5556C	0.096	2.66
5119A	0.096	2.65	5257	0.097	2.70
5021	0.097	2.68	5457	0.097	2.69
5022	0.096	2.66	5557	0.097	2.70
5023	0.095	2.64	5657	0.097	2.69
+ 5024	0.096	2.65	5058	0.097	2.67
5026	0.097	2.69	5059	0.096	2.66
5027	0.096	2.65	5070	0.097	2.68
5040	0.098	2.72	5180	0.097	2.70

**CALCULATED NOMINAL DENSITIES FOR ACTIVE
WROUGHT ALUMINUM AND WROUGHT ALUMINUM ALLOYS (continued)**

Designation	Density		Designation	Density	
	lbs/in. ³	(kg/m ³) x 10 ³		lbs/in. ³	(kg/m ³) x 10 ³
5180A	0.097	2.70	6018	0.099	2.74
5082	0.096	2.65	6019	0.098	2.71
5182	0.096	2.65	6020	0.099	2.73
5083	0.096	2.66	6021	0.098	2.72
5183	0.096	2.66	6022	0.097	2.69
5183A	0.096	2.66	6023	0.099	2.73
5283	0.096	2.65	6024	0.098	2.72
5283A	0.096	2.65	6025	0.097	2.70
5283B	0.096	2.66	6026	0.099	2.74
5383	0.096	2.66	+ 6028	0.099	2.74
5483	0.096	2.66	6033	0.099	2.73
5086	0.096	2.66	6040	0.099	2.73
5186	0.096	2.66	+ 6041	0.099	2.73
5087	0.096	2.66	+ 6042	0.098	2.72
5187	0.096	2.66	+ 6043	0.098	2.72
5088	0.096	2.65	6151	0.098	2.71
6101	0.097	2.70	6351	0.098	2.71
6101A	0.097	2.69	6351A	0.098	2.71
6101B	0.097	2.70	6451	0.098	2.70
6201	0.097	2.69	6951	0.098	2.70
6201A	0.097	2.69	6053	0.097	2.69
6401	0.097	2.69	6056	0.098	2.72
6501	0.098	2.70	6156	0.098	2.72
6002	0.097	2.70	6060	0.097	2.70
6003	0.097	2.70	6160	0.097	2.70
6103	0.098	2.70	6260	0.098	2.70
6005	0.097	2.70	6360	0.098	2.70
6005A	0.098	2.70	6460	0.097	2.70
6005B	0.097	2.70	6560	0.098	2.70
6005C	0.098	2.70	6061	0.098	2.70
6105	0.097	2.70	6061A	0.098	2.70
6205	0.098	2.71	6261	0.098	2.70
6006	0.098	2.70	6162	0.097	2.70
6106	0.098	2.70	6262	0.098	2.72
6206	0.098	2.71	6262A	0.098	2.72
6306	0.097	2.70	6063	0.097	2.70
6008	0.098	2.70	6063A	0.097	2.70
6009	0.098	2.71	6463	0.097	2.69
6010	0.098	2.71	6463A	0.097	2.69
6110	0.098	2.71	6763	0.097	2.69
6110A	0.098	2.71	6963	0.097	2.70
6011	0.099	2.73	+ 6064	0.098	2.72
6111	0.098	2.71	+ 6064A	0.098	2.72
6012	0.099	2.74	6065	0.098	2.72
6012A	0.099	2.74	6066	0.098	2.72
6013	0.098	2.71	6069	0.098	2.70
6113	0.098	2.71	6070	0.098	2.71
6014	0.098	2.70	6081	0.097	2.70
6015	0.097	2.69	6181	0.097	2.69
6016	0.098	2.70	6181A	0.098	2.70
6016A	0.098	2.70	6082	0.098	2.70
6116	0.097	2.70	6082A	0.098	2.70

