



SLOVENSKI STANDARD SIST EN ISO 6251:1998

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Liquefied petroleum gases - Corrosiveness to copper - Copper strip test (ISO 6251:1982)

Flüssiggase - Korrosionswirkung auf Kupfer - Kupferstreifenprüfung (ISO 6251:1982)

Gaz de pétrole liquéfiés - Action corrosive sur le cuivre - Essai à la lame de cuivre (ISO 6251:1982)

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Ta slovenski standard je istoveten z: **EN ISO 6251:1995**

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ICS:

75.160.30

Plinska goriva

Gaseous fuels

SIST EN ISO 6251:1998

en

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EUROPEAN STANDARD

EN ISO 6251

NORME EUROPÉENNE

EUROPÄISCHE NORM

January 1995

ICS 75.160.30

Descriptors: petroleum products, liquefied petroleum gases, corrosive gases, tests, corrosion tests, copper products, metal strips

English version

Liquefied petroleum gases - Corrosiveness to copper - Copper strip test (ISO 6251:1982)

Gaz de pétrole liquéfiés - Action corrosive sur le cuivre - Essai à la lame de cuivre (ISO 6251:1982)

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 REPUBLIKA SLOVENIJA
 MINISTRSTVO ZA ZNANOST IN TEHNOLOGIJO
 Urad RS za standardizacijo in meroslovje
 LJUBLJANA
 SIST..... EN ISO 6251

PREVZET PO METODI RAZGLASITVE

-05- 1998

This European Standard was approved by CEN on 1995-01-02. 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 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.

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

CEN

European Committee for Standardization
 Comité Européen de Normalisation
 Europäisches Komitee für Normung

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

Foreword

This European Standard has been taken over by the Technical Committee CEN/TC 19 "Petroleum products, lubricants and related products" from the work of ISO/TC 28 "Petroleum products and lubricants" of the International Organization for Standardization (ISO).

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 July 1995, and conflicting national standards shall be withdrawn at the latest by July 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 6251:1982 was approved by CEN as a European Standard without any modification.

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International Standard



6251

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Liquefied petroleum gases — Corrosiveness to copper — Copper strip test

Gaz de pétrole liquéfiés — Action corrosive sur le cuivre — Essai à la lame de cuivre

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UDC 665.725 : 620.193.471.2

Ref. No. ISO 6251-1982 (E)

Descriptors : petroleum products, liquefied petroleum gases, corrosive gases, tests, corrosion tests, copper products, metal strips.

Price based on 4 pages

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been set up 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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 6251 was developed by Technical Committee ISO/TC 28, *Petroleum products and lubricants*, and was circulated to the member bodies in March 1981.

It has been approved by the member bodies of the following countries:

Australia	Iran	Peru
Austria	Iraq	Poland
Belgium	Ireland	Romania
Brazil	Israel	South Africa, Rep. of
Canada	Italy	Spain
China	Japan	Sri Lanka
Egypt, Arab Rep. of	Korea, Dem. P. Rep. of	Sweden
France	Korea, Rep. of	Switzerland
Germany, F.R.	Mexico	United Kingdom
Hungary	Netherlands	USA
India	Norway	USSR

No member body expressed disapproval of the document.

Liquefied petroleum gases — Corrosiveness to copper — Copper strip test

1 Scope and field of application

This International Standard specifies a method for the detection of the corrosiveness to copper of liquefied petroleum gases.

NOTE — For an equivalent copper strip test applicable to less volatile petroleum products, see ISO 2160.

2 Reference

ISO 2160, *Petroleum products — Corrosiveness to copper — Copper strip test.*

3 Principle

A polished copper strip is immersed for 1 h at a temperature of 40 °C in 100 ml of water-saturated sample contained in a cylinder of suitable working pressure. At the end of this period, the copper strip is removed and rated as one of the four classifications of the table by comparison with a copper corrosion standard plaque.

4 Apparatus

4.1 Corrosion test cylinder, (see the figure) consisting of the following items :

4.1.1 Stainless steel cylinder, of the form and dimensions shown in the figure and tapped at the lower end to take a 6 mm needle-valve.

4.1.2 Top closure, of stainless steel with a chloroprene rubber O-ring.

The closure is tapped to take a 6 mm needle-valve and carries a stainless steel dip-tube at the lower end of which there is a hook from which the copper strip is hung.

