AS 4955.3—2003
ISO 11114-3:1997

Australian Standard™

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

Part 3: Autogenous ignition test in oxygen atmosphere

Standards Australia

This Australian Standard was prepared by Committee ME-002, Gas Cylinders. It was approved on behalf of the Council of Standards Australia on 6 November 2003 and published on 24 December 2003.

The following are represented on Committee ME-002:

Air Conditioning and Refrigeration Wholesalers Association
Australasian Institute of Engineer Surveyors
Australasian Railway Association
Australian Chamber of Commerce and Industry
Australian Gas Association
Australian Industry Group
Australian Liquefied Petroleum Gas Association
Boiler and Pressure Vessel Manufacturers Association of Australia
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PREFACE

This Standard was prepared by the Australian members of the Joint Standards Australia/Standards New Zealand Committee ME-002, Gas Cylinders. After consultation with stakeholders in both countries, Standards Australia and Standards New Zealand decided to develop this Standard as an Australian rather than Australian/New Zealand Standard.

This Standard is identical with and has been reproduced from ISO 11114-3:1997, *Transportable gas cylinders—Compatibility of cylinder and valve materials with gas contents*, Part 3: *Autogenous ignition test in oxygen atmosphere*.

The objective of this Standard is to specify a test method to determine the autogenous ignition temperature of non-metallic materials in pressurized gaseous oxygen.

As this Standard is reproduced from an International Standard, the following applies:

(a) Its number appears on the cover and title page while the International Standard number appears only on the cover.

(b) A full point substitute for a comma when referring to decimal marker.

(c) Substitute ‘mL’ for ‘ml’ whenever it appears.

The term ‘informative’ has been used in this Standard to define the application of the appendix to which it applies. An ‘informative’ appendix is only for information and guidance.

CONTENTS

INTRODUCTION

This Standard is one of a three-part Standard concerning compatibility of gases and gas mixtures with materials :

- Part 1 : Metallic materials ;
- Part 2 : Non metallic materials ;
- Part 3 : Autogenous ignition test in oxygen atmosphere.

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

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

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

AUSTRALIAN STANDARD

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

Part 3:
Autogenous ignition test in oxygen atmosphere

1 Scope

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

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

Annex B of this standard is a comprehensive bibliography of the published material on which this standard is based.

NOTE : This standard can 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 oxygen gas cylinder valves as specified in EN 849.

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 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.

NOTE : This mass should be adjusted to take into consideration the volume of the test cell. A sample of 0,5 g in a test cell volume of between 30 cm^3 and 250 cm^3 has been found to be suitable.