
Soft soldering fluxes — Test methods —
Part 10:
Flux efficacy test, solder spread method

Flux de brasage tendre — Méthodes d'essai —

Partie 10: Essai d'efficacité du flux, méthode d'étalement



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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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

ISO 9455-10 was prepared by Technical Committee ISO/TC 44, *Welding and allied processes*, Subcommittee SC 12, *Soldering materials*.

ISO 9455 consists of the following parts, under the general title *Soft soldering fluxes — Test methods*:

- *Part 1: Determination of non-volatile matter, gravimetric method*
- *Part 2: Determination of non-volatile matter, ebulliometric method*
- *Part 3: Determination of acid value, potentiometric and visual titration methods*
- *Part 5: Copper mirror test*
- *Part 6: Determination and detection of halide (excluding fluoride) content*
- *Part 8: Determination of zinc content*
- *Part 9: Determination of ammonia content*
- *Part 10: Flux efficacy test, solder spread method*
- *Part 11: Solubility of flux residues*
- *Part 13: Determination of flux spattering*
- *Part 14: Assessment of tackiness of flux residues*
- *Part 15: Copper corrosion test*
- *Part 16: Flux efficacy tests, wetting balance method*
- *Part 17: Surface insulation resistance comb test and electrochemical migration test of flux residues*

Requests for official interpretations of any aspect of this part of ISO 9455 should be directed to the Secretariat of ISO/TC 44/SC 12 via your national standards body. A complete listing of these bodies can be found at www.iso.org.

Soft soldering fluxes — Test methods —

Part 10:

Flux efficacy test, solder spread method

1 Scope

This part of ISO 9455 specifies a method for the determination of the efficacy of a soft soldering flux. The method is known as the solder spread method of filler metal and is applicable to all flux classes defined in ISO 9454-1.

NOTE An alternative method for the determination of the flux efficacy, applicable to liquid fluxes only, known as the wetting balance method, is specified in ISO 9455-16.^[3]

2 Normative references

The following referenced documents are indispensable for the application 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.

ISO 9453, *Soft solder alloys — Chemical compositions and forms*

ISO 9454-1:1990, *Soft soldering fluxes — Classification and requirements — Part 1: Classification, labelling and packaging*

3 Symbols

$\bar{A}$	arithmetic mean spread area, in square millimetres
H	height of spread solder, in millimetres
D	diameter, in millimetres, when the solder used is considered as a sphere, $D = 1,24 \times V^{1/3}$
R	reproducibility
r	repeatability
s_w	standard deviation within laboratory
s_b	standard deviation between laboratories
ρ	density, in grams per millilitre, of solder under test at the test temperature
V	volume, in millilitres, of the solder used

4 Principle

A specially prepared brass test sheet is treated with a known quantity of the flux under test and a standard quantity of specified solder alloy. Upon heating, the solder alloy melts and spreads across the surface of the brass test sheet, the extent of spread being a measure of the flux efficacy. The area covered by the solder is determined by means of a planimeter or other suitable technique.