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

GB/T 31354-2014

**Determination of oxygen gas transmission rate through dry
packages -- Coulometric sensor**

包装件和容器氧气透过性测试方法 库仑计检测法

(English Translation)

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Foreword

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

This standard uses redrafted Law Amendment uses ASTM F1307:2002 "Determination of drying package oxygen through Coulomb gauge sensor Standard Test Method for Rate. " this standard ASTM F1307:2002 technical differences and their reasons are as follows.

--- With "normative references" instead of "reference documents" to delete the ASTM standard, citing the corresponding national standards, in order to adapt to China Technical conditions;

--- 3.1.2 deleted the definition of "oxygen permeability coefficient", because this parameter is not used in this standard;

--- ASTM F1307:2002 test is not set specific environmental conditions, use of this standard in Chapter 6 GB/T 2918 standard gauge the standards set by environmental conditions;

--- The ASTM F1307. in 2002 7.1.2.4 temperature control device, the meter 7.1.4, 7.1.8 voltage recorder, increase the accuracy Requirements, so that description more rigorous;

--- The ASTM F1307. in 2002 8.1 "ppm" to "μL/L", because ppm non-legal units of measurement;

--- The ASTM F1307. the 2002 Chapter 8 reagents and starting materials, increase the adhesive described, for more practical guidance significance;

--- The ASTM F1307. 9.2 purge flow in 2002 to "not less than 40mL/min", in order to adapt our technical conditions;

--- Delete Chapter 17, "precision and bias", described as a result of the analysis of a single brand of device does not have universal significance.

This standard made the following editorial changes.

--- Delete Chapter 5, "the meaning and use";

- The Chapter 6, "interferences" Adjust this standard 8.3;
- To Chapters 10 and 11 were combined and adjusted to Chapter 5 of this standard;
- The Chapter 8, "Reagents and materials" Adjust this standard 7.3;
- The Chapter 12, "Instrument calibration" in this standard as described in Appendix A;
- The Chapter 13, "Preparing package detection" Adjust this standard 9.1;
- Delete Chapter 14 14.1 and 14.6;
- Delete Chapter 18, "keywords." this standard by the National Quality Supervision key product testing method Standardization Technical Committee (SAC/TC374) and focal points.

This standard was drafted. National Packaging Product Quality Supervision and Inspection Center (Guangzhou), Foshan Southern Packaging Co., Ltd. Guangzhou Li Ying Plastic Expected Ltd., Chaozhou City in Guangdong Province Quality Supervision and Testing by the Guangzhou City crown Yu Foil Packaging Materials Co., Ltd., Guangzhou Quality Supervision and Inspection Measure Institute.

1 Scope

This standard specifies the test methods for use under steady state conditions coulometer method for the package and container testing oxygen permeability.

This standard applies to plastics and composites packages and containers (hereinafter referred to as "package") for oxygen permeability testing.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version suitable for use herein Member. For undated references, the latest edition (including any amendments) applies to this document.

GB/T 2918 plastic sample conditioning and testing of the standard environment (GB/T 2918-1998, ISO 291:1997, IDT)

3 Terms and Definitions

The following terms and definitions apply to this document.

Steady steadystate

When the state of the amount of gas absorbed by the sample and the amount of gas through the balance of the sample when.

The oxygen transmission rate R (O₂) Under test conditions, the unit of time from the

outside of the package through the amount of oxygen inside. International in moles per second (mol/s).

At standard temperature and pressure (StandardTemperatureandPressure, STP), the common unit of oxygen transmission cubic Cm per day (cm³/d).

Note: at standard temperature and pressure, 1atm = 0.1013MPa, 1cm³ (STP) = 44.62μmol, 24h = 86.4 x 10³s.

OTR oxygenpermeance

P (O₂)

The oxygen transmission rate and oxygen partial pressure inside and outside the package of the difference between the ratio of international units per mole Pa [mol/(s · Pa)], the common unit Cubic centimeters per day MPa [cm³/(d · MPa)].

4 Test principle

The package is mounted on the holder of the instrument test the package and seal the opening of the package. Into the package through the nitrogen carrier gas, packaging the outer member is placed with a known oxygen concentration in the environment (e.g., an oxygen concentration of 20.8% of the oxygen concentration in the atmosphere or sealed environment of 100% in). The reaction of oxygen through the wall of the package with nitrogen carrier gas into the Coulomb power sensors together and produce a current, and the current intensity Per unit time by a linear relationship between the amount of oxygen Coulomb sensor.