
REGISTRATION RECORD SERIES
GOLD SHEETS

International Designations and Chemical Composition Limits for Unalloyed Aluminum

(North American and International Registration Record)



1400 Crystal Drive, Arlington, VA 22202

www.aluminum.org

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FOREWORD

Listed herein are designations and chemical composition limits for unalloyed aluminum registered with The Aluminum Association. The designations are assigned in accordance with the *Recommendation—International Designation System for Unalloyed Aluminum*, which is printed on pages 10 through 12. Additions may be made in accordance with the rules outlined in the *Declaration of Accord* printed on page 13.

Some of the registered designations 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.

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

SIGNATORIES TO THE DECLARATION OF ACCORD

The following organizations are signatories to the Declaration of Accord on an International Designation System for Unalloyed Aluminum which is printed on page 13 of this publication.

The Aluminum Association Inc. 1400 Crystal Dr., Suite 430, Arlington, VA 22202 <u>USA</u> www.aluminum.org	USA	China Nonferrous Metals Techno-Economic Research Institute No. 31 Suzhou Street, Haidian District Beijing, 100080 <u>PEOPLES REPUBLIC OF CHINA</u> www.cnsmq.com	CHINA
Aluminium Association of Canada 1010 Sherbrooke Street West, Suite 1600 Montreal, Quebec H3A 2R7 <u>CANADA</u> www.aac.aluminium.qc.ca	CANADA	European Aluminium Association Avenue de Broqueville, 12 B-1150 Brussels <u>BELGIUM</u> www.alueurope.eu	EAA
Aluminium Federation Limited 47 Birmingham Road, West Bromwich, West Midlands, B70 6PY <u>UNITED KINGDOM</u> www.alfed.org.uk	UK	Gesamtverband Der Aluminium- industrie e.V. (GDA) Am Bonnheshof 5 D-40474 Dusseldorf <u>GERMANY</u> www.aluinfo.de	GERMANY
Aluminium Federation of South Africa P. O. Box 423 Isando, 1600 <u>REPUBLIC OF SOUTH AFRICA</u> www.afsa.org.za	SOUTH AFRICA	Japan Aluminium Association Tsukamoto-Sozan Building 2-15, Ginza 4-Chome Chuo-ku, Tokyo, 104-0061 <u>JAPAN</u> www.aluminum.or.jp	JAPAN
Aluminium-Verband Schweiz Hallenstrasse 15 Postfach 71 CH-8024 Zurich <u>SWITZERLAND</u> www.alu.ch	SWITZERLAND	Russian National Aluminium-Magnesium Institute (VAMI) 86, Sredniy prospekt Sankt-Petersburg, 199106 <u>RUSSIAN FEDERATION</u> www.vami.ru	RUSSIA
Austrian Non-Ferrous Metals Federation Wiedner Hauptstraße 63 1045 Vienna <u>AUSTRIA</u> www.nemetall.at	AUSTRIA	ALRO S.A. 116 Pitesti Street Slatina, Olt County 230048 <u>ROMANIA</u> www.alro.ro	ROMANIA
Australian Aluminium Council Limited Level 1, Dickson Square P. O. Box 63 Dickson, Canberra ACT 2602 <u>AUSTRALIA</u> www.aluminium.org.au	AUSTRALIA	VNMI – Association for the Dutch Metallurgic Industry P.O. Box 190 2700 AD Zoetermeer <u>NETHERLANDS</u> www.vnmi.nl	NETHERLANDS
Centro Nacional de Investigaciones Metalurgicas (CENIM) Avda. Gregorio del Amo, 8 Ciudad Universitaria 28040 Madrid <u>SPAIN</u> www.cenim.csic.es	SPAIN		

