

ICS 13.300
CCS A 80



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

GB/T 27858-2011

**Chemicals -- Sediment-water chironomid toxicity test -- Spiked
water method**

化学品 沉积物-水系统中摇蚊毒性试验 加标于水法

(English Translation)

Issued on: December 30, 2011

Implemented on: August 1, 2012

Issued by: Standardization Administration of China

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Foreword

This standard was drafted in accordance with GB/T 1.1-2009 given rules.

The Standards and Organisation for Economic Co-operation and Development (OECD) Guidelines for the Testing of Chemicals 219 "Guidelines for testing of chemicals in sediment - water system Chironomid toxicity test in water spiked Law "(April 2004) the same (in English) of technical content.

This standard configuration and do the following editorial changes.

--- To be consistent with existing national standards, the standard name changed to "chemical sediment - water system chironomid toxicity test plus Labeled water method ";

--- The OECD219 the "introduction" of this standard as "Introduction";

--- The OECD219 in Annex 1 "Terms and definitions" of this standard as Chapter 3, "Terms and Definitions"; Annex 2, Annex 3, attached Member 4 and Annex 5 respectively correspond to this standard Annex A, Annex B, Appendix C and Appendix D.

This standard is managed by the National Standardization Technical Committee chemicals dangerous (SAC/TC251) and focal points.

This standard was drafted. Jiangsu Entry-Exit Inspection and Quarantine Bureau, China National Chemical Technology Development Center.

Introduction

The criteria used to assess long-term exposure to chemicals in sediments of freshwater dipteran Chironomus genus (Chironomussp.) Larvae Movies ring. This standard mainly to BBA standards, the use of a sediment - water systems, including man-made body of water and soil exposure scenario [1], with when also draws on existing Chironomusriparius and Chironomustentans toxicity test method described above chironomid toxicity test the

method has been established by the comparison test [6, 9] in Europe and North America [2-8]. This standard can also be used other there is sufficient empirical chironomid species Categories, such as *Chironomus yoshimatsui* [10-11].

The standard exposure scenario is to test substance added to the water. Should select the appropriate exposure scenarios depending on the purpose of the test. Water exposure Scene (including the test substance added to the body of water column) is designed to simulate the pesticide spray drift scene, taking into account the gap concentration in water Initial peak. Except when the duration of the process is greater than the cumulative test period, this standard to other types of exposure (including chemical splash A) are also useful.

Test substance use sediment bioassay generally may be present for a long time in this system. Sediments through biological Multiple routes of exposure of the test substance. The relative importance of each route of exposure, and the exposure time of each toxic effects on the overall contribution, taking Depending on the physical and chemical properties related to chemicals. For strongly adsorbed species (such as octanol/water partition coefficient $\lg K_{ow} > 5$), or a total of sediment Covalently bound substance, so that the test biological food intake plus the test substance may be an important route of exposure. In order not to underestimate the highly lipophilic Toxic substances can be considered feed was added to the sediment before using the test substance. To all potential exposure pathways into account the , The present standard will focus on long-term exposure. *C. riparius* and *C. yoshimatsui* test duration of 20d ~ 28d, *C. tentans* of 28d ~ 65d. If for a particular purpose, short-term data needs, such as toxic effects Unstable chemicals available attached Plus parallel samples tested, and give up after 10d.

Final results of the test for the emergence of the total number of adults and emergence time. If you need additional short-term data, it is recommended only appropriate to increase the amount of Parallel test outside after the test was 10d, were measured survival and growth of the larvae.

This standard recommends the use of man made deposits. Compared with natural sediment, formulation has several advantages.

- Because formulated sediments renewable "standardized matrix" to reduce the experimental uncertainty, and no need to find uncontaminated Dyed clean sediment sources;
- Test may start at any time, without having to face the seasonal changes in the test sediments, do not pretreated to remove the native fauna. Formulated using deposits also decreased relative to the field to collect a sufficient amount of sediment for routine testing Customs fees;
- Formulated using sediment toxicity data so that you can compare to each other, thereby performing toxicity classification of substances.

Chemicals sediment - water system chironomid toxicity test Spiked water law

1 Scope

This standard specifies the spiked water sediment assessment method - Test method for water systems chironomids toxicity.

This standard applies to the assessment of long-term exposure to chemicals in sediments - (. Chironomus sp.) water freshwater dipteran Chironomus genus Larvae of.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version applies to this standard quasi. For undated references, the latest edition (including any amendments) applies to this document.

GB/T 21809 Chemicals Earthworm Acute Toxicity Test

3 Terms and Definitions

The following terms and definitions apply to this document.

Formulated sediment the mixture was used to simulate the physical composition of natural deposits, also known as reclaimed deposits, artificial or synthetic sediment deposits.

Overlying water the test vessel in the water above the sediment.

Interstitial water interstitial water or pore water Water, sediment and soil particles.

Spiked water Test water has been added to the test substance.

4 Test principle

The first instar chironomid larvae are exposed to a series of test substances containing different concentrations of sediment - water system tested. Start of the test the introduction of a chironomid larvae containing sediment - water system in a beaker, then the test substance added to the water. At the end of testing, measuring chironomid emergence the number and rate of development. If necessary, it can also be measured in the 10d after the larvae survival and quality (using appropriate additional parallel samples). Measured Available experimental data regression analysis to estimate the result in the emergence or growth rates or larval survival rate decreased concentration of x% (eg 15% effective concentration Degree EC15, EC50 EC50, etc.), or statistical hypothesis testing to determine the no-observed-effect concentration (NOEC) or lowest Observed effect concentration (LOEC). The latter need to use statistical tests to the effect with the control values.