SIST

SLOVENSKI STANDARD
oSIST prEN 4500-002:2022

01-februar-2022

Aeronavtika - Kovinski materiali - Pravila za načrtovanje in predstavljanje standarov za materiale - 002. del: Posebna pravila za aluminij, aluminijeve in magnezijeve zlitine

Aerospace series - Metallic materials - Rules for drafting and presentation of material standards - Part 002: Specific rules for aluminium, aluminium alloys and magnesium alloys

Luft- und Raumfahrt - Metallische Werkstoffe - Regeln für das Erstellen und die Gestaltung von Werkstoffnormen - Teil 002: Besondere Regeln für Aluminium, Aluminiumlegierungen und Magnesiumlegierungen

Série aérospatiale - Matériaux métalliques - Règles pour la rédaction et la présentation des normes de matériaux - Partie 002: Règles spécifiques à l'aluminium, aux alliages d'aluminium et au alliages de magnésium

iTeh STANDARD PREVIEW
(standards.iteh.ai)
oSIST prEN 4500-002:2022
https://standards.iteh.ai/catalog/standards/sist/15c7c566-30e2-46ce-9d1e-584f762f83a1/osist-pren-4500-002-2022

Ta slovenski standard je istoveten z: **prEN 4500-002**

ICS:

49.025.20 Aluminij Aluminium

oSIST prEN 4500-002:2022 **en,fr,de**

2003-01.Slovenski inštitut za standardizacijo. Razmnoževanje celote ali delov tega standarda ni dovoljeno.

oSIST prEN 4500-002:2022

iTeh STANDARD
PREVIEW
(standards.iteh.ai)

oSIST prEN 4500-002:2022
https://standards.iteh.ai/catalog/standards/sist/15c7c566-50c2-46ce-9d1e-584f762f83a1/osist-pren-4500-002-2022

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

DRAFT
prEN 4500-002

December 2021

ICS 49.025.20; 49.025.01

English Version

Aerospace series - Metallic materials - Rules for drafting and presentation of material standards - Part 002: Specific rules for aluminium, aluminium alloys and magnesium alloys

Série aérospatiale - Matériaux métalliques - Règles pour la rédaction et la présentation des normes de matériaux - Partie 002: Règles spécifiques à l'aluminium, aux alliages d'aluminium et au alliages de magnésium

Luft- und Raumfahrt - Metallische Werkstoffe - Regeln für das Erstellen und die Gestaltung von Werkstoffnormen - Teil 002: Besondere Regeln für Aluminium, Aluminiumlegierungen und Magnesiumlegierungen

iTeh STANDARD PREVIEW
(standards.iteh.ai)

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee ASD-STAN.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

This draft European Standard was established by CEN in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

oSIST prEN 4500-002:2022
https://standards.iteh.ai/catalog/standards/sist/15c7c566-50e2-46ee-9d1e-584f762f83a1/osist-pren-4500-002-2022

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

Warning : This document is not a European Standard. It is distributed for review and comments. It is subject to change without notice and shall not be referred to as a European Standard.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

© 2021 CEN All rights of exploitation in any form and by any means reserved worldwide for CEN national Members.

Ref. No. prEN 4500-002:2021 E

oSIST prEN 4500-002:2022

Contents

Page

iTeh STANDARD
PREVIEW
(standards.iteh.ai)
oSIST prEN 4500-002:2022
https://standards.iteh.ai/catalog/standards/sist/15c7c566-50c2-46ce-9d1e-584f762f83a1/osist-pren-4500-002-2022

oSIST prEN 4500-002:2022

European foreword

This document (prEN 4500-002:2021) has been prepared by the Aerospace and Defence Industries Association of Europe — Standardization (ASD-STAN).

After enquiries and votes carried out in accordance with the rules of this Association, this document has received the approval of the National Associations and the Official Services of the member countries of ASD-STAN, prior to its presentation to CEN.

This document is currently submitted to the CEN Enquiry.

iTeh STANDARD
PREVIEW
(standards.iteh.ai)

oSIST prEN 4500-002:2022
https://standards.iteh.ai/catalog/standards/sist/15c7c566-50c2-46ce-9d1e-584f762f83a1/osist-pren-4500-002-2022

oSIST prEN 4500-002:2022

Introduction

This document is part of the series of EN metallic material standards for aerospace applications. The general organization of this series is described in EN 4258.

