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Proton Exchange Membrane Fuel Cell—Part 7: Test Method of Carbon Paper Properties
质子交换膜燃料电池
第 7 部分：炭纸特性测试方法

(English Translation)

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CONTENTS

Proton Exchange Membrane Fuel Cell —Part 7: Test Method of Carbon Paper Properties

1 SCOPE

This document specifies the terms and definitions related to the carbon paper of proton exchange membrane fuel cell (PEMFC), and describes the test methods for PEMFC carbon paper properties, including thickness uniformity test, resistance test, mechanical strength test, gas permeability test, porosity test, bulk density test, area density test, roughness test, through-plane thermal conductivity test, bending stiffness test, static contact angle test and durability test, and the test report.

This document is applicable to testing the PEMFC carbon paper.

2 NORMATIVE REFERENCES

The following normative documents contain provisions which, through normative reference in this text, constitute essential provision of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendment) applies.

GB/T 1040.3-2006 Plastics - Determination of tensile properties - Part 3: Test conditions for films and sheets

GB/T 20042.1-2017 Proton Exchange Membrane Fuel Cell - Part 1: Terminology

GB/T 28816-2020 Fuel cell - Terminology

3 TERMS AND DEFINITIONS

For the purposes of this document, the terms and definitions given in GB/T 20042.1-2017 and GB/T 28816-2020, as well as the following apply.

3.1 area specific resistance

the ohmic resistance of carbon paper multiplied by its effective area under the specified pressure conditions

Note: The area specific resistance is expressed in milliohm square centimeter ($m\Omega \cdot cm^2$).

3.2 through-plane resistivity

resistivity in the direction perpendicular to the surface of carbon paper

Note: The through-plane resistivity is expressed in milliohm centimeter ($m\Omega \cdot cm$).

3.3 in-plane resistivity

resistivity in the direction parallel to the surface of carbon paper

Note: The in-plane resistivity is expressed in milliohm centimeter ($m\Omega \cdot cm$).

3.4 through-plane gas permeability

gas permeability in the direction perpendicular to the surface of carbon paper

Note: The through-plane gas permeability is expressed in milliliters millimeters per square centimeter per hour Pa [$mL \cdot mm/(cm^2 \cdot h \cdot Pa)$].

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