

ICS 77.150.10

CCS H61



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 16475-2023

Replacing GB/T 16475-2008

**Temper designation system for wrought aluminium and
aluminium alloy products**

变形铝及铝合金产品状态代号

Issued on: August 6, 2023

Implemented on: March 1, 2024

**Issued by: State Administration for Market Regulation;
Standardization Administration of China**

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Foreword

This Document was drafted as per the rules specified in GB/T 1.1-2020 Directives for Standardization - Part

1. Rules for the Structure and Drafting of Standardizing Documents. This Document replaced GB/T 16475-2008 Temper Designation System for Wrought Aluminum and Aluminum Alloy. Compared with GB/T 16475-2008, the major technical changes of this Document are as follows besides the structural adjustments and editorial modifications.

a) Add tempers of T39, T4P, T61, T64, T66, T6A, T6B, T77, T84, T89A (see

6.3.3 of this Edition);

b) Change the interpretation of tempers of T73, T74, T76, T79 (see

6.3.3 of this Edition;

6.2.5 of the 2008 Edition);

c) Add temper of T62A and its interpretation in "heat treatment verification state of T state" (see

6.4 of this Edition; Clause 8 of the 2008 Edition);

d) Changed the interpretation of tempers of W_h/51, W_h/52, W_h/54 (see

6.5 of this Edition;

7.2 of the 2008 Edition). Please note some contents of this Document may involve patents. The issuing agency of this Document shall not assume the responsibility to identify these patents. This Document was proposed by China Non-Ferrous Metals Industry Association. This Document shall be under the jurisdiction of National Technical Committee on Non-Ferrous Metals of Standardization Administration of China (SAC/TC 243). Drafting

organizations of this Document. Southwest Aluminum (Group) Co., Ltd.; Nonferrous Metals Technology and Economic Research Institute Co., Ltd.; GRIMAT Engineering Institute Co., Ltd.; Fujian Nanping Aluminum Sheet & Strip Processing Co., Ltd.; Fujian Xiangxin Shares Co., Ltd.; Tianjin Zhongwang Aluminum Co., Ltd.; Chalco Ruimin Co., Ltd.; Northeast Light Alloy Co., Ltd.; Jiangsu Dingsheng New Energy Materials Co., Ltd.; Shandong Nanshan Aluminum Co., Ltd.; Guangdong Haomei New Material Co., Ltd.; Northwest Aluminum Co., Ltd.; ALG Aluminum Inc.; and Xiamen Xiashun Aluminum Foil Co., Ltd.; Chief drafting staffs of this Document. Deng Guangyan, Ge Lixin, Pan Zhen, Li Xiwu, Zhang Liufeng, Liu Fubing, Du Hengan, Wang Aijun, Huang Ruiyin, Gao Xinyu, Zhu Kai, Zhou Hua, Wu Baojian, Yan Zhaohui, Ding Gangping, Wang Shouye, Ren Yuelu, and Zhang Huihong. The historical editions replaced by this Document are as follows:

--- GB/T 16475-1996 was first-time published in 1996; first-time revised in 2008;

--- It is second-time revised hereby. Temper Designation System for Wrought Aluminum and Aluminum Alloy Products

1 Scope

GB/T 16475-2023 is the Chinese national standard on temper designation system for wrought aluminium and aluminium alloy products, in the field of metallurgy. The /T suffix marks it as a recommended standard: it is not compulsory by itself, but it becomes binding as soon as a contract, a tender or a customer specification calls it up - which in practice is how most foreign buyers meet it. It was issued on 6 August 2023 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 March 2024. Classification: ICS 77.150.10, CCS H61. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This Document specifies the temper designation for wrought aluminum and aluminum alloy products. This Document is applicable to wrought aluminum and aluminum alloy products produced by rolling, extrusion, stretching, forging and other methods.

2 Normative References

The provisions in following documents become the essential provisions of this Document through reference in this Document. For the dated documents, only the versions with the dates indicated are applicable to this Document; for the undated documents, only the latest version (including all the amendments) is applicable to this Document.

GB/T 8005.1 Aluminum and aluminum alloy terms and definitions - Part

3 Terms and Definitions

For the purposes of this Document, the terms and definitions given in GB/T 8005.1 apply.

4 General

4.1 The temper designation is divided into basic temper designation and detailed temper designation. The basic temper designation is represented by an English capital letter; and the detailed temper designation is represented by one or more Arabic numerals or English capital letters suffixed to the basic temper designation. These Arabic numerals or English capital letters represent the basic treatment or special treatment that affects the product characteristics.

4.2 When the basic temper designation is suffixed with "x" or "_", it shall represent a series of detailed temper designations with certain common characteristics. Among them, "x" represents any unspecified Arabic numeral or English capital letter, and "_" represents any unspecified one or more Arabic numerals or English capital letters. For example, "H2x" indicates any temper in "H21~H29"; "Hxx4" indicates any temper in "H114~H194" or "H224~H294" or "H324~H394"; "T_51" indicates any temper with the last digit of the temper designation suffix being "51", such as "T351, T651, T6151, T7351, T7651", etc.

4.3 The mechanical properties of products corresponding to each detailed temper are shown in the Registration Form for Tempers and Properties of Wrought Aluminum and Aluminum Alloy Products.

4.4 The comparison list of the temper designations named in this Document and that used previously is shown in Appendix A.

5 Basic Temper Designation

5.1 F - Free processing state It is applicable to products that have no special requirements for work hardening and heat treatment conditions during the forming process. The mechanical properties of products in this state are not specified.

5.2 O - Annealed state It is applicable to the product state that obtains the lowest strength after full annealing.

5.3 H - Work-hardening state It is applicable to products that have been hardened to improve their strength.

5.4 W - Solution heat treatment state It is applicable to an unstable state of natural aging at room temperature after solution heat treatment. This state is not used as the product delivery state, but only indicates that the product is in the natural aging stage.

5.5 T - Stable state of heat treatment different from F, O or H It is applicable to the stable state that is reached with (or without) work hardening after high temperature forming or

solution heat treatment. This state is only applicable to heat-treatable strengthening aluminum alloys.

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