4.1.3 Aluminium flexible connecting hose, with swivel connections and adapter to a 6 mm pipe.

The assembly shall be tested hydrostatically to a pressure of 7,0 MPa (70 bar) and no leak shall be detectable when it is filled with gas at a pressure of 3,5 MPa (35 bar) and immersed in the water bath (4.2).

4.2 Water bath, capable of being maintained at $40 \pm 0,5$ °C.

The bath shall be fitted with suitable supports to hold the test cylinder (4.1) in an upright position and be deep enough so that the entire cylinder and valves will be covered during the test.

4.3 Thermometer¹⁾, of the total immersion type having a range of 0 to 50 °C, subdivided at intervals not greater than 0,2 °C, and having a scale error not greater than 0,1 °C.

4.4 Strip-polishing vice, for holding the copper-strip firmly without marring the edge during polishing.

Any convenient type may be used, provided that the strip is held tightly and that the surface being polished is supported above the surface of the holder.

1) A suitable thermometer would be ASTM 12 C, which is equivalent to IP 64 C.

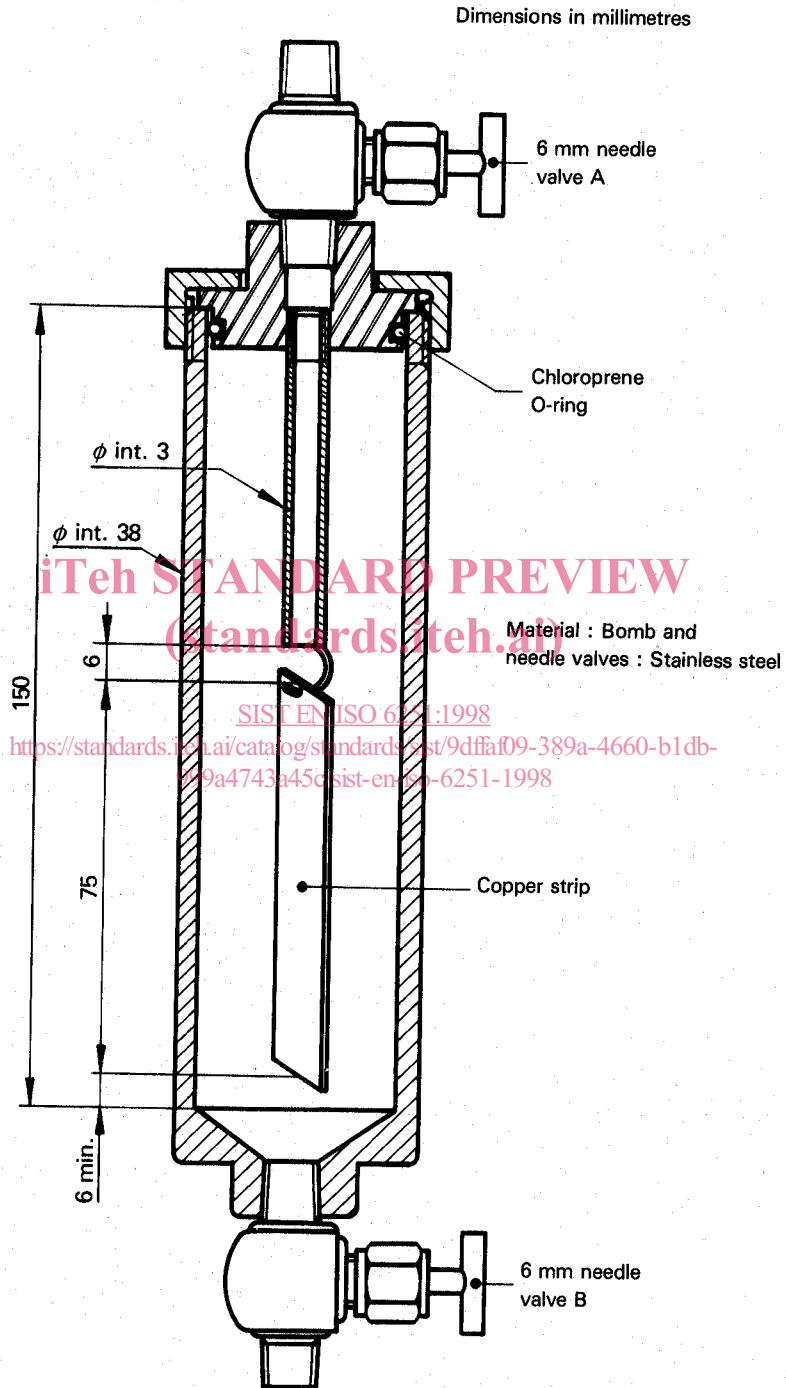


Figure — Copper strip corrosion test cylinder

5 Materials

5.1 Wash solvent. Knock test grade *isooctane* conforming with the requirements of the annex to ISO 2160.

5.2 Distilled water or water of equivalent purity.

5.3 Copper strip. 75 mm long, 12,5 mm wide, and 1,5 to 3,0 mm thick, of the quality of copper described in ISO 2160.

Drill a 3,0 mm hole approximately 3,0 mm from one end in the centre of the strip.

5.4 Polishing materials: Silicon carbide grit paper of various degrees of fineness including 63 μm paper or cloth; also, a supply of 90 μm silicon carbide grain and pharmaceutical grade absorbent cotton (cotton wool).

5.5 Copper corrosion standards.¹⁾

The care and inspection for stability of such plaques are described in detail in ISO 2160.

6 Preparation of strips

6.1 Surface preparation

Remove all surface blemishes from all six sides of the strip with silicon carbide grit paper (see 5.4) of such degrees of fineness as are needed to accomplish the desired results efficiently. Finish with 63 μm silicon carbide paper or cloth, removing all marks that may have been made by other grades of paper used previously. Immerse the strip in the wash solvent (5.1) from which it may be withdrawn immediately for final polishing or in which it may be stored for future use.

NOTE — As a practical manual polishing procedure, place a sheet of the paper on a flat surface, moisten it with the wash solvent and rub the strip against the paper with a rotary motion, protecting the strip from contact with the fingers with an ashless filter paper. Alternatively, the strip may be prepared by use of motor-driven machines using appropriate grades of dry paper or cloth.

