Singapore Standards Council

CP 12 : Part 2 : 1998
(ICS 23.020.35)

SINGAPORE STANDARD

Code of practice for the filling, inspection, testing and maintenance of containers for the storage and transport of compressed gases

– Part 2 : Containers for dissolved acetylene gas

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This Singapore Standard having been approved by the Mechanical Standards Committee was endorsed by the Standards Council on 30 November 1998.

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The Mechanical Standards Committee appointed by the Standards Council consists of the following members:

		Name	Organisation
Chairman	:	Mr Victor Ho Kwok Weng	*Standards Council*
Deputy Chairman	:	Mr Ng Thin Teng	*Individual Capacity*
Secretary	:	Ms Christina Choong	*Singapore Productivity and Standards Board*
Members	:	Assoc Prof Chau Fook Siong	*National University of Singapore*
		Mr Cheng Wee Sik	*Institution of Engineers Singapore*
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		Mr Soh Yoke Lun	*Singapore Confederation of Industries*
		Mr George Sze	*Public Works Department*

The Technical Committee on Storage and Transportation of Compressed Gases including LPG appointed by the Mechanical Standards Committee and responsible for the preparation of this code consists of representatives from the following organisations:

		Name	Organisation
Chairman	:	Assoc Prof Chau Fook Siong	*Mechanical Standards Committee*
Secretary	:	Mr Loke Seck Kar	*Singapore Productivity and Standards Board*
Members	:	Mr Martinn Ho Yuen Liung	*Ministry of the Environment*
		Mr Lee See Loi	*Institution of Engineers Singapore*
		Mr Leong Shui Hung	*Department of Industrial Safety*
		Mr Tan Guan Joo	*Singapore Confederation of Industries*
		Cpt Thng Ting Mong	*Singapore Civil Defence Force*

The Working Group appointed by Technical Committee to prepare the initial draft of this revision consists of the following members:

		Name	Organisation
Convenor	:	Mr Martinn Ho Yuen Liung	*Ministry of the Environment*
Members	:	Mr David Loke Yoon Kwok	*Esso Singapore Pte Ltd*
		Mr Loy Boon Keow	*Singapore Oxygen Air Liquide Pte Ltd*
		Cpt Thng Ting Mong	*Singapore Civil Defence Forces*

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Contents

Foreword

This Singapore Standard Code of Practice was prepared by the Technical Committee on Storage and Transportation of Compressed Gases including LPG under the direction of the Mechanical Standards Committee.

The code was first prepared in 1980 and was meant to introduce a common basis for apparatus, materials and techniques used for the operations described. It is intended that adherence to the code will enable these operations to be performed safely and result in an end product which will be safe to handle when used with due precautions. CP 12 consists of two parts as follows:

Part 1 : Seamless metal containers for gases, excluding dissolved acetylene

Part 2 : Containers for dissolved acetylene

This part of the code was revised in 1998 by the Technical Committee on Storage and Transportation of Compressed Gases including LPG. The aim was to align its contents with current international practices and to ensure that at the end of the periodic inspection and tests, the cylinders may be reintroduced into service for a further period of time.

This revision is primarily based on:

(a) ISO 10462 : 1995 Cylinders for dissolved acetylene - Periodic inspection and maintenance

(b) ISO 11372 : 1995 Cylinders for dissolved acetylene - Inspection at time of filling

Where necessary and appropriate, some of the adopted clauses were amended to suit local requirements. In this revision, the major deviations from the 1980 edition are:

(a) procedures for inspection prior to filling have been standardised with periodic inspection;

(b) requirements for markings upon completion of periodic inspection have been given further elaboration;

(c) a new section has been added to provide for the destruction of rejected/unserviceable cylinders; and

(d) new annexes have been included to provide detailed illustration/description of physical and material defects in the cylinder shell, inspection of porous mass and maintenance of valves, etc.

Reference was also made to:

(a) BS 5355 : 1976 Specification for filling ratios and developed pressures for liquefiable and permanent gases

(b) BS 6071 : 1981 Periodic inspection and maintenance of transportable gas containers for dissolved acetylene

(c) ISO 554 : 1976 Standard atmospheres for conditioning and/or testing - Specifications

(d)	ISO 4706 : 1989	Refillable welded steel gas cylinders
(e)	ISO 5145 : 1990	Cylinder valve outlets for gases and gas mixtures - Selection and dimensioning
(f)	ISO 10286 : 1992	Gas cylinders - Terminology
(g)	SS 239 : 1980	Liquefied petroleum gas
(h)	SS ISO 1000 : 1992	SI units and recommendations for the use of their multiples and of certain other units

Acknowledgement is made for the use of information from the above standards.

Code of practice for the filling, inspection, testing and maintenance of containers for the storage and transport of compressed gases - Part 2 : Containers for dissolved acetylene gas

0 Introduction

0.1 Transportable or stationary gas cylinders for dissolved acetylene require inspection at the time of filling to establish that:

(a) the cylinder has no serious defects;

(b) the cylinder can be identified and complies with the requirements of the regulating authorities with regard to marking, colour coding and completeness of accessories;

(c) the cylinder valve functions satisfactorily; and

(d) the appropriate amounts of the acetylene, solvent and settled pressure have been determined.

0.2 Cylinders for dissolved acetylene differ from cylinders transporting all other compressed or liquefied gases in that they must contain a porous mass and normally a solvent in which the stored acetylene is dissolved. For the periodic inspection cycle, due regard shall be given to the different types of construction of cylinders and porous masses. The contents of this part of the code should be read considering these differences. However, for special laboratory purposes, a limited quantity of acetylene cylinders containing a porous mass and no solvent also exists.

0.3 Experience in the inspection and testing of cylinders which are specified in this code is important when determining whether a cylinder should be returned into service.

1 Scope

1.1 Part 2 of this Code of Practice specifies the minimum requirements for the inspection and maintenance before filling, filling and periodic inspection and maintenance of transportable dissolved acetylene containers (hereinafter referred to as "cylinders" or "containers"). It applies to containers with water capacity from 0.5 l to 150 l.

1.2 Due to the presence of a porous mass in the container, neither a hydraulic test nor visual inspection of internal surface is carried out.

NOTE – The titles of the publications referred to in this standard are listed at the end of the standard.

2 Definitions

For the purposes of this code, the following definitions shall apply:

2.1 Charging

The process of filling dissolved acetylene into a container by gradually compressing the gas into the container and dissolving into the solvent until the pressure rise indicates that the container should be checked and weighed to determine if it is full.