CHEMICAL COMPOSITION LIMITS^{1,2}

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

Registered										Others ⁵		Aluminum ⁴
Designation	Date	By	Si	Fe	Zn	Ga	V	Each	Total ³			
P0202A	1993-03-16	USA	0.02	0.02	0.02	0.02	0.01	⁶	0.01	0.02	Remainder	
P0303A	1982-03-29	USA	0.03	0.03	0.03	0.03	0.01	⁶	0.01	0.02	Remainder	
P0303B	1993-03-02	USA	0.03	0.03	0.03	0.03	0.02	⁶	0.01	0.02	Remainder	
P0304A	1995-09-12	USA	0.03	0.04	0.03	0.03	0.01	⁶	0.01	0.02	Remainder	
P0305A	1995-09-12	USA	0.03	0.05	0.03	0.03	0.01	⁶	0.01	0.02	Remainder	
P0404A	1982-03-29	USA	0.04	0.04	0.03	0.03	0.01	⁶	0.01	0.03	Remainder	
P0404B	1993-03-02	USA	0.04	0.04	0.03	0.03	0.02	⁶	0.01	0.03	Remainder	
P0405A	1982-03-29	USA	0.04	0.05	0.03	0.03	0.02	⁶	0.02	0.03	Remainder	
P0406A	1982-03-29	USA	0.04	0.06	0.03	0.03	0.02	⁶	0.02	0.04	Remainder	
P0506A	1982-03-29	USA	0.05	0.06	0.03	0.03	0.02	⁶	0.02	0.05	Remainder	
P0506B	1982-03-29	USA	0.05	0.06	....	....	....	⁶	0.05	0.10	Remainder
P0507A	1982-03-29	USA	0.05	0.07	0.03	0.03	0.02	⁶	0.02	0.05	Remainder	
P0507B	1982-03-29	USA	0.05	0.07	....	....	....	⁶	0.05	0.10	Remainder
P0608A	2003-06-16	AUSTRALIA	0.06	0.08	0.03	0.03	0.02	⁶	0.02	0.05	Remainder	
P0610A	1982-03-29	USA	0.06	0.10	0.03	0.04	0.02	⁶	0.02	0.05	Remainder	
P0610B	1982-03-29	USA	0.06	0.10	....	....	....	⁶	0.05	0.10	Remainder
P0610C	1992-08-19	USA	0.06	0.10	....	....	....	⁶	0.10	0.20	Remainder
P1015A	1982-03-29	USA	0.10	0.15	0.03	0.04	0.03	⁶	0.03	0.10	Remainder	
P1015B	1982-03-29	USA	0.10	0.15	....	....	....	⁶	0.05	0.10	Remainder
P1015C	1992-08-19	USA	0.10	0.15	....	....	....	⁶	0.10	0.20	Remainder
P1015D	1992-08-19	USA	0.10	0.15	....	....	....	⁶	0.15	0.30	Remainder
P1020A	1982-03-29	USA	0.10	0.20	0.03	0.04	0.03	⁶	0.03	0.10	Remainder	
P1020B	1982-03-29	USA	0.10	0.20	....	....	....	⁶	0.05	0.10	Remainder
P1020C	1992-08-19	USA	0.10	0.20	....	....	....	⁶	0.10	0.20	Remainder
P1020D	1992-08-19	USA	0.10	0.20	....	....	....	⁶	0.15	0.30	Remainder
P1020G	1999-03-17	SWITZERLAND	0.10	0.20	0.03	0.04	0.03	^{6, 7}	0.03	0.10	Remainder	
P1520A	1982-03-29	USA	0.15	0.20	0.03	0.04	0.03	⁶	0.03	0.10	Remainder	
P1520B	1982-03-29	USA	0.15	0.20	....	....	....	⁶	0.05	0.10	Remainder
P1520C	1992-08-19	USA	0.15	0.20	....	....	....	⁶	0.10	0.20	Remainder
P1520D	1992-08-19	USA	0.15	0.20	....	....	....	⁶	0.15	0.30	Remainder
P1535A	1982-03-29	USA	0.15	0.35	0.03	0.04	0.03	⁶	0.03	0.10	Remainder	
P1535B	1982-03-29	USA	0.15	0.35	....	....	....	⁶	0.05	0.10	Remainder
P1535C	1992-08-19	USA	0.15	0.35	....	....	....	⁶	0.10	0.20	Remainder
P1535D	1992-08-19	USA	0.15	0.35	....	....	....	⁶	0.15	0.30	Remainder

CHEMICAL COMPOSITION LIMITS^{1,2}

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

Registered			Others ⁵								
Designation	Date	By	Si	Fe	Zn	Ga	V		Each	Total ³	Aluminum ⁴
See Footnotes on page 8											
P2055A	1982-03-29	USA	0.20	0.55	0.03	0.04	0.04	⁶	0.05	0.15	Remainder
P2055C	1992-08-19	USA	0.20	0.55	....	....	....	⁶	0.10	0.20	Remainder
P2055D	1992-08-19	USA	0.20	0.55	....	....	....	⁶	0.15	0.30	Remainder
P2070A	1982-03-29	USA	0.20	0.70	0.03	0.04	0.04	⁶	0.05	0.15	Remainder
P2070B	1992-08-19	USA	0.20	0.70	....	....	....	⁶	0.15	0.30	Remainder
P2585A	1982-03-29	USA	0.25	0.85	0.03	0.04	0.04	⁶	0.05	0.15	Remainder
P2585B	1992-08-19	USA	0.25	0.85	....	....	....	⁶	0.15	0.30	Remainder