**CALCULATED NOMINAL DENSITIES FOR ACTIVE
WROUGHT ALUMINUM AND WROUGHT ALUMINUM ALLOYS (continued)**

Designation	Density		Designation	Density	
	lbs/in. ³	(kg/m ³) x 10 ³		lbs/in. ³	(kg/m ³) x 10 ³
6182	0.098	2.71	7349	0.103	2.85
6091	0.097	2.70	7449	0.103	2.85
6092	0.098	2.70	7050	0.102	2.83
7003	0.101	2.80	7050A	0.102	2.82
7004	0.100	2.77	7150	0.102	2.83
7204	0.100	2.78	7250	0.102	2.82
7005	0.100	2.77	7055	0.103	2.86
7108	0.100	2.78	+ 7155	0.104	2.87
7108A	0.101	2.78	7056	0.104	2.87
7009	0.101	2.80	7060	0.103	2.85
7010	0.102	2.82	7064	0.103	2.85
7012	0.101	2.81	7068	0.103	2.85
7014	0.101	2.79	7168	0.103	2.86
7015	0.100	2.77	7072	0.098	2.72
7016	0.100	2.78	7075	0.101	2.81
7116	0.101	2.78	7175	0.101	2.80
7017	0.100	2.76	7475	0.101	2.81
7018	0.101	2.79	7076	0.102	2.84
7019	0.100	2.76	7178	0.102	2.83
7019A	0.100	2.75	7278	0.102	2.83
7020	0.100	2.78	7278A	0.102	2.82
7021	0.101	2.78	7081	0.102	2.83
7022	0.100	2.77	7085	0.103	2.85
7122	0.100	2.76	7090	0.103	2.85
7023	0.100	2.78	7093	0.103	2.86
7024	0.100	2.77	7095	0.104	2.89
7025	0.100	2.77	8005	0.098	2.71
7026	0.100	2.78	8006	0.099	2.74
7028	0.100	2.77	8007	0.100	2.76
7029	0.100	2.77	8008	0.099	2.74
7129	0.100	2.78	8010	0.098	2.72
7229	0.100	2.77	8011	0.098	2.71
7030	0.101	2.79	8011A	0.098	2.71
7031	0.099	2.74	8111	0.098	2.71
7032	0.102	2.82	8211	0.098	2.72
7033	0.101	2.79	8112	0.098	2.72
7034	0.105	2.90	8014	0.099	2.73
7035	0.099	2.75	8015	0.098	2.72
+ 7035A	0.099	2.75	8016	0.098	2.72
7036	0.104	2.88	8017	0.098	2.71
7136	0.104	2.88	8018	0.098	2.72
+ 7037	0.103	2.85	8019	0.106	2.92
7039	0.099	2.74	8021	0.098	2.73
7040	0.102	2.82	8021A	0.098	2.72
7140	0.102	2.83	8021B	0.098	2.72
+ 7041	0.101	2.80	8022	0.102	2.83
7046	0.102	2.82	8023	0.099	2.74
7046A	0.102	2.81	8024	0.088	2.43
7049	0.103	2.84	8025	0.098	2.71
7049A	0.103	2.84	+ 8026	0.099	2.73
7149	0.103	2.84	8030	0.098	2.71
7249	0.103	2.84	8130	0.098	2.71

**CALCULATED NOMINAL DENSITIES FOR ACTIVE
WROUGHT ALUMINUM AND WROUGHT ALUMINUM ALLOYS (continued)**

Designation	Density		Designation	Density	
	lbs/in. ³	(kg/m ³) x 10 ³		lbs/in. ³	(kg/m ³) x 10 ³
8040	0.098	2.71			
8050	0.099	2.73			
8150	0.098	2.73			
8076A	0.098	2.71			
8176	0.098	2.71			
8077	0.098	2.70			
8079	0.098	2.72			
8090	0.092	2.54			
8091	0.092	2.54			
8093	0.092	2.55			

PREVIOUSLY ASSIGNED BUT PRESENTLY INACTIVE ALLOY DESIGNATIONS¹²

<u>DESIGNATION</u>	<u>DATE RECLASSIFIED</u>	<u>DESIGNATION</u>	<u>DATE RECLASSIFIED</u>
1030 ⁸	1988-05-23	4245	1968-08-19
1035 ⁸	2005-04-13	(Redesignated 4048)	
1040 ⁸	2005-04-13	4048 ⁸	2005-04-13
1045 ⁸	2005-04-13	X5002	1963-06-03
1130	1966-09-09	5004	1967-04-26
1330	1964-12-18	5105	1960-04-28
1135	1997-02-03	5405	1966-07-12
1335	1966-09-09	5007	1968-05-13
1245	1966-09-09	5008	1968-05-13
1250	1988-05-23	5009	1968-05-13
1055	1988-05-23	5011	1967-04-26
1160	1958-04-22	X5012	1970-06-30
(Superseded by 1060)		5013	1996-10-02
1260	2005-04-13	5014 ⁸	1997-11-28
1360	1965-12-09	X5015	1968-08-19
1165	1966-07-12	X5020	1977-08-04
1170	1997-02-03	X5220	1962-01-11
1270	1966-07-12	5025 ⁸	2005-06-02
1075 ⁸	1988-05-23	5034	1973-08-09
1175	1997-02-03	5039	1975-11-24
1180	1997-02-03	5250	2005-04-13
1187	1958-09-10	5050B	1996-03-15
(Superseded by 1188)		5152	1963-06-03
1095	1988-05-23	X5452	1971-06-17
1197	1958-09-10	5552	1997-02-03
(Superseded by 1199)		5652	2005-04-13
1099 ⁸	1965-12-09	5053	1968-08-19
2003 ⁸	1997-11-28	X5153	1967-04-26
X2316 ⁸	1965-03-31	5854	1996-10-02
X2119	1966-03-07	X5055	1956-10-19
2020	1974-11-01	5155	1971-07-14
2225	1966-07-12	5056A ¹⁴	1992-02-21
2048 ⁸	2005-04-13	5357	2005-04-13
2053	1983-11-09	5757	1963-05-14
2080 ⁸	2005-06-02	5857	1963-06-10
X2096 ⁸	2000-12-08	5957	1963-06-03
3303	1997-02-03	X5080 ⁸	1963-10-22
3205	1965-11-05	5280	1996-10-02
3006 ⁸	2005-04-13	X5084	1965-04-27
3008	1996-03-15	X5184	1965-04-27
3018	1998-01-16	X5085	1977-08-04
4001	1965-11-05	X5090	1977-07-18
4101	1965-11-05	5091 ⁸	2000-04-26
4002	1981-05-29	6001 ⁸	1955-07-08
X4003	1975-01-27	6301	2005-04-13
X4005	1977-06-01	6004 ⁸	2005-04-13
4011 ⁸	2005-06-02	6007 ⁸	2005-04-13
4012	1965-11-05	6017 ⁸	1997-02-03
4543	1997-02-03	X6030 ⁸	2001-01-25

