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

GB/T 44640-2024

Chemicals - Xenopus eleutheroembryonic thyroid assay

化学品 非洲爪蟾胚胎甲状腺活性试验

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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 is proposed and coordinated by the National Technical Committee for Hazardous Chemicals Management Standardization (SAC/TC251). This document was drafted by: Solid Waste and Chemicals Management Technology Center of the Ministry of Ecology and Environment, Ecological and Environmental Research Center of the Chinese Academy of Sciences, Institute of Microbiology, Guangdong Academy of Sciences (Guangdong Microbiological Analysis and Testing Center), China Inspection and Testing (Tianjin) Co., Ltd., Shenyang Shenyang Institute of Chemical Technology Testing Technology Co., Ltd., Nanjing Institute of Environmental Sciences of the Ministry of Ecology and Environment, Shanghai Institute of Chemical Technology Testing Co., Ltd., Guizhou Medical University University, Chinese Academy of Inspection and Quarantine. The main drafters of this document are. Liu Chunxin, Qin Zhanfen, Zeng Guoqu, Dou Congcong, Zhou Lili, Zhao Yuyan, Shi Lili, Shu Yaogao, Li Yuanyuan, Yang Hongbo, Cui Yi, Zhang Tian, Dai Huanhuan. Chemicals *Xenopus laevis* embryo thyroid activity test

1 Scope

GB/T 44640-2024 is the Chinese adoption of the *Xenopus eleutheroembryonic* thyroid

assay, the XETA, for detecting chemicals that interfere with thyroid hormone signalling. Endocrine disruption is one of the hazard classes that chemical regulation has had most trouble testing, and the thyroid axis in particular, because the classical assays need whole animals over long exposures. The XETA uses transgenic *Xenopus* embryos carrying a fluorescent reporter under thyroid hormone control, at a life stage that is not classed as a protected animal, and it gives an answer in days. The standard sets the test principle, the transgenic line and its maintenance, the reagents and media, the collection and staging of the embryos, the exposure design with its concentrations, controls and reference chemicals, the incubation conditions, the measurement of the fluorescence, the validity criteria, the statistical analysis and the interpretation as agonist or antagonist activity, and the test report. It takes effect on 1 April 2025.

This document describes a method for the thyroid activity assay in *Xenopus laevis* embryos. This document is suitable for screening the response of African *Xenopus* embryos to potential thyroid-active substances; suitable for screening potential thyroid-active substances. This document does not apply to volatile chemicals; does not apply to chemicals that accumulate in African clawed frog embryos and are emitted at wavelengths of 450nm~ Chemical substances that emit fluorescence in the wavelength range of 500nm~550nm when excited in the range of 500nm.

2 Normative references

The contents of the following documents constitute 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 21801 Respirometric test for rapid biodegradability of chemicals

GB/T 21802 Improved MITI test for the rapid biodegradability of chemicals (I)

GB/T 21803 DOC reduction test for rapid biodegradability of chemicals

GB/T 21831 Ready biodegradability of chemicals. Closed bottle test

GB/T 21845 Test for water solubility of chemicals

GB/T 21852 Chemical Partition Coefficient (n-octanol-water) High Performance Liquid Chromatography Test

GB/T 21853 Partition coefficient of chemicals (n-octanol-water) Shake bottle test

GB/T 21855 Test for hydrolysis of chemicals in relation to pH

GB/T 21856 Carbon dioxide generation test for readily biodegradable chemicals

GB/T 21857 Improved OECD screening test for the ready biodegradability of chemicals

GB/T 22052 Method for determining the relationship between vapor pressure and temperature and initial decomposition temperature of liquids using a liquid vapor pressure gauge

GB/T 22228 Determination of the vapor pressure of solids and liquids of industrial chemicals in the range of 10-1Pa to 105Pa Static method

GB/T 22229 Determination of vapor pressure of solid and liquid chemicals for industrial use in the range of 10-3Pa to 1Pa Balance