See footnotes on page 8

FOOTNOTES

1. Composition in percent maximum unless shown as a minimum.

Standard limits for 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
0.10 percent and over	0.XX

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

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

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

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

3. The sum of those "Others" metallic elements 0.010 or more each, expressed to the second decimal before determining the sum.
4. Aluminum is specified as a remainder for all the unalloyed aluminum designations. 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 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. "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.
6. Cd + Hg^a + Pb 0.0095 percent max^b; As^a 0.009 percent max.
 - a. Surveillance testing for As and Hg shall be performed at a frequency defined by the supplier's quality plan. For North America, surveillance testing shall be performed quarterly for each metal source to indicate compliance.
 - b. CONEG model legislation combined limit of less than 100 ppm includes hexavalent chromium; however, since Cr⁺⁶ is not present in primary metal or alloyed ingot, it is omitted from this algorithm.
7. Li 0.0001 max; Mg 0.003 max; Na 0.0010 max.

+ Designations registered since previous issue.

INACTIVE REGISTRATIONS

REGISTERED DESIGNATION	DATE RECLASSIFIED
P1020E	1997-10-13
P1535E	1997-10-13
P2055E	1997-10-13
P2070E	1997-10-13
P2585E	1997-10-13

The Aluminum Association, Inc.
1400 Crystal Drive
Arlington, VA 22202
U.S.A

RECOMMENDATION
INTERNATIONAL DESIGNATION SYSTEM
FOR UNALLOYED ALUMINUM

January 5, 1999
Revised June, 2016

This Recommendation is based on the designation system for unalloyed aluminum which was adopted in the U.S.A. in the early 1970's, and which became its national standard in 1980. Several other countries have since adopted the same system with minor modifications.

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

A designation assigned in conformance with this Recommendation should only be used to indicate unalloyed aluminum having chemical composition limits identical to those registered with the Signatories to the Declaration of Accord on an International Designation System for Unalloyed Aluminum.

1. Scope

- 1.1 This recommendation describes a system for designating unalloyed aluminum not made by a refining process and used primarily for remelting.
- 1.2 Unalloyed wrought aluminum designations (10xx series with specified minimum aluminum and limits for natural impurities), are registered separately through the "International Designation System for Wrought Aluminum and Wrought Aluminum Alloys."

2.1.1 Each basic unalloyed aluminum designation is identified by the letter A following the numerical designation, i.e., PXXYYA.

2.1.2 Variations of a basic unalloyed aluminum, i.e., having the same individual silicon and iron limits but having different individual limits for elements other than silicon and iron, are identified by substituting a serial letter in place of the letter A. The serial letters are assigned in alphabetical sequence starting with B but omitting I, O, and Q.

2. Unalloyed Aluminum Designation System¹

- 2.1 This system consists of four digit numerical designations prefixed by the letter P (Purity) and suffixed by a serial letter. The first two numerical digits, XX, indicate the two digits to the right of the decimal place in the limit for maximum silicon, 0.XX. The last two numerical digits, YY, indicate the two digits to the right of the decimal place in the limit for maximum iron, 0.YY.

2.2 Maximum limits for the following, expressed as a multiple of 0.01 percent, are registered for each designation: Silicon; Iron; Other Elements, Each; Other Elements, Total. Aluminum is specified as a remainder for unalloyed aluminum². Maximum limits for individual elements other than silicon and iron may be registered.³

FOOTNOTES

1. Chemical composition limits and designations conforming to this standard may be registered with The Aluminum Association provided (a) the unalloyed aluminum is offered for sale currently and shall have been sold within the 12 months immediately preceding the date of registration request, in both cases in commercial quantities, (b) the complete chemical composition limits are registered, (c) the composition is different from that of any other unalloyed aluminum for which a designation already has been assigned.
2. 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 the amounts of 0.010 percent or more each, expressed to the second decimal before determining the sum. For 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".

3. Standard limits for impurities are expressed in the following sequence: Silicon; Iron; Zinc; Gallium; Vanadium (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 Vanadium 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 "Remainder" for unalloyed aluminum.