See footnotes on page 14.

PREVIOUSLY ASSIGNED BUT PRESENTLY INACTIVE ALLOY DESIGNATIONS¹² (continued)

<u>DESIGNATION</u>	<u>DATE RECLASSIFIED</u>	<u>DESIGNATION</u>	<u>DATE RECLASSIFIED</u>
6051 ⁸	1963-12-12	8177	1997-02-03
X6251	1965-03-31	8280 ⁸	2005-04-13
6253	2002-05-22	X8380	1964-12-18
X6161	1963-06-03	X8480	1964-12-18
6062 ⁸	1964-09-04	8081 ⁸	1997-02-03
X6163	1964-12-18	X8090A	1989-01-13
6263	1955-07-12	X8092	1991-10-24
6363	1964-12-18	X8192	1991-10-24
6563	1967-04-26		
6663	1967-04-26		
6863	1996-10-02		
X6064 ¹⁸	1965-03-31		
X6067	1974-11-01		
6071	1966-07-12		
6090	1992-06-01		
7001 ⁸	1997-02-03		
7002	1966-07-12		
7104	1988-05-23		
X7006	1963-09-10		
X7106 ⁸	1980-04-16		
X7007	1972-02-16		
7008 ⁸	2005-04-13		
7109	1996-03-15		
7011 ⁸	1999-06-17		
7013 ⁸	1997-02-03		
7027	1996-06-26		
X7038	1967-04-26		
7139	1966-09-09		
7146	1997-02-03		
7051	1996-10-02		
7070	1988-05-23		
X7272	1965-03-31		
7472	1997-02-03		
X7275	1963-06-03		
7277 ⁸	2000-11-06		
7079	1989-03-22		
7179	1989-06-06		
X7279	1963-06-03		
X7080	1971-01-04		
7091 ⁸	1997-02-03		
8001 ⁸	1997-02-03		
X8002	1964-12-18		
X8003	1964-12-18		
8004	1996-10-02		
8009 ⁸	2000-06-19		
8212	1967-04-26		
8013	1971-11-01		
8020 ⁸	2005-04-13		
8076 ⁸	2005-04-13		
8276	1996-10-02		

