



BSI Standards Publication

Aerospace series - Metallic materials, Filler metal for brazing - Technical specification

National foreword

This British Standard is the UK implementation of EN 3875:2017.

The UK participation in its preparation was entrusted to Technical Committee ACE/61, Metallic materials for aerospace purposes.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

© The British Standards Institution 2017
Published by BSI Standards Limited 2017

ISBN 978 0 580 53318 1

ICS 25.160.50; 49.025.05; 49.025.15

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 30 September 2017.

Amendments/corrigenda issued since publication

Date	Text affected
------	---------------

English Version

Aerospace series - Metallic materials, Filler metal for brazing - Technical specification

Série aérospatiale - Matériaux métalliques, Métaux
d'apport de brasage - Spécification technique

Luft- und Raumfahrt - Metallische Werkstoffe -
Hartlote - Technische Lieferbedingungen

This European Standard was approved by CEN on 14 November 2016.

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. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists 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.

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



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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents		Page
European foreword.....		3
Introduction.....		4
1	Scope	5
2	Normative references	5
3	Terms and definitions.....	5
4	Wording of order	7
5	Health and safety	7
6	Technical requirements	8

European foreword

This document (EN 3875:2017) 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 Standard has received the approval of the National Associations and the Official Services of the member countries of ASD, prior to its presentation to CEN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by February 2018, and conflicting national standards shall be withdrawn at the latest by February 2018.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

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

1 Scope

This European Standard defines the requirements for the ordering, manufacture, testing, and delivery of all forms of filler metal for brazing for aerospace applications. It shall be applied when referred to in the EN material standard unless otherwise specified on the drawing, order or testing schedule.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 2032-1, *Aerospace series — Metallic materials — Part 1: Conventional designation*

EN 2032-2, *Aerospace series — Metallic materials — Part 2: Coding of metallurgical condition in delivery condition*

EN 2078, *Aerospace series — Metallic materials — Manufacturing schedule, inspection schedule, inspection and test report — Definition, general principles, preparation and approval*

EN 3876, *Aerospace series — Test method for metallic materials — Braze alloys — Fusion test¹⁾*

EN 3877, *Aerospace series — Metallic materials — Test method — Determination of solidus and liquidus temperatures by differential thermal analysis of braze alloys¹⁾*

EN 3878, *Aerospace series — Test method for metallic materials — Braze alloys — Flexibility test¹⁾*

EN 4061, *Aerospace series — Amorphous foil in filler metal for brazing — Thickness $25\ \mu\text{m} \leq a \leq 64\ \mu\text{m}$ — Dimensions¹⁾*

EN 4062, *Aerospace series — Rolled foil in filler metal for brazing — Thickness $a \leq 1\ \text{mm}$ — Dimensions¹⁾*

EN 4063, *Aerospace series — Wire in filler metal for brazing — Diameter $0,6\ \text{mm} \leq D \leq 4\ \text{mm}$ — Dimensions¹⁾*

EN 4064, *Aerospace series — Tape in filler metal for brazing — Thickness $0,075\ \text{mm} \leq a \leq 1,5\ \text{mm}$ — Dimensions¹⁾*

EN 4066, *Aerospace series — Borided foil in filler metal for brazing — Thickness $25\ \mu\text{m} \leq a \leq 100\ \mu\text{m}$ — Dimensions¹⁾*

EN 4258, *Aerospace series — Metallic materials — General organization of standardization — Links between types of EN standards and their use*

EN 4259, *Aerospace series — Metallic materials — Definition of general terms¹⁾*

EN 4268, *Aerospace series — Metallic materials — Heat treatment facilities — General requirements*

EN 9100, *Quality Management Systems — Requirements for Aviation, Space and Defence Organizations*

EN 9133, *Aerospace series — Quality management systems — Qualification procedure for aerospace standard parts*

ISO 3954, *Powders for powder metallurgical purposes — Sampling*

ISO 4497, *Metallic powders — Determination of particle size by dry sieving*

3 Terms and definitions

For the purposes of this European Standard, the following terms and definitions apply:

Definition of general terms, see EN 4259.

¹⁾ Published as AECMA Prestandard at the date of publication of this European Standard

3.1 Method of melting

3.1.1

air melting

melting of charge is carried out in air i.e. without vacuum or inert atmosphere, using a protective slag, when required

3.1.2

vacuum melting

melting of the charge is carried out in vacuum

3.1.3

inert gas melting

melting of the charge is carried out in an inert atmosphere

3.2

atomization

process by which molten metal is separated into droplets which solidify as a powder:

- a) gas atomization: a process of impingement at high velocity of a stream of molten metal in an inert gas to produce droplets which solidify in flight to produce a powder;
- b) rotating electrode atomization: a process in which the extremity of a rotating consumable electrode is melted by an appropriate heat source (for example: electric arc, electron beam), in such a way that the droplets are ejected from the periphery of the electrode and solidify into a powder;
- c) spinning disk atomization: a process in which a molten metal is poured onto a rotating solid surface in such a way that the molten metal droplets are ejected from the surface and solidify in an inert gas to produce a powder;
- d) vacuum atomization: a process in which a stream of molten metal, over saturated by a pressurised inert gas, is introduced in a vessel under vacuum so that the stream is disintegrated by the gas expansion to produce droplets which solidify to produce a powder;
- e) water atomization: a process in which a high velocity water spray impinges on to molten metal to produce metal droplets which solidify to produce a powder. The powder is cooled to room temperature by water or under an inert gas

3.3

braze powder

solidified product resulting from the atomization process

3.4

powder blend

product obtained by blending one or more powder cast atomized and sieved in accordance with the material standard under the same production conditions

3.5

braze wire

wrought product of uniform solid section supplied in straight length, coils or on spools

3.6

braze foil

- a) rolled foil: flat rolled product of rectangular section and uniform thickness up to 1 mm, supplied in flat lengths, or in coils with slit edges;