

ICS 65.020
CCS B 17

NY

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

NY/T 2882.8-2017

**Guidance on Environmental Risk Assessment for Pesticide
Registration - Part 8: Soil organisms**

农药登记 环境风险评估指南 第8部分：土壤生物

(English Translation)

Issued on: December 22, 2017

Implemented on: June 1, 2018

Issued by: Ministry of Agriculture of PRC

Table of Contents

Foreword...	3
1 Scope...	4
2 Normative References...	4
3 Terms and Definitions...	5
4 Basic Rules...	6
5 Assessment Procedures and Methods...	6
6 Risk Reduction Measures...	12

1 Scope

This Part specifies the principles, procedures and methods for risk assessment of the impacts of pesticides on soil organisms.

This Part is applicable to the risk assessment of the impact on soil organisms for the pesticide registration of chemical pesticide and the biological source with clear chemical structures of active ingredients.

2 Normative References

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) are applicable to this document.

GB/T 31270.1 Test Guidelines on Environmental Safety Assessment for Chemical Pesticides - Part 1: Transformation in Soils

GB/T 31270.15 Test Guidelines on Environmental Safety Assessment for Chemical Pesticides - Part 15: Earthworm Acute Toxicity Test

GB/T 31270.16 Test Guidelines on Environmental Safety Assessment for Chemical Pesticides - Part 16: Soil Microorganism Toxicity Test

NY/T 2882.1 Guidance on Environmental Risk Assessment for Pesticide Registration - Part 1: General Principles

NY/T 2882.6-2016 Guidance on Environmental Risk Assessment for Pesticide

Registration - Part 6: Ground Water

NY/T 3091 Chemical Pesticide - Guideline for Earthworm Reproduction Test

NY/T 3149 Chemical Pesticide - Guideline for Terrestrial Field

Dissipation/Degradation

ISO 11268-3:2014 Effects of Pollutants on Earthworms - Part 3: Guidance on the

4 Basic Rules

The risk assessment of pesticides to soil organisms shall follow the following principles:

- a) This Part is a risk assessment based on the protection of soil organisms. It focuses on related soil organisms that are susceptible to pesticides. According to the principles of sensitivity to pesticides, ecological value, and attention, it attaches great importance on the ecological value and function of soils it represents. In conjunction with management objectives, the purpose of risk assessment is to ensure the survival and reproduction of important soil organisms, soil ecological values and functions shall not be affected, or only temporarily affected, so as to ensure the sustainability of soil resources in the soil ecosystem.
- b) The risk assessment of pesticides to soil organisms adopts a hierarchical assessment method, and the risk is characterized by risk quotient (RQ).

5.1 Overview

The risk assessment process of pesticides to soil organism environment is performed in accordance with Figure A.1 of Appendix A.

5.2.1 Risk estimation

Determine the possibility for exposure of soil organisms according to the pesticide use methods. When soil organisms cannot be excluded from pesticide exposure according to the method of use, a risk assessment shall be performed. When major metabolites of pesticides are present, and toxicity data of major metabolites on soil organisms are available, risk assessments shall be performed for major metabolites.

For pesticides used in multiple crops or multiple control objects, when the dosing method, amount or frequency of dosing, and dosing time for each crop or control object are different, then their use methods can be evaluated in groups:

- a) When grouping, factors such as crop type, dosing amount, the number of dosing, and dosing time shall be considered;
- b) Determine the highest situation of soil biological risk according to the group and carry out risk assessment for such group;

According to whether the half-life time of degradation (DT50) of the pesticide active ingredient obtained at 20°C as per GB/T 31270.1 is greater than 180d to determine whether the risk analysis of pesticide soil bioaccumulation exposure is triggered and select the PEC for primary exposure analysis and advanced exposure analysis. When the results of field dissipation studies are available, according to the soil half-life time of degradation (DegT50) or half-life time of dissipation (DisT50) obtained as per NY/T

3149 or other applicable test principles is greater than 180d to determine whether to trigger accumulative exposure risk analysis. When $DT50 > 180d$, the predicted soil environmental accumulative concentration (PEC_{accu}) obtained from the primary chronic exposure analysis may be selected as the PEC, or the PEC_{twa} obtained from the advanced exposure analysis model may be used as the PEC.

5.3.2.1 Selection of scene points

Select representative scene points according to the registered crops and control objects that need to be evaluated for pesticides. Except that the data indicates that the control objects are limited to certain specific scenes, all scene points with the crops shall be selected. The dryland crop scene information adopted by PRAESS model and

China-PEARL model in this Part can refer to the software manual.

5.3.2.2 Model parameters

The input parameters and output values of the PRAESS model in this Part can refer to Appendix C. The input parameters and input values of the China-PEARL model may be implemented according to the provisions of Table E.1 in Appendix E of NY/T 2882.6-2016.

5.3.2.3 Dosing method

According to the recommended use method of pesticide to be assessed (including dosing method, dosing time, dosing frequency, dosing interval and dosing volume, etc.), the maximum dosing volume, maximum dosing frequency, and minimum dosing interval selected by the model are determined.

5.3.3.1 General methods for primary exposure analysis

For the primary exposure analysis of soil organisms, the predicted soil environmental concentration (PEC) may be calculated according to the different models recommended in this Part. In the model simulation analysis process, generally conservative input parameters or model default parameters are selected to obtain the primary PEC.

microorganisms) obtained from the toxic effect test by refining the exposure conditions have

multiple toxicity endpoint data, select the geometric mean of the effective toxicity data. In the advanced effect assessment, if considering the protection of the soil functions and soil organisms, the organic matter decomposition bag test (performed in accordance with provisions of OECD No. 56) or the earthworm field test (performed in accordance with provisions of ISO 11268-3) shall be performed to obtain the toxicity endpoint required for the corresponding advanced effect analysis.

5.4.3.1 Primary acute effect assessment

The primary acute effect assessment is mainly aimed at the data of earthworm acute toxicity test and soil microbial toxicity test. The primary effect data is the most basic data that must be provided when performing primary acute effect assessments.

Relevant assessment receptors, assessment endpoints, test time, test methods and other parameters can refer to Table D.1 in Appendix D.

When there is evidence that proves the tested pesticide has a greater impact on other soil function indicators (such as carbon conversion), additional effect assessment tests may be selected, see Table D.2.

5.4.3.2 Primary chronic effect assessment

In the primary acute risk assessment, if the primary acute risk, $RQ > 1$, to soil organisms such as earthworm, or tested pesticide has the accumulative risk in the soil, that is,

$DT50 > 180d$, the primary chronic effect assessment needs to be conducted for on soil organisms. In general, the primary chronic effect assessment only needs to perform the earthworm chronic reproduction test. The test-related evaluation receptors, evaluation endpoints, test time, and test methods can refer to Table D.3. When protecting the soil specific biological species or soil biodiversity in a certain area, additional soil biological species may be selected and supplemented for the primary chronic effect assessment.

5.4.4 Advanced effect assessment

When the primary risk assessment results are unacceptable ($RQ > 1$), advanced effect assessment test is required. In advanced effect assessment, optimization effect tests may be performed by refining exposure conditions, so as to obtain the toxicity endpoint value of the tested soil organisms under closer to the actual exposure conditions. The following methods may be used for the advanced effect evaluation test according to different test purposes. The test-related evaluation receptors, evaluation endpoints, test time, and test methods can refer to Table D.4.

For the advanced effect assessment of soil functions, organic matter decomposition bag tests (performed according to the provisions of OECD No. 56) may be used.

.....