BRITISH STANDARD

BS EN
1045 : 1997

Brazing —
Fluxes for brazing —
Classification and technical delivery conditions

The European Standard EN 1045 : 1997 has the status of a British Standard

ICS 25.160.50

National foreword

This British Standard is the English language version of EN 1045 : 1997.

The UK participation in its preparation was entrusted to Technical Committee WEE/19, Brazing and braze welding, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

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

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Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 4, an inside back cover and a back cover.

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EN 1045

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Descriptors: Welding, brazing-and soldering, brazing, soldering fluxes, classifications, designations, delivery

English version

Brazing — Fluxes for brazing — Classification and technical delivery conditions

Brasage fort — Flux pour le brasage fort — Classification et conditions techniques de livraison

Hartlöten — Flußmittel zum Hartlöten — Einteilung und technische Lieferbedingungen

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CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart 36, B-1050 Brussels

Ref. No. EN 1045 : 1997 E

Foreword

This European Standard has been prepared by Technical Committee CEN/TC 121, Welding, the secretariat of which is held by DS.

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of an identical text or by endorsement, at the latest by December 1997, and conflicting national standards shall be withdrawn at the latest by December 1997.

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Contents

1 Scope

This standard specifies the classification of fluxes used for brazing metals and characterizes these fluxes on the basis of their properties and use, and gives technical delivery conditions and health and safety precautions.

2 Classification

2.1 General

This standard covers two classes of flux, FH and FL. Class FH is used for the brazing of heavy metals (steels, stainless steels, copper and its alloys, nickel and its alloys, precious metals, molybdenum and tungsten). Class FL is used for the brazing of aluminium and its alloys.

2.2 Fluxes for brazing heavy metals (Class FH)

2.2.1 *General*

Class FH covers seven types of flux. The code for each type consists of the class letters FH followed by two digits.

2.2.2 *Type FH10*

Fluxes with an effective temperature range from 550 °C up to about 800 °C. They contain boron compounds, simple and complex fluorides and are used at brazing temperatures above 600 °C. These are general purpose fluxes. The residues are usually corrosive and have to be removed by washing or pickling.

2.2.3 *Type FH11*

Fluxes with an effective temperature range from 500 °C up to about 800 °C. They contain boron compounds, simple and complex fluorides and chlorides and are used at brazing temperatures above 600 °C. These fluxes are mainly used for brazing copper–aluminium alloys. The residues are usually corrosive and have to be removed by washing or pickling.

2.2.4 *Type FH12*

Fluxes with an effective temperature range from 550 °C up to about 850 °C. They contain boron compounds, elemental boron and simple and complex fluorides and are used at brazing temperatures above 600 °C. These fluxes are mainly used for brazing stainless and other alloy steels and hard metals. The residues are usually corrosive and have to be removed by washing or pickling.

2.2.5 *Type FH20*

Fluxes with an effective temperature range from 700 °C up to about 1000 °C. They contain boron compounds and fluorides and are used at brazing temperatures above 750 °C. These are general purpose fluxes. The residues are usually corrosive and have to be removed by washing or pickling.

2.2.6 *Type FH21*

Fluxes with an effective temperature range from 750 °C up to about 1100 °C. They contain boron compounds and are used at brazing temperatures above 800 °C. These are general purpose fluxes. The residues are usually non-corrosive but can be removed mechanically or by pickling.

2.2.7 *Type FH30*

Fluxes with effective temperatures from 1000 °C upwards. They generally contain boron compounds, phosphates and silicates and are intended mainly for use with copper and nickel brazing filler metals. The residues are usually non-corrosive but can be removed mechanically or by pickling.

2.2.8 *Type FH40*

Fluxes with an effective temperature range from 600 °C up to about 1000 °C. They generally contain chlorides and fluorides but are boron-free and are intended for applications where the presence of boron is not permitted. The residues are usually corrosive and have to be removed by washing or pickling.

2.3 Fluxes for brazing light metals (Class FL)

2.3.1 *General*

Class FL covers two types of flux. The code for each type consists of the class letters FL followed by two digits. These fluxes have effective temperatures from 550 °C upwards.

2.3.2 *Type FL10*

These fluxes contain hygroscopic chlorides and fluorides, primarily lithium compounds. The residues are corrosive and have to be removed by washing or pickling.

2.3.3 *Type FL20*

These fluxes contain non-hygroscopic fluorides. The residues are generally non-corrosive and can be left on the work piece, but the joint has to be protected against water or humidity.

3 Designation

Fluxes supplied in accordance with this standard shall always be designated by the number of this standard and the flux code detailed in clause **2**.

NOTE. However, for each flux code there are fluxes available commercially which behave significantly differently, e.g. in fluidity, resistance to overheating and outgassing. Therefore, in certain cases, it may be necessary to specify a flux by the trade name as well as the code details in clause **2**.

Example: Designation of a flux of class FH, type FH 20 in accordance with EN 1045:

Flux EN 1045 — FH 20.

4 Technical delivery conditions

4.1 Forms of delivery

Powder, paste or liquid, brazing alloy-flux mixtures (in the form of paste or powder).

4.2 Packaging and marking

Fluxes and filler metal-flux mixtures supplied in accordance with this standard shall be packed in suitable containers resistant to the flux they contain and shall be labelled with:

a) the supplier's name and address;

b) the trade name;

c) the designation in accordance with clause **3**;

d) the batch number;

e) any hazard warning required by national or EU regulations.

5 Health and safety precautions

When working with fluxes, the following points shall be noted:

– contact with the skin, particularly if broken, shall be avoided;

– the workshop, or place where the work is carried out, should be adequately ventilated.

Attention is drawn to the need to comply with any appropriate national legislation covering the transportation, storage, use and disposal of fluxes.

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