

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE



**Semiconductor devices – Flexible and stretchable semiconductor devices –  
Part 7: Test method for characterizing the barrier performance of thin film  
encapsulation for flexible organic semiconductor**

**Dispositifs à semiconducteurs – Dispositifs à semiconducteurs souples et  
extensibles –  
Partie 7: Méthode d'essai pour caractériser la performance des barrières en  
couches minces utilisées pour l'encapsulation des semiconducteurs  
organiques souples**



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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

SEMICONDUCTOR DEVICES –  
FLEXIBLE AND STRETCHABLE SEMICONDUCTOR DEVICES –

**Part 7: Test method for characterizing the barrier performance of  
thin film encapsulation for flexible organic semiconductor**

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The text of this International Standard is based on the following documents:

FDIS	Report on voting
47/2533/FDIS	47/2542/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts in the IEC 62951 series, published under the general title *Semiconductor devices – Flexible and stretchable semiconductor devices*, can be found on the IEC website.

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## SEMICONDUCTOR DEVICES – FLEXIBLE AND STRETCHABLE SEMICONDUCTOR DEVICES –

### Part 7: Test method for characterizing the barrier performance of thin film encapsulation for flexible organic semiconductor

#### 1 Scope

This part of IEC 62951 specifies evaluation conditions and gives a method of measurement as well as a test set-up for the measurement of barrier performance for thin-film layer with ultra-low permeation rate under both flat and bending conditions. This document also includes the preparation of specimen, electrical contacts, sensor films and calculation procedures. For these purposes, this document provides terms, definitions, symbols, configurations, and test methods including test conditions such as temperature, relative humidity, testing time.

#### 2 Normative references

There are no normative references in this document.

#### 3 Terms and definitions

For the purposes of of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

##### 3.1

##### **water vapour transmission rate WVTR**

amount of water vapour transmitted through unit area of test specimen per unit time under specified conditions

Note 1 to entry: Its unit is generally  $\text{g}/\text{m}^2 \text{ day}$  or  $\text{g}/(\text{m}^2 \cdot 24 \text{ h})$  and it means how much water vapour permeates through a 1 m by 1 m square for 1 day.

[SOURCE: ISO 15106-1:2003, 3.1, modified – the note has been expanded.]

##### 3.2

##### **four-wire resistance measurement**

electrical resistance measuring technique that uses separate pairs of current-carrying and voltage-sensing electrodes to make more accurate measurements than the simpler and more usual two-terminal sensing

##### 3.3

##### **organic thin film transistor OTFT**

thin film transistor fabricated by using an organic semiconducting material

Note 1 to entry: This note applies to the French language only.