REGISTERED CHEMICAL COMPOSITION LIMITS OF INACTIVE ORIGINAL ALLOYS^{1,2}

Registered International Designation		Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Ag	B	Bi	Ga	Li	Pb	Sn	V	Zr	OTHERS ¹³		Al Minimum	
No. ¹⁷	By																			Each	Total ³		
1030	USA	0.35	0.6	0.10	0.05	0.05	...	...	0.10	0.03	...	...	...	...	...	...	...	0.05	...	...	0.03	...	99.30 ⁴
1035	USA	0.35	0.6	0.10	0.05	0.05	...	...	0.10	0.03	...	...	...	...	...	...	...	0.05	...	...	0.03	...	99.35 ⁴
1040	USA	0.30	0.50	0.10	0.05	0.05	...	...	0.10	0.03	...	...	...	...	...	...	...	0.05	...	...	0.03	...	99.40 ⁴
1045	USA	0.30	0.45	0.10	0.05	0.05	...	...	0.05	0.03	...	...	...	...	...	...	...	0.05	...	...	0.03	...	99.45 ⁴
1075	USA	0.20	0.20	0.04	0.03	0.03	...	...	0.04	0.03	...	...	...	...	...	...	...	0.05	...	...	0.03	...	99.75 ⁴
1099	USA	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	99.99 ⁵
2003	EAA	0.30	0.30	4.0-5.0	0.30-0.8	0.02	...	...	0.10	0.15	...	...	...	...	...	...	...	0.05-0.20	0.10-0.25	0.05-0.20 Cd	0.05	0.15	Rem.
X2316	USA	0.50-1.5	1.2	3.5-5.0	0.50-1.0	0.30-0.6	...	0.6	0.8	...	...	...	...	...	...	0.30	...	...	...	...	0.15	0.30	Rem.
2048	USA	0.15	0.20	2.8-3.8	0.20-0.6	1.2-1.8	...	...	0.25	0.10	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
2080	USA	0.10	0.20	3.3-4.1	0.25	1.5-2.2	...	...	0.10	...	...	...	...	...	...	...	...	...	0.08-0.25	0.005 Be, 0.05-0.50 O	0.05	0.15	Rem.
X2096	USA	0.12	0.15	2.3-3.0	0.25	0.25-0.8	...	...	0.25	0.10	0.25-0.6	...	...	...	1.3-1.9	...	...	...	0.04-0.18	...	0.05	0.15	Rem.
3006	USA	0.50	0.7	0.10-0.30	0.50-0.8	0.30-0.6	0.20	...	0.15-0.40	0.10	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
4011	USA	6.5-7.5	0.20	0.20	0.10	0.45-0.7	...	...	0.10	0.04-0.20	...	...	...	...	...	...	...	...	...	0.04-0.07 Be	0.05	0.15	Rem.
4048	USA	9.3-10.7	0.8	3.3-4.7	0.07	0.07	0.07	...	9.3-10.7	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
5014	EAA	0.40	0.40	0.20	0.20-0.9	4.0-5.5	0.20	...	0.7-1.5	0.20	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
5025	USA	0.25	0.25	0.10	0.20	4.5-6.0	0.20	...	0.25	0.05-0.20	...	...	...	...	...	...	...	...	0.10-0.25	0.0008 Be, 0.05-0.55 Sc	0.05	0.15	Rem.
X5080	USA	...	...	0.10	0.20-0.7	3.5-4.5	0.05-0.20	...	1.7-2.8	0.20	...	...	...	...	...	...	...	...	...	0.35 Si + Fe, 1.0-1.3 C, 0.20-0.7 O	0.05	0.15	Rem.
5091	USA	0.20	0.30	...	...	3.7-4.2	...	...	...	...	...	...	...	...	1.2-1.4	...	...	...	...	...	0.05	0.15	Rem.
6001	USA	0.35-0.7	0.6	0.10	0.03	0.35-0.7	0.03	...	0.10	...	...	...	...	...	...	...	...	...	...	...	0.03	0.10	Rem.
6004	USA	0.30-0.6	0.10-0.30	0.10	0.20-0.6	0.40-0.7	...	...	0.05	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
6007	USA	0.9-1.4	0.7	0.20	0.05-0.25	0.6-0.9	0.05-0.25	...	0.25	0.15	...	...	...	...	...	...	...	...	0.05-0.20	...	0.05	0.15	Rem.
6017	USA	0.55-0.7	0.15-0.30	0.05-0.20	0.10	0.45-0.6	0.10	...	0.05	0.05	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
X6030	USA	0.40-0.8	0.7	0.15-0.40	0.15	0.8-1.2	0.04-0.35	...	0.25	0.15	...	...	...	...	...	...	0.05-0.50	...	...	0.05-0.50 In	0.05	0.15	Rem.
6051	USA	0.6-1.2	1.0	0.15	0.20	0.45-0.8	...	...	0.25	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
6062	USA	0.40-0.8	0.7	0.15-0.40	0.15	0.8-1.2	0.04-0.14	...	0.25	0.15	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
7001	USA	0.35	0.40	1.6-2.6	0.20	2.6-3.4	0.18-0.35	...	6.8-8.0	0.20	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
X7106	USA	0.20	0.30	0.10	0.10-0.40	2.0-2.8	0.06-0.20	...	4.0-4.8	0.01-0.06	...	...	...	...	...	...	...	...	0.10-0.20	...	0.05	0.15	Rem.
7008	USA	0.10	0.10	0.05	0.05	0.7-1.4	0.12-0.25	...	4.5-5.5	0.05	...	...	...	...	...	...	...	...	...	...	0.05	0.10	Rem.
7011	USA	0.15	0.20	0.05	0.10-0.30	1.0-1.6	0.05-0.20	...	4.0-5.5	0.05	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
7013	USA	0.6	0.7	0.10	1.0-1.5	...	...	...	1.5-2.0	...	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
7277	USA	0.50	0.7	0.8-1.7	...	1.7-2.3	0.18-0.35	...	3.7-4.3	0.10	...	...	...	...	...	...	...	...	...	...	0.05	0.15	Rem.
7091	USA	0.12	0.15	1.1-1.8	...	2.0-3.0	...	...	5.8-7.1	...	...	...	...	...	...	...	...	...	...	0.20-0.6 Co, 0.20-0.50 O	0.05	0.15	Rem.
8001	USA	0.17	0.45-0.7	0.15	...	...	...	0.9-1.3	0.05	...	...	0.001	...	...	0.008	...	...	...	...	0.003 Cd, 0.001 Co	0.05	0.15	Rem.
8009	USA	1.7-1.9	8.4-8.9	...	0.10	...	0.10	...	0.25	0.10	...	...	...	...	...	...	...	1.1-1.5	...	0.30 O	0.05	0.15	Rem.
8020	USA	0.10	0.10	0.005	0.005	...	...	...	0.005	...	...	...	0.10-0.50	...	...	...	0.10-0.25	0.05	...	...	0.03	0.10	Rem.
8076	USA	0.10	0.6-0.9	0.04	...	0.08-0.22	...	...	0.05	...	...	0.04	...	...	...	...	...	...	...	...	0.03	0.10	Rem.
8280	USA	1.0-2.0	0.7	0.7-1.3	0.10	...	...	0.20-0.7	0.05	0.10	...	...	...	...	...	...	5.5-7.0	...	...	...	0.05	0.15	Rem.
8081	USA	0.7	0.7	0.7-1.3	0.10	...	...	...	0.05	0.10	...	...	...	...	...	...	18.0-22.0	...	...	...	0.05	0.15	Rem.

