

Gas cylinders - Compatibility of cylinder and valve materials with gas contents - Part 3: Autogenous ignition test for non-metallic materials in oxygen atmosphere (ISO 11114-3:2010)

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN ISO 11114-3:2011 sisaldab Euroopa standardi EN ISO 11114-3:2010 ingliskeelset teksti.

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English Version

Gas cylinders - Compatibility of cylinder and valve materials with
gas contents - Part 3: Autogenous ignition test for non-metallic
materials in oxygen atmosphere (ISO 11114-3:2010)

Bouteilles à gaz - Compatibilité des matériaux de bouteilles
et de robinets avec les contenus gazeux - Partie 3: Essai
d'auto-inflammation des matériaux non métalliques sous
atmosphère d'oxygène (ISO 11114-3:2010)

Ortsbewegliche Gasflaschen - Verträglichkeit von
Flaschen- und Ventilwerkstoffen mit den in Berührung
kommenden Gasen - Teil 3: Prüfung der
Selbstentzündungstemperatur von nichtmetallischen
Werkstoffen in Sauerstoffatmosphäre (ISO 11114-3:2010)

This European Standard was approved by CEN on 14 December 2010.

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COMITÉ EUROPÉEN DE NORMALISATION
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Foreword

This document (EN ISO 11114-3:2010) has been prepared by Technical Committee ISO/TC 58 "Gas cylinders" in collaboration with Technical Committee CEN/TC 23 "Transportable gas cylinders" the secretariat of which is held by BSI.

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of an identical text or by endorsement, at the latest by June 2011, and conflicting national standards shall be withdrawn at the latest by June 2011.

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Endorsement notice

The text of ISO 11114-3:2010 has been approved by CEN as a EN ISO 11114-3:2010 without any modification.

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Introduction

The following test method is referenced in ISO 11114-1 and ISO 11114-2.

Further information about oxygen compatibility is given in ISO 11114-1 and ISO 11114-2.

Other oxygen compatibility test methods include oxygen index (see ISO 4589-3), heat of combustion and adiabatic compression on materials (see ISO 21010).

Gas cylinders — Compatibility of cylinder and valve materials with gas contents —

Part 3:

Autogenous ignition test for non-metallic materials in oxygen atmosphere

1 Scope

This part of ISO 11114 specifies a test method to determine the autogenous ignition temperature of non-metallic materials in pressurized gaseous oxygen.

The autogenous ignition temperature is one criterion for ranking materials, and can be used to assist with the choice of materials used in the presence of gaseous oxygen.

A comprehensive bibliography of the published material on which this part of ISO 11114 is based is included.

It is intended that this part of ISO 11114 be used for the selection of non-metallic materials for gas cylinders and accessories, for example to select the materials in order to meet the requirement for type testing for oxygen compatibility of all cylinder valves for highly oxidizing gases as specified in ISO 10297.

2 Principle

A small quantity of the test material is heated in pressurized oxygen. A continuous recording is made of pressure and temperature in order to determine the point of autogenous ignition, at which point a sudden increase in temperature and pressure is observed (this point is known as the autogenous ignition temperature).

3 Preparation of test samples

Test samples shall be prepared in such a manner as to prevent contamination.

Test samples may be in liquid or solid form. In the case of solids, the material shall be finely divided. A sample mass between 0,06 g and 0,5 g is used for each test.

This mass should be adjusted to take into consideration the volume of the test reaction chamber. A sample of 0,5 g in a test reaction chamber volume of between 30 cm³ and 250 cm³ has been found to be suitable.

4 Test apparatus

Figure 1 gives an example of a suitable test apparatus. The test sample is put into a small, carefully cleaned inert sample holder, placed in a reaction chamber within an electric oven with sufficient power to raise temperature at a constant rate as specified in Clause 6.