

ICS 83.140.30

CCS G 33



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 34437-2017

**Test method of the oxygen permeability of the multilayer
composite plastics pipe**

多层复合塑料管材氧气渗透性能测试方法

(English Translation)

Issued on: October 14, 2017

Implemented on: May 1, 2018

**Issued by: General Administration of Quality Supervision, Inspection and
Quarantine of the People's Republic of China, Standardization
Administration of the People's Republic of China**

Table of Contents

- Foreword
- 1 Scope
- 2 Normative references
- 3 Principle
- 4 Terms and definitions

Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This standard uses redrafted Law Amendment uses ISO 17455:2005 "plastic pipe system composite pipe barrier pipe oxygen penetration Performance Testing".

This standard and ISO 17455:2005 technical differences and the reasons are as follows.

- Increased test pressure of 0.2MPa, to uniform test conditions;
- Increasing Figure 1 in the detection of the start time (t_1) and the detection of the end of the time (t_2), so that Figure 1 and the formula to better correspondence;
- Modify equation (3), an increase of parameters COX, t_1 , COX, t_2 and its interpretation;
- Modify the symbol in Figure 2, integral o_2 , fin Sf, integral $6 = 0 o_2$, init Si, integral o_2 , abs with ΔS , in (7) and (10) in the corresponding replacement, so that users can easily understand;
- Added Chapter 10 c) temperature and pressure requirements in the test conditions to clarify the test conditions in the test report.

This standard made the following editorial changes.

- Remove the test device calibration and test preparation chapter, the relevant content to move to the chapter of the test steps;
- Added Appendix B (informative) "experimental device schematic diagram." Please note that some of this document may be patentable. The issuing agencies of this document do not bear the responsibility of identifying these patents.

This standard proposed by the China Light Industry Federation.

This standard by the National Plastics Standardization Technical Committee (SAC/TC48) centralized.

This standard was drafted unit. National Chemical Building Materials Testing Center (Materials Testing Division), Zhejiang Weixing New Building Materials Co., Ltd.

China Aviation Planning and Design Institute Co., Ltd., Icahn Enterprise Group (Shanghai) Co., Ltd., Kuraray International Trade (Shanghai) Co., Ltd., Rifeng Enterprise Group Co., Ltd., China Petrochemical Co., Ltd. Beijing Yanshan Branch Institute of resin applications.

1 Scope

This standard specifies the two kinds of test methods of oxygen permeability of multi-layer composite plastic pipe (hereinafter referred to as pipe), dynamic method (method I, Arbitration method) and static method (method II).

This standard applies to hot and cold water transport with multi-layer composite plastic pipe. Single-layer plastic pipe oxygen permeability test can refer to this standard.

Note that in principle, the two methods get the same conclusion.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version applies to this article Pieces. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 6111 thermoplastic piping fluid resistance pressure test method (GB/T 6111-2003, ISO 1167:1996, IDT) GB/T 8806 Plastics piping systems - Determination of dimensions of plastic parts (GB/T 8806-2008, ISO 3126:2005, IDT)

3 Principle

The oxygen permeability of a multilayer composite plastic pipe is expressed as the amount of oxygen permeated through the wall of the sample under specified conditions. The amount of penetration passed Determination of closed system of dissolved oxygen concentration in water (referred to as oxygen concentration) value obtained. Determination should limit the oxygen can only pass through the sample tube wall Instead of infiltration of other parts.

4 Terms and definitions

The following terms and definitions apply to this document.

Multi-layer composite pipe Tubes made of multiple layers of different materials.

M-type multilayer pipe multilayerMpipe Tubes composed of multiple layers of polymer and one or more layers of metal.

P-type multilayer pipe multilayerPpipe Tubes made of two or more layers of polymer.

Oxygen barrier layer Block or substantially reduce the permeation of oxygen from the outside of the tubing into the barrier within the tube.