

**Pehme madaltemperatuurjootmise räbustid.  
Katsemeetodid. Osa 3: Happesisalduse määramine  
potentsiomeetrilisel ja visuaalsel tiitrimismeetodil**

Soft soldering fluxes - Tests methods - Part 3: Determination of acid value, potentiometric and visual titration methods

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN ISO 9455-3:1999 sisaldab Euroopa standardi EN ISO 9455-3:1994 ingliskeelset teksti.

Standard on kinnitatud Eesti Standardikeskuse 23.11.1999 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.

Standard on kättesaadav Eesti standardiorganisatsioonist.

This Estonian standard EVS-EN ISO 9455-3:1999 consists of the English text of the European standard EN ISO 9455-3:1994.

This standard is ratified with the order of Estonian Centre for Standardisation dated 23.11.1999 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.

The standard is available from Estonian standardisation organisation.

ICS 25.160.50

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Descriptors: Soldering, soldering fluxes, chemical analysis, determination, acid number, volumetric analysis

English version

**Soft soldering fluxes - Test methods - Part 3:  
Determination of acid value, potentiometric and  
visual titration methods (ISO 9455-3:1992)**

Flux de brasage tendre - Méthodes d'essai  
Partie 3: Détermination de l'indice d'acide par  
des méthodes de titrage potentiométrique et  
visuel (ISO 9455-3:1992)

Flußmittel zum Weichlöten - Prüfverfahren -  
Teil 3: Bestimmung des Säurewertes,  
potentiometrische und visuelle  
Titrationsmethoden (ISO 9455-3:1992)

This European Standard was approved by CEN on 1994-09-06. 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.

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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 was taken over by the Technical Committee CEN/TC 121 "Welding" from the work of ISO/TC 44 "Soft soldering fluxes - Test methods" of the International Standards Organization (ISO).

CEN/TC 121 had decided to submit the final draft for Unique Acceptance Procedure. The result was positive.

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 March 1995, and conflicting national standards shall be withdrawn at the latest by March 1995.

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

## Endorsement notice

The text of the International Standard ISO 9455-3:1992 was approved by CEN as a European Standard without any modification.

## Annex ZA (normative)

### Normative references to international publications with their relevant European publications

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

| <u>Publication</u> | <u>Year</u> | <u>Title</u>  | <u>EN</u>  | <u>Year</u> |
|--------------------|-------------|---|------------|-------------|
| ISO 9454-1         | 1990        | Soft soldering fluxes - Classification and requirements - Part 1: Classification, labelling and packaging | EN 29454-1 | 1993        |
| ISO 9455-1         | 1990        | Soft soldering fluxes - Test methods - Part 1: Determination of non-volatile matter, gravimetric method   | EN 29455-1 | 1993        |

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# INTERNATIONAL STANDARD

**ISO**  
**9455-3**

First edition  
1992-05-01

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## Soft soldering fluxes — Test methods —

### Part 3:

Determination of acid value, potentiometric and  
visual titration methods

*Flux de brasage tendre — Méthodes d'essai —*

*Partie 3: Détermination de l'indice d'acide par des méthodes de titrage  
potentiométrique et visuel*



Reference number  
ISO 9455-3:1992(E)

## 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.

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.

International Standard ISO 9455-3 was prepared by Technical Committee ISO/TC 44, *Welding and allied processes*, Sub-Committee SC 12, *Soldering and brazing 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 of halide content*
- *Part 8: Determination of zinc content*
- *Part 9: Determination of ammonia content*
- *Part 10: Flux efficacy tests, solder spread method*
- *Part 11: Solubility of flux residues*
- *Part 12: Steel tube corrosion test*

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- *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: Determination of surface insulation resistance of flux residues (Comb test)*

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## Soft soldering fluxes — Test methods —

### Part 3:

### Determination of acid value, potentiometric and visual titration methods

#### 1 Scope

This part of ISO 9455 specifies two methods for the determination of the acid value of a flux of types 1 and 2 only, as defined in ISO 9454-1.

Method A is a potentiometric titration method and is to be considered as the reference method.

Method B is an alternative, visual end-point, titration method.

#### 2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 9455. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 9455 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

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

ISO 9455-1:1990, *Soft soldering fluxes — Test methods — Part 1: Determination of non-volatile matter, gravimetric method*.

ISO 9455-2:—<sup>1)</sup>, *Soft soldering fluxes — Test methods — Part 2: Determination of non-volatile matter, ebulliometric method*.

#### 3 Method A: Potentiometric titration method

##### 3.1 Principle

A prepared, weighed sample of the flux is dissolved in a suitable solvent. The resulting solution is titrated with standard tetrabutyl ammonium hydroxide solution, using a glass electrode, the pH or mV readings being recorded simultaneously. From the graph of volume of titrant against pH or mV readings, the point of inflexion is determined, from which the acid value is calculated.

NOTE 1 As fluxes of classes 1.1.3 and 1.2.3 (see ISO 9454-1), may lose some acidity during the determination of non-volatile matter, the non-volatile matter obtained from carrying out the procedure of ISO 9455-1 or ISO 9455-2 on these classes of flux should not be used for this determination.

##### 3.2 Reagents

Use only reagents of recognized analytical quality and only distilled, or deionized, water.

##### 3.2.1 Tetrabutyl ammonium hydroxide [(CH<sub>3</sub>CH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>)<sub>4</sub>N(OH)] 0,1 M (0,1 mol/l).

Use a commercially available standard solution or one prepared from a commercially available concentrated standard solution by dilution with propan-2-ol (3.2.2). Alternatively, prepare an 0,1 mol/l tetrabutyl ammonium hydroxide solution by diluting commercial concentrated solution with propan-2-ol and standardize this solution against an accurately weighed amount of benzoic acid (about

1) To be published.