

	Fluxes for brazing Classification and technical delivery conditions English version of DIN EN 1045	DIN EN 1045
<p>ICS 25.160.50</p> <p>Descriptors: Brazing, fluxes.</p> <p>Hartlöten – Flußmittel zum Hartlöten – Einteilung und technische Lieferbedingungen</p> <p>Supersedes DIN 8511-1, July 1985 edition.</p> <p>European Standard EN 1045 : 1997 has the status of a DIN Standard.</p> <p>National foreword</p> <p>This standard has been prepared by CEN/TC 121.</p> <p>The German body involved in its preparation was the <i>Normenausschuß Schweißtechnik</i> (Welding Standards Committee), Technical Committee <i>Löten</i>.</p> <p>It should be noted that</p> <ul style="list-style-type: none"> a) types FH 12 and FH 20 fluxes have been specified in this standard over and above those specified in DIN 8511-1; b) the brazed joint need not be protected against moisture or water in some cases (e.g. where type FL 20 flux is used for brazing heat exchangers). <p>Amendments</p> <p>DIN 8511-1, July 1985 edition, has been superseded by the specifications of EN 1045.</p> <p>Previous editions</p> <p>DIN 8511: 1963-01; DIN 8511-1: 1967-08, 1985-07; DIN 8511-3: 1967-08.</p> <p>EN comprises 6 pages.</p>		

EUROPEAN STANDARD NORME EUROPÉENNE EUROPÄISCHE NORM

EN 1045

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ICS 25.160.50

Descriptors: Brazing, fluxes.

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 Liefer-
bedingungen

This European Standard was approved by CEN on 1997-05-01.

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 Central Secretariat or to any CEN member.

The European Standards exist 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 Central Secretariat has the same status as the official versions.

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CEN

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

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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.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

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 550 °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 detailed in clause 2.

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

Flux EN1045 - FH20

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.