REGISTRATION RECORD SERIES
GOLD SHEETS

International Designations and Chemical Composition Limits for Unalloyed Aluminum

North American and International Registration Record

The Aluminum Association
Incorporated
1525 Wilson Boulevard, Arlington, Virginia 22209

With Support for On-line Access From:
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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.

The following organizations are signatories to the Declaration of Accord on the Recommendation:

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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

The Aluminum Association, Inc.
1525 Wilson Blvd.
Arlington, VA 22209
U.S.A.

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.

APPENDIX A

USE OF DESIGNATIONS

A.1 All countries using designations in accordance with this Recommendation should use the same numerical designation for unalloyed aluminum having identical or closely similar chemical composition limits. They should register the limits and the designations used with all other countries using these designations.

A.2 Each numerical designation should be used with a suffix letter to clearly indicate the associated chemical composition limits registered for that numerical designation.

A.2.1 A basic designation, for each unalloyed aluminum designation, is identified by the suffix letter A, (i.e., PXXYYA).

A.2.2 Variations to the basic designation should use a serial suffix letter, other than the letter A, to indicate chemical composition limits which are different from the basic designation but have the same individual iron and silicon limits as the basic designation, (i.e., PXXYYB).

A.3 A new numerical designation should be assigned only for unalloyed aluminum having chemical composition limits significantly different from other unalloyed aluminum for which designations have previously been assigned.

A.4 Designations should be allotted in the following order of precedence:

A.4.1 The registered designation should be used if composition limits are identical to those previously registered by another country.

A.4.2 The next suffix letter in sequence should be used for a variation of a previously registered numerical designation, (i.e., having the same individual silicon and iron limits but having different limits for elements other than silicon and iron).

A.4.3 A new numerical designation should be assigned only for a significantly different composition not meeting the requirements of A.4.1, or A.4.2 (i.e., having different individual silicon and iron limits from previously registered designations). 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

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

B.1 Sale of Unalloyed Aluminum

B.1.1 Sale of unalloyed aluminum shall have been made to external user/customers (i.e., internal use and/or transfer of unalloyed aluminum within a company does not meet the stated criteria).

B.2 Commercial Quantity

B.2.1 The unalloyed aluminum has undergone *bona fide* mill production and is NOT a "laboratory" scale volume used for evaluations or experimental purposes.

B.2.2 The unalloyed aluminum is cast and fabricated in standard production facilities and is NOT a one-time production.

B.2.3 There is an expected and ongoing commercial demand and/or need for the unalloyed aluminum.

B.2.4 The unalloyed aluminum must be purchased and sold in a standard business context, which indicates that the unalloyed aluminum is actually "sold" and not "given away" for uses such as promotional evaluations.

DECLARATION OF ACCORD ON AN INTERNATIONAL DESIGNATION SYSTEM FOR UNALLOYED ALUMINUM

It is agreed by the parties hereto that the following rules will apply in assigning unalloyed aluminum designations in accordance with the recommendation dated January 5, 1999, and revised December 2006, for an International Designation System for Unalloyed Aluminum:

1. To be eligible for registration:
   1.1 The unalloyed aluminum shall be offered for sale currently and shall have been supplied in the previous twelve months, in both cases in commercial quantities;
   1.2 The complete chemical composition limits must be registered and the former designation, if any, should be shown;
   1.3 The composition must be different from that of any unalloyed aluminum for which a numerical designation has already been assigned.

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 that designation, 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

DÉCLARATION D'ACCORD SUR UN SYSTÈME DE ÉSIGNATION INTERNATIONALE POUR L'ALUMINIUM NON ALLIÉ

Il est convenu par les participants que les règles suivantes s'appliqueront pour les désignations d'aluminium non allié en concordance avec la recommandation datée du 5 Janvier 1999, révisée en 20 aout 2002, pour un Système de désignation internationale pour l'aluminium non allié.

1. Pour être admis à l'enregistrement:
   1.1 L' aluminium non allié doit être alors offert en vente et avoir été fourni au cours des douze derniers mois, en quantités commerciales dans les deux cas;
   1.2 Les limites de composition chimique completes doivent être enregistrées et la désignation précédente, s'il y a lieu, doit paraître;
   1.3 La composition doit différer de celle de tout aluminium non allié pour lequel une designation numerique a déjà été assignée.

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 norms 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 sera définitive avant au moins 60 jours à compter de la date où l'information a été communiquée à toutes les organisations participantes. Durant ces 60 jours, toutes questions et objections concernant cette désignation ou les limites de composition chimique devront être soumises; sinon, une prolongation de la période devra être demandée. Toutes objections techniques devront être resolues de façon substantielle avant l'enregistrement final.

5. Seule l'organisation qui a enregistré la designation peut effectuer un changement dans les limites de composition chimique de cette désignation; lorsqu'un changement est proposé, toutes les organisations participantes doivent en être avisées et doivent présenter leurs remarques dans un délai de 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 ALLOY DESIGNATIONS AND CHEMICAL COMPOSITION LIMITS FOR WROUGHT ALUMINUM AND WROUGHT ALUMINUM ALLOYS** (Teal Sheets). Contains a complete list of all registered designations for wrought alloys including those produced in North America.

- **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 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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