See footnotes on page 14.

CROSS REFERENCE OF INTERNATIONAL DESIGNATIONS

DECLARATION OF ACCORD (DOA) TO ISO*

DOA DESIGNATION	FORMER ISO DESIGNATION	DOA DESIGNATION	FORMER ISO DESIGNATION	DOA DESIGNATION	FORMER ISO DESIGNATION
1050A	Al99.5	3105	AlMn0.5Mg0.5	6101	E-AlMgSi
1350	E-Al99.5	4043	AlSi5	6101A	E-AlMgSi(A)
1060	Al99.6	4043A	AlSi5(A)	6005	AlSiMg
1070A	Al99.7	4047	AlSi12	6005A	AlSiMg(A)
1370	E-Al99.7	4047A	AlSi12(A)	6351	AlSi1Mg0.5Mn
1080A	Al99.8(A)	5005	AlMg1(B)	6060	AlMgSi
1100	Al99.0Cu	5019	AlMg5	6061	AlMg1SiCu
1200	Al99.0	5050	AlMg1.5(C)	6262	AlMg1SiPb
2011	AlCu6BiPb	5251	AlMg2	6063	AlMg0.7Si
2014	AlCu4SiMg	5052	AlMg2.5	6063A	AlMg0.7Si(A)
2014A	AlCu4SiMg(A)	5154	AlMg3.5	6181	AlSi1Mg0.8
2017	AlCu4MgSi	5154A	AlMg3.5(A)	6082	AlSi1MgMn
2017A	AlCu4MgSi(A)	5454	AlMg3Mn	7005	AlZn4.5Mg1.5Mn
2117	AlCu2.5Mg	5554	AlMg3Mn(A)	7010	AlZn6MgCu
2219	AlCu6Mn	5754	AlMg3	7020	AlZn4.5Mg1
2024	AlCu4Mg1	5056	AlMg5Cr	7049A	AlZn8MgCu
2030	AlCu4PbMg	5356	AlMg5Cr(A)	7050	AlZn6CuMgZr
3003	AlMn1Cu	5456	AlMg5Mn1	7075	AlZn5.5MgCu
3103	AlMn1	5083	AlMg4.5Mn0.7	7475	AlZn5.5MgCu(A)
3004	AlMn1Mg1	5183	AlMg4.5Mn0.7(A)	7178	AlZn7MgCu
3005	AlMn1Mg0.5	5086	AlMg4		

*Source: ISO 209-1.

NOTE: This table is included for informational purposes only. ISO 209-1 has been withdrawn and replaced by ISO 209 which references the Teal Sheets as the normative reference and the source for international alloy designations.

RECOMMENDATION
 INTERNATIONAL DESIGNATION SYSTEM
 FOR WROUGHT ALUMINUM AND WROUGHT ALUMINUM ALLOYS

This Recommendation is based on the numerical designation system for wrought aluminum and wrought aluminum alloys which was adopted in the U.S.A. in 1954, and became its national standard in 1957. This Recommendation was officially adopted by the International Signatories of the Declaration of Accord on December 15, 1970.

Designations in accordance with this Recommendation may be used by any country, but there is no obligation to use them. For use, see Appendixes A, B, and C.

A numerical 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 Signatories to the Declaration of Accord on an International Alloy Designation System for Wrought Aluminum and Wrought Aluminum Alloys.

1. Scope

This recommendation describes a four-digit numerical system for designating wrought aluminum and wrought aluminum alloys.

