REGISTRATION RECORD SERIES
GOLD SHEETS

International Designations and Chemical Composition Limits for Unalloyed Aluminum

North American and International Registration Record

The Aluminum Association
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FOREWORD

Listed herein are designations and chemical composition limits for unalloyed aluminum registered with The Aluminum Association. The numerical designations are assigned in accordance with the *Recommendation—International Designation System for Unalloyed Aluminum,* which is printed on pages 5 through 6. Additions may be made in accordance with the rules outlined in the *Declaration of Accord* printed on page 7. 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.

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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[3,5]		
	Designation	Date	By	Si	Fe	Zn	Ga	V	Each	Total	Aluminum[4]
	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
	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 3

FOOTNOTES

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

   Standard limits for impurities are expressed to the following places:

Less that 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. 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 place of figures used in expressing the specified limit, in accordance with the following rounding-off method of ASTM E29, "Practice for using Significant Digits in Test Data to Determine Conformance with Specifications."

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

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

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

3. Analysis is required for elements other than aluminum for which specific limits are shown. Analysis for other elements is made when their presence is suspected to be, or in the course of routine analysis is indicated to be, in excess of the specified limit.

4. Aluminum is specified as a remainder for all the PXXYY* 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. When an element's 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

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RECOMMENDATION

INTERNATIONAL DESIGNATION SYSTEM FOR UNALLOYED ALUMINUM

January 5, 1999
Revised December 2006

This Recommendation is based on the numerical 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 in accordance with this Recommendation may be used by any country, but there is no obligation to use them. For use, see Appendices A and B.

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. Unalloyed Aluminum Designation System[1]

2.1 This system consists of four digit numerical designations prefixed by the letter P 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.

2.1.1 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.

2.2 Maximum limits for the following, expressed as a multiple of 0.01 percent, are registered for each designation: Silicon; Iron; Other Elements, Each[2]; Other Elements, Total[2]; Aluminum, remainder.[3] Maximum limits for individual elements other than silicon and iron may be registered.[4]

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 numerical designation already has been assigned.

2. Excluding aluminum and other element(s), singly or in combination, that have a specified limit.

3. 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. When an element's 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".

4. Standard limits for impurities are arranged in the following sequence: Silicon; Iron; Zinc; Gallium; Vanadium; Additional specified elements in alphabetical order of their chemical symbols; Other Elements, Each; Other Elements, Total; Aluminum, remainder.