6.2 Final polishing

Remove the strip from the wash solvent. Holding it in the fingers protected with ashless filter paper, polish first the ends and then the sides with 90 μm silicon carbide grains picked up from a clean glass plate with a pad of absorbent cotton

moistened with several drops of wash solvent. Wipe vigorously with fresh pads of absorbent cotton and subsequently handle only with stainless steel forceps; do not touch with the fingers. Clamp in the vice (4.4) and polish the main surfaces with silicon carbide grains on absorbent cotton. Rub in the direction of the long axis of the strip, carrying the stroke beyond the end of the strip before reversing the direction. Clean all metal dust from the strip by rubbing vigorously with clean pads of absorbent cotton until a fresh pad remains unsoiled. When the strip is clean, immediately attach it to the dip-tube (see 4.1.2) and immerse it in the prepared test cylinder (4.1.1).

NOTE — It is important to polish the whole surface of the strip uniformly to obtain a uniformly stained strip. If the edges show wear (surface elliptical), they are likely to show more corrosion than the centre. The use of a vice facilitates uniform polishing.

7 Procedure

CAUTION — Provide a safe means for disposal of liquid and vapour escaping during the entire operation.

7.1 With valve B open, place approximately 1 ml of the distilled water (5.2) into the clean test cylinder (4.1) and swirl to moisten the walls; allow the remainder to drain from the cylinder, insert the freshly polished copper strip suspended from the hook on the dip-tube, making sure that the bottom of the strip is at least 6 mm from the bottom of the cylinder when assembled. After assembly of the apparatus, close both valves A and B.

7.2 Holding the test cylinder upright so as not to wet the copper strip with water, attach the sample source to the test cylinder valve A by means of a short length of the flexible hose (4.1.3), which has been purged with the sample. Admit some sample to the cylinder by opening the valve at the sample source and then valve A.

7.3 Close valve A without disconnecting the test cylinder from the sample source. Invert the test cylinder and open valve B to purge the air from the test cylinder. Return the test cylinder to the upright position and drain any residual liquid through the open valve B. Close valve B with the test cylinder now in its upright position, open valve A and fill the test cylinder with the sample. When the test cylinder is full, close valve A, the valve at the sample source, and disconnect the flexible hose.

CAUTION — (See 7.1.)

¹⁾ The copper strip corrosion standard is available commercially. Details may be obtained from the Secretariat of ISO/TC 28 or from the ISO Central Secretariat.