The EN 4500 series (*Aerospace series — Metallic materials — Rules for drafting and presentation of material standards*) is composed by the following documents:

- General rules — EN 4500-001;
- Aluminium, aluminium alloys and magnesium alloys — EN 4500-002;
- Heat-resisting alloys — EN 4500-003;
- Titanium and titanium alloys — EN 4500-004;
- Steels — EN 4500-005;
- Filler metals for welding — EN 4500-002 to EN 4500-005;
- Filler metals for brazing — EN 4500-006.

iTeh STANDARD
PREVIEW
(standards.iteh.ai)

oSIST prEN 4500-002:2022
https://standards.iteh.ai/catalog/standards/sist/15c7c566-50c2-46ce-9d1e-584f762f83a1/osist-pren-4500-002-2022

oSIST prEN 4500-002:2022

1 Scope

The EN 4500 series specifies the rules for the drafting and presentation of metallic material standards for aerospace applications. This Part 002 stipulates the “Specific rules for aluminium, aluminium alloys and magnesium alloys”.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 515, *Aluminium and aluminium alloys — Wrought products — Temper designations*

FprEN 4259, *Aerospace series — Metallic materials — Definitions of general terms*

EN 1753, *Magnesium and magnesium alloys — Magnesium alloy ingots and castings*

EN 4500-001, *Aerospace series — Metallic materials — Rules for drafting and presentation of material standards — Part 001: General rules*

ASTM B275, Standard practice for codification of certain zinc, tin and lead die castings[1]

iTeh STANDARD PREVIEW (standards.iteh.ai)

3 Terms and definitions

For the purposes of this document, the terms and definitions given in FprEN 4259 and EN 4500-001 apply. For temper designations see EN 515 and EN 1753.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

oSIST prEN 4500-002:2022
https://standards.iteh.ai/catalog/standards/sist/15c7e566-50c2-46ce-9d1e-584f762f83a1/osist-pren-4500-002-2022

- ISO Online browsing platform: available at https://www.iso.org/obp
- IEC Electropedia: available at https://www.electropedia.org/

4 Rules for drafting a European Standard for aerospace metallic materials

4.1 General

Examples given in Annexes are only intended to illustrate the rules for drafting and presentation and may not correspond to real standardized EN semi-finished products. Technological development may require the use of terms additional to those listed.

4.2 Title

4.2.1 General

According to EN 4500-001 and Annex A of this document.

4.2.2 Condition T4 and T42 or T6 and T62

It is permissible to quote 2 (two) use conditions (e.g. T4 and T42 or T6 and T62) in the same material standard providing they have the same mechanical properties and are metallurgically the same. See Annex B.

[1] Published by ASTM International, available at: https://www.astm.org/

oSIST prEN 4500-002:2022

4.2.3 Descriptions

4.2.3.1 General

The following are examples of some descriptions which may be used.

4.2.3.2 Surface condition entries

a) Where unclad or as manufactured, no entry required;

b) clad;

c) machined.

4.2.3.3 Form entries

a) Sheets and strips;

b) plates;

c) bars;

The term may be qualified with one or more of the following terms:

1) extruded;

2) drawn;

3) rolled;

d) sections;

The term may be qualified with the following term:

1) extruded;

e) bars and sections;

The term may be qualified with the following term:

1) extruded;

f) tubes;

The term may be qualified with one or more of the following terms:

1) extruded;

2) drawn;

g) wires;

h) forging stock;

The term may be qualified with one or more of the following terms:

iTeh STANDARD PREVIEW
(standards.iteh.ai)
oSIST prEN 4500-002:2022
https://standards.iteh.ai/catalog/standards/sist/15c7c566-[illegible]/osist-pren-4500-002-2022

oSIST prEN 4500-002:2022

1) cast;

2) extruded;

i) forgings;

The term may be qualified with one or more of the following terms:

1) die;

2) hand;

j) remelting stock;

k) castings;

The term may be qualified with one or more of the following terms:

1) sand castings;

2) permanent mould casting;

3) investment casting;

4) high-strength casting.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

4.2.3.4 Additional information entries

- With peripheral coarse grain control;
- for structural applications;
- for hydraulic applications;
- for superplastic forming;
- damage tolerant;
- for the manufacture of rivets;
- for the manufacture of fasteners;
- for machining;
- for welding.

oSIST prEN 4500-002:2022
https://standards.iteh.ai/catalog/standards/sist/15c7c566-50c2-46ce-9d1e-584f762f83a1/osist-pren-4500-002-2022

4.3 Introduction

4.3.1 General

According to EN 4500-001 and Annex B of this document.

oSIST prEN 4500-002:2022

4.3.2 Condition Tx510 and Tx511, applicable to extruded bars and sections and drawn tubes

Material standards shall be prepared on the basis that all material will be supplied in the Tx511 condition according to EN 515.

