SLOVENSKI STANDARD
SIST EN ISO 17652-2:2003

01-december-2003

Varjenje - Preskus osnovnih premazov v zvezi z varjenjem in sorodnimi postopki - 2. del: Lastnosti osnovnih premazov pri varjenju (ISO 17652-2:2003)

Welding - Test for shop primers in relation to welding and allied processes - Part 2: Welding properties of shop primers (ISO 17652-2:2003)

Schweißen - Prüfung von Fertigungsbeschichtungen für das Schweißen und für verwandte Prozesse - Teil 2: Schweißeigenschaften von Fertigungsbeschichtungen (ISO 17652-2:2003)

Soudage - Essai sur peintures primaires en relation avec le soudage et les techniques connexes - Partie 2: Propriétés relatives au soudage des peintures primaires (ISO 17652-2:2003)

Ta slovenski standard je istoveten z: **EN ISO 17652-2:2003**

ICS:

25.160.10 Varilni postopki in varjenje Welding processes

SIST EN ISO 17652-2:2003 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN ISO 17652-2

May 2003

ICS 25.160.10

English version

Welding - Test for shop primers in relation to welding and allied processes - Part 2: Welding properties of shop primers (ISO 17652-2:2003)

Soudage - Essai sur peintures primaires en relation avec le soudage et les techniques connexes - Partie 2: Propriétés relatives au soudage des peintures primaires (ISO 17652-2:2003)

Schweißen - Prüfung von Fertigungsbeschichtungen für das Schweißen und für verwandte Prozesse - Teil 2: Schweißeigenschaften von Fertigungsbeschichtungen (ISO 17652-2:2003)

This European Standard was approved by CEN on 2 January 2003.

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.

This European Standard exists 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.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and United Kingdom.

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

Management Centre: rue de Stassart, 36 B-1050 Brussels

Ref. No. EN ISO 17652-2:2003 E

Contents

Foreword

This document (EN ISO 17652-2:2003) has 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 shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by November 2003, and conflicting national standards shall be withdrawn at the latest by November 2003.

EN ISO 17652 consists of the following parts, under the general title: *Welding – Test for shop primers in relation to welding and allied processes:*

- *Part 1: General requirements*
- *Part 2: Welding properties of shop primers*
- *Part 3: Thermal cutting*
- *Part 4: Emission of fumes and gases*

Annexes A and ZA 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, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This part of this European Standard describes tests for assessing the influence of shop primers on the weldability. The following tests are detailed:

a) Rating test

This screening test provides a method of assessing the relative weldability of a shop primer of a specified thickness by making a standard weld and subsequently evaluating the severity of the resulting porosity. Rating tests are suitable for declaration by suppliers of the influence of particular shop primers and similar purposes;

b) Weldability test

This test describes a method for evaluating the weldability of welding consumables and shop primer combinations, using various arc welding processes. A standard size fillet is produced that enables comparison to be made. An overall assessment of the quality of the resultant weld is made. Weldability tests may be more closely related to actual conditions during production.

For precaution for protection of health, safety and environment during testing, see EN ISO 17652-1.

2 Normative references

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).

EN 439, *Welding consumables - Shielding gases for arc welding and cutting.*

EN 440, *Welding consumables - Wire electrodes and deposits for gas shielded metal arc welding of non alloy and fine grain steels - Classification.*

EN 10025:1990, *Hot rolled products of non-alloy structural steels — Technical delivery conditions.*

EN 10238, *Automatically blast-cleaned and automatically prefabricated primed structural steel products.*

EN 10278, *Dimensions and tolerances of bright steel products.*

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

EN ISO 6947, *Welds - Working positions - Definitions of angles of slope and rotation (ISO 6947:1993)*.