2. Alloy Groups

The first of the four digits in the designation indicates the alloy group as follows:

Aluminum, 99.00 percent and greater	1xxx
Aluminum alloys grouped by major alloying elements ^{1,2,3}	
Copper	2xxx
Manganese	3xxx
Silicon	4xxx
Magnesium	5xxx
Magnesium and Silicon	6xxx
Zinc	7xxx
Other elements	8xxx
Unused series	9xxx

3. 1xxx Group

The designation assigned shall be in the 1xxx group whenever the minimum aluminum content is specified as 99.00 percent and greater. In the 1xxx group, the last two of the four digits in the designation indicate the minimum aluminum percentage⁴. These digits are the same as the two digits to the right of the decimal point in minimum aluminum percentage when it is expressed to the nearest 0.01 percent. The second digit in the alloy designation indicates alloy modifications in impurity limits or alloying elements. If the second digit in the designation is zero, it indicates unalloyed aluminum having natural impurity limits; integers 1 through 9, which are assigned consecutively as needed, indicate special control of one or more individual impurities or alloying elements.

4. 2xxx-8xxx Groups

The alloy designation in the 2xxx through 8xxx groups is determined by the alloying element (Mg₂Si for 6xxx alloys) present in the greatest mean percentage. If the greatest mean percentage is common to more than one alloying element, choice of group will be in order of group sequence Cu, Mn, Si, Mg, Mg₂Si, Zn or Others. In the 2xxx through 8xxx alloy groups the last 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 second digit in the alloy designation indicates the original alloy⁵ and alloy modifications; integers 1 through 9, which are assigned consecutively, indicate alloy modifications.

5. Modifications

A modification of the original alloy⁵ 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:

<u>Arithmetic Mean of Limits for Alloying Elements in Original Alloy</u>	<u>Maximum Change</u>
Up through 1.0 percent	0.15
Over 1.0 through 2.0 percent	0.20
Over 2.0 through 3.0 percent	0.25
Over 3.0 through 4.0 percent	0.30
Over 4.0 through 5.0 percent	0.35
Over 5.0 through 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 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) Maximum iron or silicon limits of 0.12 percent and 0.10 percent, or less, respectively, reflecting high purity base metal.

An alloy should not be registered as a modification if it meets the requirements for a national variation.

6. National Variations

National variations of wrought aluminum and wrought aluminum alloys registered by another country in accordance with this Recommendation are identified by a serial letter after the numerical designation. The serial letters are assigned in alphabetical sequence starting with A for the first national variation registered, but omitting I, O, and Q.

A national variation has composition limits which are similar but not identical to a modification or an original alloy registered by another country, with differences such as:

- (a) Differences in arithmetic mean of limits for an individual alloying element or combination of elements expressed as an alloying element, or both, not exceeding the following amounts:

<u>Arithmetic Mean of Limits for Alloying Elements in Original Alloy or Modification</u>	<u>Maximum Difference</u>
Up through 1.0 percent	0.15
Over 1.0 through 2.0 percent	0.20
Over 2.0 through 3.0 percent	0.25
Over 3.0 through 4.0 percent	0.30
Over 4.0 through 5.0 percent	0.35
Over 5.0 through 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 combination is compared to the sum of the mean values of the same individual elements, or any combination thereof, in another alloy composition.

- (b) Substitution of one alloying element for another element serving the same purpose.
- (c) Different limits of impurities except for low iron. Iron maximum of 0.12 percent or less, reflecting high purity base metal, should be considered an alloy modification. See 5(f).
- (d) Different limits on grain refining elements.
- (e) Inclusion of a minimum limit for iron or silicon, or both.

An alloy meeting these requirements should not be registered as a new alloy or alloy modification.

See footnotes on page 26

RECOMMENDATION - FOOTNOTES

1. For codification purposes an alloying element is any element which is intentionally added for any purpose other than grain refinement and for which minimum and maximum limits are specified.

2. 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	0.0X
Unalloyed aluminum made by a refining process	0.0XX
Alloys and unalloyed aluminum not made by a refining process	0.0X
0.10 through 0.55 percent	0.XX
(It is customary to express limits of 0.30 through 0.55 percent as 0.X0 or 0.X5.)	
Over 0.55 percent	0.X; X.X; etc.
(except that combined Si+ Fe limits for 1xxx designations must be expressed as 0.XX or 1.XX)	

3. Standard limits for alloying elements and impurities are expressed in the following sequence: Silicon; Iron; Copper; Manganese; Magnesium; Chromium; Nickel; Zinc; Titanium (See Note 1); Other (See Note 2) Elements, Each; Other Elements, Total; Aluminum (See Note 3).

Note 1—Additional specified elements having limits are inserted in alphabetical order by their chemical symbols between Titanium and Other Elements, Each, or are specified in footnotes.

Note 2—"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.

Note 3—Aluminum is specified as minimum for unalloyed aluminum, and as a remainder for aluminum alloys.