These standards may also be used to supply material in the Tx510 condition according to EN 515. In this case, the scope shall be completed as shown in Annex C of this document.

4.4 Scope, normative references, terms and definitions, requirements

According to EN 4500-001 and Annex C of this document.

4.5 Table 1 (1 of 3)

4.5.1 Line 1: Material designation

According to EN 4500-001 and Annex D of this document.

4.5.2 Line 2: Chemical composition

The chemical composition shall be written in accordance with EN 4500-001 and the following rules:

a) aluminium alloys:

   1) wrought products:

   The order of presentation of elements and chemical composition limits shall conform to that registered with the Aluminium Association for that alloy designation;

   2) cast products:

   The order of presentation of elements shall conform to the Aluminium Association order used for wrought products;

b) magnesium alloys;

c) the order of presentation of elements and chemical composition limits shall conform to that registered with the American Society for Testing and Materials, Committee B-7; currently listed in ASTM B275.

iTeh STANDARD
PREVIEW
(standards.iteh.ai)
oSIST prEN 4500-002:2022
https://standards.iteh.ai/catalog/standards/sist/15c7c566-50c2-46ce-9d1e-584f762f83a1/osist-pren-4500-002-2022

4.5.3 Line 3: Method of melting

Not normally used for aluminium, aluminium alloys and magnesium alloys.

4.5.4 Line 4.1: Form

According to EN 4500-001 and Annex D of this document.

4.5.5 Line 4.2: Method of production

According to EN 4500-001 and Annex D of this document, using the applicable terms given in 4.2.

4.5.6 Line 4.3: Limit dimension(s)

According to EN 4500-001 and Annex D of this document.

4.5.7 Line 5: Technical specification

According to EN 4500-001 and Annex D of this document.

oSIST prEN 4500-002:2022

4.5.8 Line 6.1: Delivery condition and Heat treatment

According to EN 4500-001 and use the temper designations given in EN 515 or EN 1753. See Annex D of this document.

4.5.9 Line 6.2: Delivery condition code

According to EN 4500-001 and Annex D of this document.

4.5.10 Line 7: Use condition and Heat treatment

According to EN 4500-001 and use the temper designations given in EN 515 or EN 1753. See Annex D of this document, see also 4.2.2.

4.5.11 Line 8.1: Test sample(s)

According to EN 4500-001 and Annex D of this document.

4.5.12 Line 8.2: Test piece(s)

According to EN 4500-001 and Annex D of this document.

4.5.13 Line 8.3: Heat treatment

According to EN 4500-001 and Annex D of this document.

iTeh STANDARD
PREVIEW
(standards.iteh.ai)

4.5.14 Line 9: Dimensions concerned

According to EN 4500-001 and Annex D of this document.

4.5.15 Line 10: Thickness of cladding on each face

Indicate the thickness of cladding on each face as a percentage of the total semi-finished product thickness.

oSIST prEN 4500-002:2022
https://standards.iteh.ai/catalog/standards/sist/15c7c566-50c2-46ce-9d1e-584f762f83a1/osist-pren-4500-002-2022

See Annex D of this document.

4.5.16 Line 11: Direction of test piece

According to EN 4500-001 and Annex D of this document.

4.5.17 Lines 12 to 16: Tensile (T)

According to EN 4500-001 and Annex D of this document.

4.5.18 Line 17: Hardness

According to EN 4500-001 and Annex D of this document.

4.5.19 Line 18: Shear strength

According to EN 4500-001 and Annex D of this document.

4.5.20 Line 19: Bending

According to EN 4500-001 and Annex D of this document.

4.5.21 Line 20: Impact strength

Not normally used for aluminium, aluminium alloys and magnesium alloys.