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Test methods for liquid crystal monomers

单体液晶测试方法

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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. 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 and coordinated by the National Technical Committee for Semiconductor Equipment and Materials Standardization (SAC/TC203). This document was drafted by: Shijiazhuang Chengzhi Yonghua Display Materials Co., Ltd., Shandong Shenghua New Materials Technology Co., Ltd., Hangzhou Pu Yu Technology Development Co., Ltd., China Electronics Technology Standardization Institute, Beijing Bayi Space LCD Technology Co., Ltd., Jiangsu Hecheng Display Shi Technology Co., Ltd., Jiangsu Guangyu Chemical Co., Ltd., and Shenzhen Lubang Technology Co., Ltd. The main drafters of this document are. Wang Wei, Di Yujing, An Xianfeng, Liu Shijie, Dong Zhaoheng, Wang Kui, Liang Zhian, Yuan Guoliang, Zhao Junsha, Cao Kewei, Wu Yiran, Xing Wenli, Su Xuehui, Ding Wenquan, Wang Lina, Kang Jie, Deng Youjie, Li Xiaochun. Monomer Liquid Crystal Test Method

1 Scope

China's national test methods for liquid crystal monomers. A display's liquid crystal is not one compound but a mixture of a dozen or more monomers, each contributing to the

properties the panel needs: the temperature range over which the mixture stays nematic, the dielectric anisotropy that determines the driving voltage, the birefringence that sets the cell gap, the viscosity that governs the response time, and the stability against ultraviolet and heat. Formulating that mixture is the core intellectual property of the industry, and it depends entirely on the individual monomers being characterised precisely. The purity requirement is extreme: an ionic impurity at parts per million is enough to cause image sticking, because the ions migrate under the driving field and accumulate at the surfaces, screening the applied voltage. China now makes a large share of the world's display panels, which is why these methods are a national standard.

This document describes the test methods for monomeric liquid crystal purity, maximum impurity, volatile matter, resistivity, moisture content, and metal ion concentration. This document is applicable to the production research and development, inspection and testing, and application verification of monomer liquid crystals.

2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document. For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to This document.

GB/T 602 Preparation of standard solutions for determination of impurities in chemical reagents

GB/T 4946 Terminology of Gas Chromatography

GB/T 6682 Specifications and test methods for water used in analytical laboratories

GB/T 9008 Terminology of liquid chromatography - Column chromatography and planar chromatography

GB/T 11446.1 Electronic grade water

GB/T 25915.1-2021 Clean rooms and related controlled environments Part

3 Terms and definitions

The terms and definitions defined in GB/T 4946, GB/T 9008, SJ/T 11203 and the following apply to this document.

3.1 Maximum impurity majorimpurity The component with the largest proportion besides the main component.

3.2 quality control sample quality control sample A substance or material that has one or more characteristic values that are sufficiently uniform and stable. NOTE. Used to maintain

and monitor the stability of a measurement system by periodically testing specific values.

3.3 Dilution factor The ratio of the mass after dilution to the mass before dilution.

Note. Used to indicate the multiple by which the sample is diluted.