4. The aluminum content for unalloyed aluminum made by a refining process is the difference between 100.00 percent and the sum of all other metallic elements together with silicon present in amounts of 0.0010 percent or more, each expressed to the third decimal before determining the sum, which is rounded to the second decimal before subtracting; for unalloyed aluminum not made by a refining process it 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 unalloyed aluminum made by a refining process, when the specified maximum limit is 0.0XX, an observed value or a calculated value greater than 0.0005 but less than 0.0010 percent is rounded off and shown as "less than 0.001". 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 percent is rounded off and shown as "less than 0.01".

5. The term "original" alloy as used in the Registration Record is defined based on the following guidelines:

- (a) Only one alloy in any alloy family (having the same first, third and fourth digits) is considered the "original" alloy, and it is always used as the basis for registration of a modification.
- (b) All active and inactive alloys whose second digit is "0" are considered the "original" alloys for each specific alloy family.
- (c) For those alloy families with no second digit "0" registered, the alloy with the lowest second digit is considered the "original" alloy whether the alloy is active or inactive and a note (8)* is added following the designation. No registration shall be granted for a designation with a lower second digit for these alloy families.
- (d) No designation changes are made to any and all of the currently registered original alloys whether active or inactive.

* See footnote 8 on page 14.

APPENDIX A

USE OF DESIGNATIONS

- A.1 All countries using designations in accordance with this Recommendation should use the same numerical designation for those wrought aluminum or wrought aluminum alloys having identical chemical composition limits. They should register the limits and the designations should be used by all other countries using these designations.
- A.2 A numerical designation should be used without a suffix letter to indicate the initial chemical composition limits registered for that numerical designation.
- A.3 A numerical designation should be used with a serial suffix letter to indicate chemical composition limits which are different from but closely similar to the initial chemical composition limits registered for that numerical designation by another country. Such designations shall be considered to be national variations.
- A.4 A new numerical designation should be assigned only for wrought aluminum or a wrought aluminum alloy having chemical composition limits significantly different from other wrought aluminum or wrought aluminum alloys for which designations have previously been assigned.
- A.5 Designations should be allotted in the following order of precedence:
 - A.5.1 The registered designation should be used if composition limits are identical to those previously registered by another country.
 - A.5.2 A suffix letter should be used with the previously registered numerical designation for an alloy if composition limits meet the requirements for a national variation.
 - A.5.3 The numerical designation for an alloy modification should be assigned if the composition limits meet the requirements for an alloy modification unless the limits also meet the requirements for a national variation.
 - A.5.4 A new numerical designation should be assigned only for a significantly different alloy composition exceeding the allowable limits for a national variation and modification from any original alloy and not meeting the requirements A.5.2 or A.5.3. In this case a number must be assigned which has not been used and which will not be assigned by any other country using numerical designations conforming to this Recommendation.

APPENDIX B

DEACTIVATION OF REGISTERED ALLOYS

- B.1 All countries using designations in accordance with this Recommendation should review, at least once in every five years, the alloys registered by them to see if these alloys are still commercially active. If not, alloys should be proposed for deactivation. Any inactive alloy can still be reactivated when such need arises.

APPENDIX C

GENERAL GUIDELINES FOR DETERMINING COMPLIANCE WITH "SALE OF ALLOY" AND "COMMERCIAL QUANTITY" FOR PURPOSES OF REGISTERING WROUGHT ALUMINUM AND WROUGHT ALUMINUM ALLOYS **(See Declaration of Accord, Item 1)**

- C.1 Sale of Alloy

Sale of an alloy shall have been made to external users/customers (i.e., internal use and/or transfer of an alloy within a company does not meet the stated criteria).
- C.2 Commercial Quantity
 - C.2.1 The alloy has undergone bona fide mill production and is NOT a "laboratory" scale volume used for evaluations or experimental purposes.
 - C.2.2 The alloy is cast and fabricated in standard production facilities and is NOT a one-time production.
 - C.2.3 There is an expected and ongoing commercial demand and/or need for the alloy.
 - C.2.4 The alloy must be purchased and sold in a standard business context which indicates that the alloy is actually "sold" and not "given away" for uses such as promotional evaluations.

DECLARATION OF ACCORD ON AN INTERNATIONAL ALLOY DESIGNATION SYSTEM FOR WROUGHT ALUMINUM AND WROUGHT ALUMINUM ALLOYS

It is agreed by the parties hereto that the following rules will apply in assigning alloy designations in accordance with the recommendation dated December 15, 1970 and revised March 2008 for an International Designation System for Wrought Aluminum and Wrought Aluminum Alloys:

