

## **Soft soldering fluxes - Test methods - Part 9: Determination of ammonia content (ISO 9455-9:1993)**

The European Standard EN ISO 9455-9:1995 has the status of a Swedish Standard. This document contains the official English version of EN ISO 9455-9:1995.

This standard has been developed in collaboration with the Swedish Welding Commission.

Swedish Standards corresponding to documents referred to in this Standard are listed in "Catalogue of Swedish Standards", annually issued by SIS. The Catalogue lists, with reference number and year of Swedish approval, International and European Standards approved as Swedish Standards as well as other Swedish Standards.

## **Fluss för mjuklödning - Provningsmetoder - Del 9: Bestämning av ammoniakinnehåll (ISO 9455-9:1993)**

Europastandarden EN ISO 9455-9:1995 gäller som svensk standard. Detta dokument innehåller den officiella engelska versionen av EN ISO 9455-9:1995.

Denna standard har utarbetats i samarbete med Svetskommissionen.

Motsvarigheten och aktualiteten i svensk standard till de publikationer som omnämns i denna standard framgår av "Katalog över svensk standard", som årligen ges ut av SIS. I katalogen redovisas internationella och europeiska standarder som fastställts som svenska standarder och övriga gällande svenska standarder.



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ICS 25.160.20;25.160.50

Descriptors: soldering, soldering fluxes, tests, chemical analysis, determination of content, ammonia (gas), volumetric analysis

English version

**Soft soldering fluxes - Test methods -  
Part 9: Determination of ammonia content  
(ISO 9455-9:1993)**

Flux de brasage tendre – Méthodes d'essai –  
Partie 9: Dosage de l'ammoniac  
(ISO 9455-9:1993)

Flußmittel zum Weichlöten – Prüfverfahren –  
Teil 9: Bestimmung des Ammoniumgehaltes  
(ISO 9455-9:1993)

This European Standard was approved by CEN on 1995-08-27. 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**

The text of the International Standard from ISO/TC 44 “Welding and allied processes” of the International Organization for Standardization (ISO) has been taken over as a European Standard by the Technical Committee CEN/TC 121 “Welding”.

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 1996, and conflicting national standards shall be withdrawn at the latest by March 1996.

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 9455-9:1993 was approved by CEN as a European Standard without any modification.

NOTE: Normative references to International Standards are listed in annex ZA (normative)

# Soft soldering fluxes — Test methods —

## Part 9: Determination of ammonia content

### 1 Scope

This part of ISO 9455 specifies a distillation method for the determination of the ammonia content of solid, paste or liquid fluxes. The method is applicable to fluxes of class 3.1.1 only, as defined in ISO 9454-1.

### 2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this part of ISO 9455. At the time of publication, the edition indicated was 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 edition of the standard 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.*

### 3 Principle

The prepared flux solution is distilled with sodium hydroxide to expel the ammonia present in the flux. The resulting distillate is passed into a standard sulfuric acid solution. The excess acid is then titrated with sodium hydroxide solution and the ammonia content of the flux is calculated.

### 4 Reagents

#### 4.1 General

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

**4.2 Sodium hydroxide solution**, 1,0 mol/l standard solution, commercially available.

Alternatively, use an approximately 1,0 mol/l solution of sodium hydroxide, prepared by the following method. Dissolve 40 g of sodium hydroxide in water and cool. Transfer the solution to a 1 litre volumetric flask, dilute to the mark and mix well. Standardize this solution with 0,5 mol/l sulfuric acid solution (4.3).

**4.3 Sulfuric acid**, 0,5 mol/l, standard solution, commercially available.

Alternatively, use an approximately 0,5 mol/l solution of sulfuric acid prepared by the following method. Cautiously add 30 ml of sulfuric acid ( $\rho = 1,84$  g/ml) to 400 ml of water and mix. Cool and transfer to a 1 litre volumetric flask, dilute to the mark and mix well. Standardize this solution with a standard solution prepared from anhydrous sodium carbonate,

NOTE 1 1 ml of 0,5 mol/l sulfuric acid is equivalent to 0,0535 g of ammonium chloride.

**4.4 Sulfuric acid**, 50 % (WV) solution.

Adopting appropriate safety precautions, carefully add 500 ml of sulfuric acid ( $\rho = 1,84$  g/ml) to 500 ml of water. Mix well.

