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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

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Foreword

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This document was prepared by Technical Committee ISO/TC 44, *Welding and allied processes*, Subcommittee SC 13, *Brazing materials and processes*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Official interpretations of ISO/TC 44 documents, where they exist, are available from this page: https://committee.iso.org/sites/tc44/home/interpretation.html.

Brazing — Fluxes for brazing — Classification and technical delivery conditions

1 Scope

This document 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.

This document 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 Normative references

There are no normative references in this document.

3 Terms and definitions

No terms and definitions are listed in this document.

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

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

4 Classification

4.1 General

The form of the fluxes shall be classified according to Table 1 A, B or C. The effective temperature range can be determined according to Annex A.

4.2 Fluxes for brazing heavy metals (Class FH)

4.2.1 General

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

4.2.2 Type FH10

Fluxes with an effective temperature range from about 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.

4.2.3 Type FH11

Fluxes with an effective temperature range from about 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 nonferrous metal with small amount of Al and Ti or refractory metal oxides, aluminium bronze and aluminium silicon type metals. The residues are usually corrosive and shall be removed by washing and pickling.

4.2.4 Type FH12

Fluxes with an effective temperature range from about 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 shall be removed by washing and pickling.

4.2.5 Type FH20

Fluxes with an effective temperature range from about 700 °C up to about 1 000 °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 shall be removed by washing and pickling.

4.2.6 Type FH21

Fluxes with an effective temperature range from about 750 °C up to about 1 100 °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.

4.2.7 Type FH22

Fluxes with an effective temperature range from about 700 °C up to about 1 050 °C. They contain boron compounds, elemental boron as well as simple and complex fluorides and are used at brazing temperatures above 750 °C. These fluxes are mainly used for brazing stainless and other alloy steels and hard metals. The residues are usually corrosive and shall be removed by washing and pickling.

4.2.8 Type FH23

Fluxes with an effective temperature range from about 700 °C up to about 1 200 °C. They contain borates and are general purpose fluxes. The residues are boron compounds.

4.2.9 Type FH30

Fluxes with an effective temperature from about 1 000 °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.

4.2.10 Type FH40

Fluxes with an effective temperature range from about 600 °C up to about 1 000 °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 shall be removed by washing or pickling.

4.3 Fluxes for brazing light metals (Class FL)

4.3.1 General

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