1. To be eligible for registration, an aluminum or aluminum alloy shall be offered for sale currently and shall have been supplied in the previous twelve months, in both cases in commercial quantities. The complete composition limits must be registered and the former designation if any, should be shown.
2. All requests for international registration must be submitted to The Aluminum Association by a signatory of the Declaration of Accord. The signatory, in carrying out this function, will endeavor to restrict registrations to those required for international, regional or national standards or standards of equivalent importance in the commercial field. In view of its historic usage of these designations, more latitude is ceded to The Aluminum Association in this regard.
3. It will be the duty of each signatory to inform all other signatories of proposed composition limits or proposed changes in limits. Number assignments will be made by The Aluminum Association when negotiations on composition limits are complete among all signatories to the Declaration of Accord.
4. No designation or chemical composition limits will become final until at least 60 days after announcement to all participating organizations. During this 60-day period, all questions and objections regarding the designation or chemical composition limits must be submitted; or an extension of the period must be requested. Technical objections must be substantially resolved prior to final registration.
5. Only the organization that registered the designation may make a change in chemical composition limits for the alloy, and when a change is proposed, all participating organizations must be notified and given 60 days to comment.
6. After the 60-day period the registering organization shall confirm the registered designation and the composition limits to each participating organization.
7. This Declaration of Accord may be executed in several counterparts and all so executed shall constitute one agreement.

Organization

Representative

Address

Date

Signature

DECLARATION D'ACCORD SUR UN SYSTEME DE DESIGNATION INTERNATIONALE POUR L'ALUMINIUM CORROYE ET SES ALLIAGES

Il est convenu entre les participants que les règles suivantes seront appliquées dans la désignation des alliages, en concordance avec la recommandation du 15 décembre 1970, révisée en mars 2008, pour un système de désignation internationale pour l'aluminium et ses alliages corroyés:

1. Pour être admis à l'enregistrement, un aluminium ou alliage d'aluminium doit être alors offert en vente et avoir été fourni au cours des douze derniers mois, en quantités commerciales dans les deux cas. Les limites de composition chimique et la designation, s'il en existe une, doivent être enregistrées.
2. Toute demande d'enregistrement international doit être soumise à l'Aluminum Association par un signataire de la Déclaration d'Accord. Ledit signataire, dans l'exercice de cette fonction, s'appliquera à limiter les enregistrements à ceux requis pour les normes internationales, régionales ou nationales, ou autres normes d'importance équivalente dans le secteur commercial. Compte tenu de l'utilisation historique de ces désignations, l'Aluminum Association dispose à cet égard d'une assez grande latitude.
3. Il appartiendra à chaque signataire d'informer les organisations correspondantes de tous les pays participants des limites de composition proposées ou des changements proposés de ces limites. Les attributions de numéros seront effectuées par l'Aluminum Association dès l'achèvement des négociations sur les limites de composition par tous les signataires de la Déclaration d'Accord.
4. Aucune désignation ou limites de composition chimique ne deviendra définitive avant moins 60 jours à compter de la date l'information donnée aux organisations participantes. Durant ces 60 jours, toutes questions et objections concernant cette désignation ou limites de composition chimique devront être soumise; ou une extension de la période devra demandée. Toutes objections techniques devront être résolues de façon substantielle avant l'enregistrement final.
5. Seule l'organisation qui a enregistrée la designation peut faire un changement dans les limites de composition chimique de l'alliage; lorsqu'un changement est proposé, toutes les organisations participantes doivent être avisées et doivent présenter leurs remarques sous 60 jours.
6. Après la période de 60 jours l'organisation enregistrante confirmera la désignation enregistrée et les limites de composition à chaque organisation participante.
7. Cette Déclaration d'Accord pourra être reproduite en plusieurs exemplaires tout en constituant un seul agrément.

Organization

Representative

Address

Date

Signature

OTHER ALUMINUM ASSOCIATION REGISTRATION RECORDS AND REFERENCES

- **REGISTRATION RECORD OF INTERNATIONAL DESIGNATIONS AND CHEMICAL COMPOSITION LIMITS FOR UNALLOYED ALUMINUM** (Gold Sheets).
- **REGISTRATION RECORD OF ALUMINUM ASSOCIATION ALLOY DESIGNATIONS AND CHEMICAL COMPOSITION LIMITS FOR ALUMINUM ALLOYS IN THE FORM OF CASTINGS AND INGOT** (Pink Sheets).
- **REGISTRATION RECORD OF ALUMINUM ASSOCIATION INTERNATIONAL DESIGNATIONS AND CHEMICAL COMPOSITION LIMITS FOR ALUMINUM HARDENERS** (Gray Sheets).
- **COMPONENTS OF CLAD ALUMINUM ALLOY PRODUCTS** (Lt. Green Sheets).
- **TEMPERS FOR ALUMINUM AND ALUMINUM ALLOY PRODUCTS** (Yellow Sheets).
- **TEMPERS FOR ALUMINUM AND ALUMINUM ALLOY PRODUCTS—METRIC EDITION** (Tan Sheets).
- **ALUMINUM STANDARDS AND DATA**
A reference book containing data on chemical compositions, mechanical and physical properties, tolerances and other information on aluminum mill products in general use, in US customary units.
- **ALUMINUM STANDARDS AND DATA Metric SI**
A reference book containing data on chemical compositions, mechanical and physical properties, tolerances and other information on aluminum mill products in general use, in metric units.

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