

**Keevitus- ja seonduvate protsesside
töötervishoiu- ja ohutusnõuded. Laboratoorsed
meetodid proovide võtmiseks aurudest ja
gaasidest. Osa 3: Osooni eritumise määramine**

Health and safety in welding and allied processes -
Laboratory method for sampling fume and gases
generated by arc welding - Part 3: Determination of
ozone concentration using fixed point
measurements

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN ISO 15011-3:2003 sisaldab Euroopa standardi EN ISO 15011-3:2002 ingliskeelset teksti.

Standard on kinnitatud Eesti Standardikeskuse 18.02.2003 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.

Standard on kättesaadav Eesti standardiorganisatsioonist.

This Estonian standard EVS-EN ISO 15011-3:2003 consists of the English text of the European standard EN ISO 15011-3:2002.

This standard is ratified with the order of Estonian Centre for Standardisation dated 18.02.2003 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 13.040.40, 25.160.10

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ICS 13.040.40; 25.160.10

English version

**Health and safety in welding and allied processes –
Laboratory method for sampling fume and gases generated
by arc welding**

**Part 3: Determination of ozone concentration using fixed point measurements
(ISO 15011-3 : 2002)**

Hygiène et sécurité en soudage et techniques connexes – Méthode de laboratoire d'échantillonnage des fumées et des gaz émis par le soudage à l'arc – Partie 3: Détermination de la concentration en ozone à l'aide d'une mesure à points fixes (ISO 15011-3 : 2002)

Arbeits- und Gesundheitsschutz beim Schweißen und bei verwandten Verfahren – Laborverfahren zum Sammeln von Rauch und Gasen, die beim Lichtbogenschweißen erzeugt werden – Teil 3: Bestimmung der Ozonkonzentration an festgelegten Messpunkten (ISO 15011-3 : 2002)

This European Standard was approved by CEN on 2002-05-02.

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 Management Centre 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 Management Centre 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 EN ISO 15011-3:2002 as been prepared by Technical Committee CEN/TC 121 "Welding", the secretariat of which is held by DS, in collaboration with Technical Committee ISO/TC 44 "Welding and allied processes".

This European Standard EN ISO 15011-3:2002 shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by May 2003, and conflicting national standards shall be withdrawn at the latest by May 2003.

This standard consists of the following parts:

- Part 1: Determination of emission rate and sampling for analysis of particulate fume;
- Part 2: Determination of emission rates of gases and vapours, except ozone;
- Part 3: Determination of ozone concentration using fixed point measurements.

Annex A is normative. The annexes B and C are informative.

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, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Introduction

Welding and allied processes produce airborne particles and gaseous by-products, which can be harmful to human health. Knowledge of the quantity and composition of the airborne particles and gases emitted can be useful for occupational hygienists in assessing workplace atmospheres and in determining appropriate control measures. Emission rates cannot be used directly to assess the welder's exposure, but it is expected that processes, consumables and welding parameters giving lower emission rates will result in lower welder exposures than processes with high emission rates used in the same working situation.

The purpose of this standard is not to measure the emission rate of ozone but to measure ozone concentrations around a welding arc. In this case, the measurement of lower ozone concentrations is expected to correlate with lower exposure to ozone in the work place under similar work conditions.

Thus, this standard allows the effect of changes in welding conditions on exposure to ozone, under similar conditions in the workplace, to be predicted and best practice with regard to ozone reducing measures to be defined.

It has been assumed in the drafting of this standard that the executions of its provisions, and the interpretation of the results obtained, is entrusted to appropriately qualified and experienced people.

1 Scope

This European Standard specifies a laboratory method for evaluating ozone emissions generated during arc welding by measuring ozone concentrations at fixed points around a stationary welding arc.

The results can be used to compare the effect of welding parameters, processes, etc. on ozone generation and hence to predict changes in workplace exposure under similar working conditions.

2 Normative references

This European Standard incorporates by dated or undated references, 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 revisions. For undated references the latest edition of the publication referred to applies (including amendments).

EN 482, *Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents*.

EN 1076, *Workplace atmospheres - Pumped sorbent tubes for the determination of gases and vapours - Requirements and test methods*.

EN 1540, *Workplace atmospheres - Terminology*.

EN ISO 4063, *Welding and allied processes — Nomenclature of processes and reference numbers (ISO 4063:1998)*.

EN ISO 10882-2, *Health and safety in welding and allied processes — Sampling of airborne particles and gases in the operator's breathing zone — Part 2: Sampling of gases (ISO 10882-2:2000)*.

EN ISO 15011-1, *Health and safety in welding and allied processes - Laboratory method for sampling fume and gases generated by arc welding - Part 1: Determination of emission rate and sampling for analysis of particulate fume (ISO 15011-1:2001)*.

ISO 3534-1, *Statistics - Vocabulary and symbols - Part 1: Probability and general statistical terms*.

ISO 6879, *Air quality - Performance characteristics and related concepts for air quality measuring methods*.

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in EN 1540, ISO 6879, EN ISO 10882-2, EN 482, EN 1076, ISO 3534-1, EN ISO 4063, EN ISO 15011-1 and the following apply.

3.1

Fixed Point (FP)

point of measurement at defined distances from the arc

4 Principle

Arc welding is performed, on a test piece, in a chamber or room and ozone concentrations are measured at a Fixed Point relative to the arc.

Additional measurements shall be made at other Fixed Points (see clause 5), if required.