

SLOVENSKI STANDARD

SIST-TS CEN ISO/TS 15011-6:2012

01-oktober-2012

Zdravje in varnost pri varjenju in sorodnih postopkih - Laboratorijska metoda za vzorčenje dima in plinov - 6. del: Postopek količinskega ugotavljanja dima in plinov pri uporovnem točkastem varjenju (ISO/TS 15011-6:2012)

Health and safety in welding and allied processes - Laboratory method for sampling fume and gases - Part 6: Procedure for quantitative determination of fume and gases from resistance spot welding (ISO/TS 15011-6:2012)

Arbeits- und Gesundheitsschutz beim Schweißen und verwandten Verfahren - Labormethode zum Sammeln von Rauch und Gasen - Teil 6: Quantitative Bestimmung von Rauch und Gasen beim Widerstandspunktschweißen (ISO/TS 15011-6:2012)

[SIST-TS CEN ISO/TS 15011-6:2012](https://standards.iteh.ai/catalog/standards/sist/6d6ad93d-4917-4c66-a538-15011-6-2012)

Hygiène et sécurité en soudage et techniques connexes - Méthode de laboratoire d'échantillonnage des fumées et des gaz - Partie 6: Procédure pour la détermination quantitative des fumées et des gaz générés par le soudage par résistance par points (ISO/TS 15011-6:2012)

Ta slovenski standard je istoveten z: CEN ISO/TS 15011-6:2012

ICS:

13.100	Varnost pri delu. Industrijska higiena	Occupational safety. Industrial hygiene
25.160.10	Varilni postopki in varjenje	Welding processes

SIST-TS CEN ISO/TS 15011-6:2012 en,fr

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST-TS CEN ISO/TS 15011-6:2012](https://standards.iteh.ai/catalog/standards/sist/6d6ad93d-4917-4c66-a538-3e948391b94f/sist-ts-cen-iso-ts-15011-6-2012)

<https://standards.iteh.ai/catalog/standards/sist/6d6ad93d-4917-4c66-a538-3e948391b94f/sist-ts-cen-iso-ts-15011-6-2012>

TECHNICAL SPECIFICATION
SPÉCIFICATION TECHNIQUE
TECHNISCHE SPEZIFIKATION

CEN ISO/TS 15011-6

July 2012

ICS 13.100; 25.160.10

English Version

Health and safety in welding and allied processes - Laboratory method for sampling fume and gases - Part 6: Procedure for quantitative determination of fume and gases from resistance spot welding (ISO/TS 15011-6:2012)

Hygiène et sécurité en soudage et techniques connexes -
Méthode de laboratoire d'échantillonnage des fumées et
des gaz - Partie 6: Procédure pour la détermination
quantitative des fumées et des gaz générés par le soudage
par résistance par points (ISO/TS 15011-6:2012)

Arbeits- und Gesundheitsschutz beim Schweißen und bei
verwandten Verfahren - Laborverfahren zum Sammeln von
Rauch und Gasen - Teil 6: Verfahren zur quantitativen
Bestimmung von Rauchen und Gasen beim
Widerstandspunktschweißen (ISO/TS 15011-6:2012)

This Technical Specification (CEN/TS) was approved by CEN on 20 May 2012 for provisional application.

The period of validity of this CEN/TS is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the CEN/TS can be converted into a European Standard.

CEN members are required to announce the existence of this CEN/TS in the same way as for an EN and to make the CEN/TS available promptly at national level in an appropriate form. It is permissible to keep conflicting national standards in force (in parallel to the CEN/TS) until the final decision about the possible conversion of the CEN/TS into an EN is reached.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

Foreword.....3

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST-TS CEN ISO/TS 15011-6:2012
<https://standards.iteh.ai/catalog/standards/sist/6d6ad93d-4917-4c66-a538-3e948391b94f/sist-ts-cen-iso-ts-15011-6-2012>

Foreword

This document (CEN ISO/TS 15011-6:2012) has been prepared by Technical Committee CEN/TC 121 "Welding", the secretariat of which is held by DIN, in collaboration with Technical Committee ISO/TC 44 "Welding and allied processes".

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

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to announce this Technical Specification: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST-TS CEN ISO/TS 15011-6:2012](https://standards.iteh.ai/catalog/standards/sist/6d6ad93d-4917-4c66-a538-3e948391b94f/sist-ts-cen-iso-ts-15011-6-2012)

<https://standards.iteh.ai/catalog/standards/sist/6d6ad93d-4917-4c66-a538-3e948391b94f/sist-ts-cen-iso-ts-15011-6-2012>

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST-TS CEN ISO/TS 15011-6:2012](https://standards.iteh.ai/catalog/standards/sist/6d6ad93d-4917-4c66-a538-3e948391b94f/sist-ts-cen-iso-ts-15011-6-2012)

<https://standards.iteh.ai/catalog/standards/sist/6d6ad93d-4917-4c66-a538-3e948391b94f/sist-ts-cen-iso-ts-15011-6-2012>

TECHNICAL
SPECIFICATIONISO/TS
15011-6First edition
2012-07-15

**Health and safety in welding and allied
processes — Laboratory method for
sampling fume and gases —**

Part 6:

**Procedure for quantitative determination
of fume and gases from resistance spot
welding****(standards.iteh.ai)***Hygiène et sécurité en soudage et techniques connexes — Méthode de
laboratoire d'échantillonnage des fumées et des gaz —*

<https://standards.iteh.ai/standards.iteh.ai/SIST-TS-CEN-ISO-TS-15011-6-2012/3e94839e-3e94839e-3e94839e-3e94839e> **Partie 6: Procédure pour la détermination quantitative des fumées et
des gaz générés par le soudage par résistance par points**

Reference number
ISO/TS 15011-6:2012(E)

© ISO 2012

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST-TS CEN ISO/TS 15011-6:2012](https://standards.iteh.ai/catalog/standards/sist/6d6ad93d-4917-4c66-a538-3e948391b94f/sist-ts-cen-iso-ts-15011-6-2012)
<https://standards.iteh.ai/catalog/standards/sist/6d6ad93d-4917-4c66-a538-3e948391b94f/sist-ts-cen-iso-ts-15011-6-2012>



COPYRIGHT PROTECTED DOCUMENT

© ISO 2012

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

Contents

Page

Foreword	iv
Introduction.....	vi
1 Scope	1
2 Normative references	1
3 Terms and definitions	2
4 Principle	2
5 Apparatus.....	2
6 Procedure.....	3
6.1 Preparation of test pieces.....	3
6.2 Set up of welding equipment	4
6.3 Selection of welding parameters	4
6.4 Fume emission rate.....	4
6.5 Emission rate of gases	5
7 Calculation method	6
7.1 Emission rate of dust.....	6
7.2 Emission rate of gases	7
8 Documentation	8
9 Test report.....	9
Annex A (informative) Examples of designs of fume box	10
Annex B (informative) Example of a welding chamber for determination of the emission rate of gases.....	13
Annex C (normative) Welding parameters	16
Annex D (informative) Example of test report.....	17
Bibliography.....	19

ISO/TS 15011-6:2012(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.

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.

In other circumstances, particularly when there is an urgent market requirement for such documents, a technical committee may decide to publish other types of document:

- an ISO Publicly Available Specification (ISO/PAS) represents an agreement between technical experts in an ISO working group and is accepted for publication if it is approved by more than 50 % of the members of the parent committee casting a vote;
- an ISO Technical Specification (ISO/TS) represents an agreement between the members of a technical committee and is accepted for publication if it is approved by 2/3 of the members of the committee casting a vote.

An ISO/PAS or ISO/TS is reviewed after three years in order to decide whether it will be confirmed for a further three years, revised to become an International Standard, or withdrawn. If the ISO/PAS or ISO/TS is confirmed, it is reviewed again after a further three years, at which time it must either be transformed into an International Standard or be withdrawn.

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/TS 15011-6 was prepared by Technical Committee ISO/TC 44, *Welding and allied processes*, Subcommittee SC 9, *Health and safety*.

ISO 15011 consists of the following parts, under the general title *Health and safety in welding and allied processes — Laboratory method for sampling fume and gases*:

- *Part 1: Determination of fume emission rate during arc welding and collection of fume for analysis*
- *Part 2: Determination of the emission rates of carbon monoxide (CO), carbon dioxide (CO₂), nitrogen monoxide (NO) and nitrogen dioxide (NO₂) during arc welding, cutting and gouging*
- *Part 3: Determination of ozone emission rate during arc welding*
- *Part 4: Fume data sheets*
- *Part 5: Identification of thermal-degradation products generated when welding or cutting through products composed wholly or partly of organic materials using pyrolysis-gas chromatography-mass spectrometry*
- *Part 6: Procedure for quantitative determination of fume and gases from resistance spot welding (Technical Specification)*

Requests for official interpretations of any aspect of this Technical Specification should be directed to the Secretariat of ISO/TC 44/SC 9 via your national standards body. A complete listing of these bodies can be found at www.iso.org.

iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST-TS CEN ISO/TS 15011-6:2012](https://standards.iteh.ai/catalog/standards/sist/6d6ad93d-4917-4c66-a538-3e948391b94f/sist-ts-cen-iso-ts-15011-6-2012)

<https://standards.iteh.ai/catalog/standards/sist/6d6ad93d-4917-4c66-a538-3e948391b94f/sist-ts-cen-iso-ts-15011-6-2012>

ISO/TS 15011-6:2012(E)**Introduction**

Welding and cutting activities generate fume and gases which can be harmful to health and should be controlled within the limits laid down by regulations.

Determination of the particle size distribution and the qualitative analysis (metallic and organic fraction and, if possible, speciation) of the dust collected are part of the current practices in human health risk assessment.

In addition, determination of the emission rate of fume and gases is essential for a proper hazard characterization (qualitative and quantitative analysis).

Emission rates cannot be used directly to assess the welder's exposure, but it is expected that materials giving low emission rates will result in lower welder exposures than materials with high emission rates used in the same working situation.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST-TS CEN ISO/TS 15011-6:2012](https://standards.iteh.ai/catalog/standards/sist/6d6ad93d-4917-4c66-a538-3e948391b94f/sist-ts-cen-iso-ts-15011-6-2012)

<https://standards.iteh.ai/catalog/standards/sist/6d6ad93d-4917-4c66-a538-3e948391b94f/sist-ts-cen-iso-ts-15011-6-2012>