**WARNING — This is a potentially dangerous procedure and should be carried out by a trained person.**

**4.5 Sodium hydroxide solution**, 10 mol/l.

Dissolve 400 g of sodium hydroxide in water. Dilute to 1 litre and mix well. This solution should be prepared in a water-cooled polyethylene beaker and stored in a polyethylene bottle.

#### 4.6 Methyl orange indicator solution, 0,1 g/100 ml.

Dissolve 0,1 g of methyl orange in 100 ml water. Mix well.

### 5 Apparatus

In addition to ordinary laboratory apparatus, the apparatus shown in figure 1 is required.

### 6 Procedure

Carry out the following procedure in triplicate on the flux sample.

#### 6.1 Preparation of flux test solution

##### 6.1.1 Solid fluxes

Weigh 10 g of the solid flux sample into a 400 ml beaker. Add water and sufficient sulfuric acid solution

(4.4) to clear the solution. Transfer to a 500 ml volumetric flask, dilute to the mark and mix.

##### 6.1.2 Paste fluxes

For water-soluble paste fluxes, weigh 10 g of the paste flux sample into a 400 ml beaker. Add water and sufficient sulfuric acid solution (4.4) to clear the solution. Transfer to a 500 ml volumetric flask, dilute to the mark and mix,

NOTE 2 For non-water-soluble paste fluxes, the method of preparation of the flux test solution can require modification. In such cases, advice should be sought from the manufacturer.

##### 6.1.3 Liquid fluxes

By means of a pipette, transfer 25 ml of the liquid flux sample to a 500 ml volumetric flask. Dilute to the mark and mix.

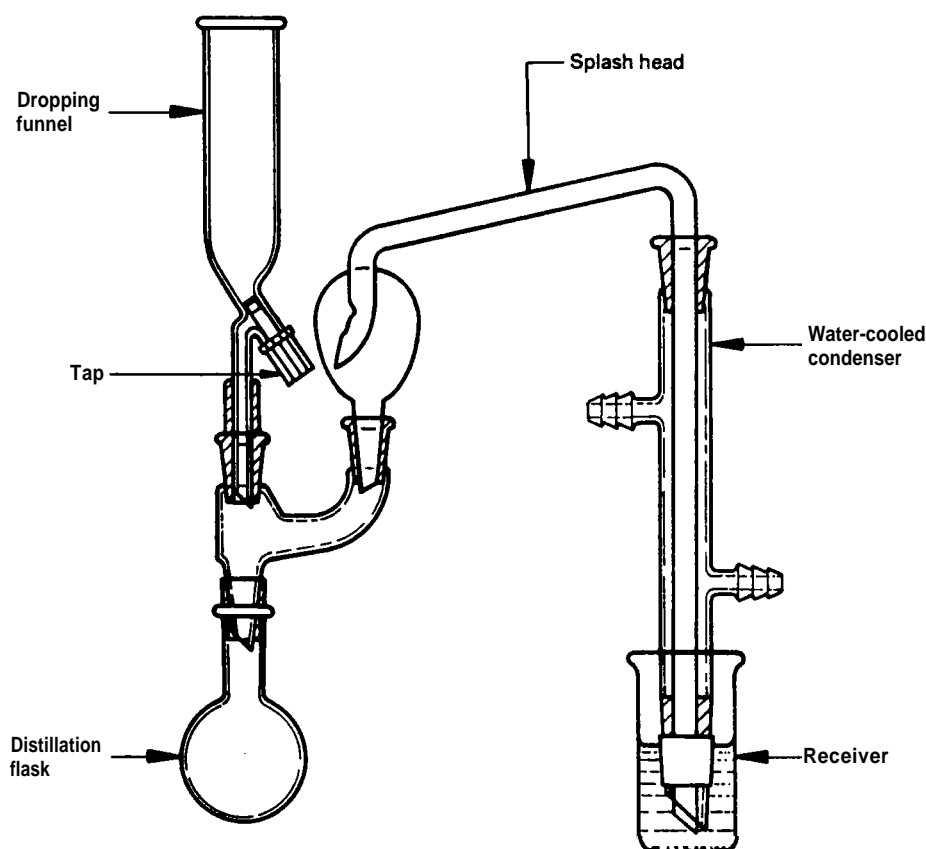


Figure 1 — Apparatus for determination of ammonia content