EN ISO 2808, *Paints and varnishes - Determination of film thickness (ISO 2808:1999).*

EN ISO 8501-1:2001*, Preparation of steel substrates before application of paints and related products - Visual assessment of surface cleanliness - Part 1: Rust grades and preparation grades of uncoated steel substrates and of steel substrates after overall removal of previous coatings (ISO 8501-1:1988).*

prEN ISO 15609-1:2000, *Specification and approval of welding procedures for metallic materials - Welding procedure specification - Part 1: Arc welding (ISO/DIS 15609-1:2000).*

EN ISO 17652-1:2003, *Welding - Test for shop primers in relation to welding and allied processes - Part 1: General requirements (ISO 17652-1:2003).*

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions in EN ISO 17652-1:2003 apply.

4 Rating test

4.1 Principle

This test provides a method of assessing the relative weldability of shop primers of a specified thickness by making a standard weld over a range of shop primers and subsequently evaluating the severity of the resulting porosity. Only one welding procedure is prescribed, using metal active gas welding (process 135 in accordance with EN ISO 4063).

The joint configuration and close fit-up are designed to give significant levels of porosity for reasons of differentiation and reproducibility.

The standard does not specify limits for acceptability as these depend on the practical application. It is expected that levels of porosity during practical applications will be lower than the levels measured during testing.

4.2 Preparation of test piece

10 test pieces shall be prepared for each shop primer. Each piece shall consist of two bright drawn mild steel plates in accordance with EN 10278.

The dimensions of the test pieces are as follows:

- 20 mm × 80 mm × 200 mm;
- 12 mm × 50 mm × 200 mm.

The parts shall have smooth, flat, undamaged surfaces, and any burrs on the edges shall be removed to ensure a good fit-up.

Both components shall be degreased and the larger component shall be coated on one side with shop primer prior to testing. The thickness of the shop primer shall be uniform and in accordance with the supplier's recommendation. Unless otherwise specified, the specimens can be welded after a drying period of at least 10 days at a surface temperature above 10°C but below 40°C and at a minimum air humidity of 50 %. Alternative conditions for storage shall be monitored and reported in the test report.

The thickness shall be checked, e.g. by use of small smooth steel plates or glass plates, see also EN ISO 2808.

NOTE For protection of the environment the degreasing of the test pieces should be done by immersing them in non-cycle hydrocarbon, aqueos cleaning agents or equivalent non-halogenated or halogen-free organic degreasing agent.

4.3 Procedure

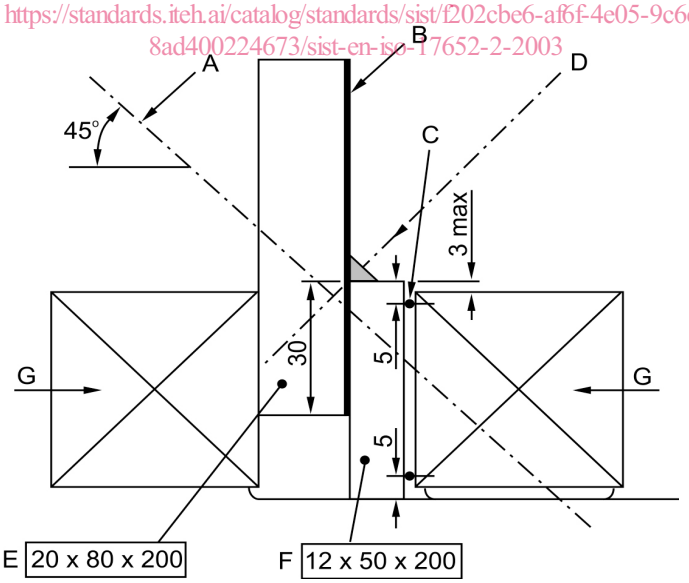
4.3.1 Welding

The specimens shall be clamped in a hydraulic vice over their entire length, the clamping force amounting to 10 kN ± 5 %, see Figure 1. At the point indicated soft-annealed copper wires of 2 mm diameter should be inserted. The vice shall be tilted to an angle of 45° so that welding can proceed in the welding position PA in accordance with EN ISO 6947. Welding parameters shall be as stated in Table 1.

