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Nanotechnology-Silver nanowire conductive film accelerated aging test using xenon lamp

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting is required.

Please note that some of the contents of this document may involve patents. The issuing organization of this document does not assume the responsibility for identifying patents.

This document was proposed by the Chinese Academy of Sciences.

This document is under the jurisdiction of the National Technical Committee on Nanotechnology Standardization (SAC/TC 279).

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Introduction

As capacitive touch screens are increasingly used, from smart education and smart conferences to smart travel, smart healthcare and government affairs, In the fields of electronics, the application demand of capacitive touch screen is increasing. Nano silver wire transparent conductive film has high light transmittance, low square resistance and good flexibility.

Characteristics, in the application of flexible touch screen and rigid touch screen sensing layer, it has unique advantages.

Since the nano silver wire transparent conductive film material is often exposed to solar radiation or solar radiation behind glass during use, the solar Radiation, temperature, humidity and other climatic factors have a significant impact on material performance. Exposure in laboratory equipment is more likely to occur in the natural environment.

In order to more quickly measure the effects of solar radiation, temperature, and humidity on material properties, nanosilver wires are often used to penetrate the Test method for evaluating the light resistance of bright conductive films by exposing them to a xenon lamp (an artificial light source that simulates the spectrum of sunlight passing through window glass).

It can guide the evaluation, screening, research and development and improvement of new materials.

Nanotechnology Nano silver wire Transparent conductive film Xenon lamp Accelerated aging test method

1 Scope

This document describes the method for xenon arc accelerated weathering testing of silver

nanowire transparent conductive films.

This document is applicable to the accelerated aging performance test of transparent conductive films based on nanosilver wires using xenon lamps.

It is used as a reference for the accelerated aging performance test of transparent conductive films made of materials.

2 Normative references

GB/T 2410-2008

GB/T 32088-2015

GB/T 32269-2015

3 Terms and definitions

The terms and definitions defined in GB/T 2410-2008, GB/T 32088-2015 and GB/T 32269-2015 and the following terms and definitions apply This document.

3.1 Nanofiber

The outer dimensions of two dimensions are similar and are in the nanometer scale, and the outer dimension of the remaining dimension is significantly larger than the nanometer of the other two dimensions. object.

Note 1.Nanofibers can be flexible or rigid.

Note 2.For two dimensions of similar size, the difference between their external dimensions is less than 3 times, and the longest external dimension is more than 3 times larger than the other two dimensions.

Note 3.The longest outer dimension may not be in the nanometer range.

[Source. GB/T 32269-2015, 4.3, modified]

3.2 Nanowire

Conductive or semiconductive nanofibers.

Note. Also applicable to insulating nanofibers.

[Source. GB/T 32269-2015, 4.6]

3.3 Silver Nanowire

Nanowires made of single element silver.

Note. Also called silver nanowires.