Table 1 - Rating test welding parameters

Parameter	Value
Welding process	135, see EN ISO 4063
Current	250 A ± 5 %
Voltage	30 V ± 5 %
Welding speed	300 mm/min ± 5 %
Shielding gas	C1: 100% CO_2, see EN 439
Gas flow rate	15 l/min to 20 l/min
Gas cup diameter	16 mm to 19 mm
Stick out	18 mm to 20 mm
Consumable, type	G3 Si 1, see EN 440
Consumable, diameter	1,2 mm
Polarity	+ on electrode

All dimensions in millimetres



Key

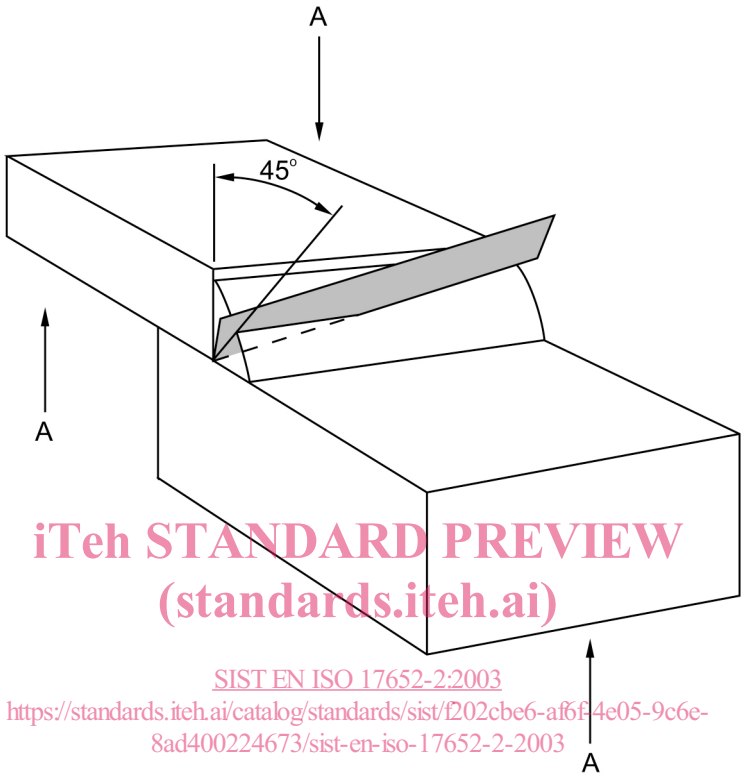
A Horizontal axis during welding
B Primed surface
C Soft-annealed copper wires — 2 mm
D Weld seam breakage angle
E Bright drawn steel plate (20 × 80 × 200)
F Bright drawn steel plate (12 × 50 × 200)
G Hydraulic clamps, 10 kN

Figure 1 - Arrangement of test pieces in rating test

4.3.2 Breaking of the test weld

Break open the test weld using three-point loading as shown in Figure 2. Reject the sample if the fracture does not bisect the weld joint.

The weld shall be broken at a temperature of approximately 150°C to 250°C so that the pore boundaries are clearly visible.



Key

A Three-point loading

Figure 2 — Breaking of the test weld

NOTE The weld can usually be broken without pre-notching as shown in Figure 2. In case the fracture does not occur, the bisecting angle of the weld pre-notching by sawing as shown in Figure 2 should be used.

4.4 Examination and determination of porosity

Do not take into consideration pores where the largest diameter is less than 0,5 mm. Perform the evaluation at a magnification in which pores larger than 0,5 mm (largest diameter) can be measured. However, the magnification shall be no less than 10 times. Evaluate a length of 100 mm, excluding 60 mm from the start and 40 mm from the end of the specimen.

The following shall be determined and recorded:

- the number of pores larger than 0,5 mm n;
- the total pore area determined F (mm^2);
- the mean area of individual pores F/n (mm^2).

NOTE Area of a single pore can usually be determined from a measurement of the largest and smallest diameter, assuming an elliptical shape.