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

**GB 13649-2009**

Replacing GB 13649-1992

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**Fenitrothion technical**

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**(English Translation)**

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### Foreword

The standard Chapter 3, Chapter 5 are mandatory, the rest are recommended.

This standard uses redrafted law revision using FAO specifications 35/T C/S (1988) "fenitrothion original drug." the FAO standards and specifications 35/T C/S (1988) The main technical differences are as follows.

--- This standard specifies fenitrothion content of not less than 95.0%, FAO specifications prescribed fenitrothion content of not less than 930g/kg.

This standard replaces GB 13649-1992 "fenitrothion original drug." this standard compared with GB 13649-1992, the main differences are as follows.

--- Fenitrothion original drug by the mass fraction of not less than 93%, 85% and 70% to not less than 95%;

--- Increase S- methyl fenitrothion control indicators;

--- By the acidity of not more than 0.3%, 0.4% and 0.5% to not more than 0.1%;

--- By the water not more than 0.2% to not more than 0.1%.

Appendix A of this standard is an informative annex.

The standard proposed by China Petroleum and Chemical Industry Association.

This standard by the National Standardization Technical Committee on Pesticides (SAC/TC133) centralized.

## 1 Scope

This standard specifies the original drug fenitrothion requirements, test methods and marking, labeling, packaging, storage and transportation.

This standard applies to the original drug Fenitrothion Fenitrothion impurities generated by the production and composition.

## 2 Normative references

The following documents contain provisions which, through reference in this standard and become the standard terms. For dated references, subsequent Amendments (not including errata content) or revisions do not apply to this standard, however, encourage the parties to the agreement are based on research Whether the latest versions of these documents. For undated reference documents, the latest versions apply to this standard.

GB/T 1600 Determination of Water Pesticides GB/T 1604 Goods pesticide regulations for acceptance GB/T 1605-2001 Sampling Method commercial pesticides GB 3796 pesticide packaging General

## 3 Requirements

### 3.1

Composition and appearance. This product should Fenitrothion and impurities generated in the production of the composition, should be pale yellow to dark brown liquid, no visible FOD.

### 3.2

fenitrothion original drug should be consistent with the requirements in Table 1.

Table 1 Fenitrothion original drug control project indicators

Item Index

Fenitrothion content /%  $\geq 95.0$  S- methyl fenitrothion mass fraction /%  $\leq 2.0$  Moisture /%  $\leq 0.1$  Acidity (H<sub>2</sub>SO<sub>4</sub> meter) /%  $\leq 0.3$  Test Method 4

### 4.1 Sampling

According to GB/T 1605-2001 5.3.1 "commodity original drug sample" to. Determining sample package using a random number table method, the final sample the amount of not less than 100g.

## 4.2 Identification Test

Gas Chromatography --- The identification test can be carried out simultaneously with the determination of fenitrothion (S- methyl fenitrothion) mass fraction. In the same Chromatographic operating conditions, the sample solution to a chromatographic retention time and standard solutions fenitrothion (S- methyl fenitrothion) peaks Retention time, the relative difference should be less than 1.5%.

Infrared spectroscopy --- sample and standard samples in 4000cm<sup>-1</sup> ~ 400cm<sup>-1</sup> wave number range of the infrared spectrum, there should be no significant difference different. Fenitrothion standard infrared spectrum is shown in Figure 1.

Figure 1 fenitrothion standard infrared spectrum

### 4.3.1 Method summary

Sample was dissolved in acetone to diallyl phthalate esters as internal standard, using a HP-5 capillary column and a flame ionization detector, Sample of fenitrothion, S- methyl fenitrothion and measured by gas chromatography, internal standard. You can also use a packed column gas chromatography Determination of spectrum, chromatographic operating conditions, see Appendix A.

### 4.3.2 Reagents and solutions

Acetone. AR;

Fenitrothion standard. a known mass fraction,  $\geq 98.0\%$ ;

Internal standard. dimethyl phthalate, propylene carbonate, should not interfere with the analysis of impurities;

Internal standard solution. Weigh diallyl phthalate esters 2.5g, placed in 500mL volumetric flask, dissolved in acetone and diluted to the mark, Shake well.

### 4.3.3 Instruments

Gas chromatograph. with a hydrogen flame ionization detector, split/splitless inlet;

Chromatographic data processor or chromatography workstation;

Column. 30m x 0.32mm (i.d.) HP-5 capillary column, film thickness 0.25  $\mu$ m;

Micro injector. 10 $\mu$ L.

### 4.3.4 GC operating conditions

Temperature (°C). Room 210 column, the gasification chamber 230, detection chamber 270;

Gas flow rate (mL/min). carrier gas (N<sub>2</sub>) 1.5, makeup gas (N<sub>2</sub> of) 30, hydrogen gas 30, air 300;

Split ratio. 50.1;

Injection volume. 1.0μL;

Retention time. fenitrothion 4.9min, S- methyl fenitrothion 6.4min, diallyl phthalate esters 3.2min.

The above operating conditions, the Department of typical operating parameters, according to the characteristics of different instruments and columns for a given operating parameters to make appropriate adjustments to to obtain the best results. Typical fenitrothion original drug GC is shown in Figure 2.

1 --- internal standard (diallyl phthalate esters);

2 --- fenitrothion;

3 --- S- methyl fenitrothion.

Figure 2 fenitrothion original drug gas chromatogram

#### 4.3.5.1 Preparation of standard solution

Weigh fenitrothion standard 0.1g (accurate to 0.0002g), placed in 15mL stoppered glass bottle with a pipette accurately added 10mL Internal standard solution, shake well.

#### 4.3.5.2 Preparation of sample solution

Weigh the sample containing fenitrothion 0.1g of (accurate to 0.0002g), placed in 15mL stoppered glass vial with 4.3.5.1 with the same A pipette accurately added internal standard solution 10mL, shake.

#### 4.3.5.3 Determination

Under these operating conditions, after the instrument is stable, continuous injection of several doses of the standard solution until the two adjacent needles fenitrothion and the internal standard peak area After the change of the relative volume ratio is less than 1.2%, according to the solution, the sample solution, the sample solution and standard sequence of the standard solution was measured.

#### 4.3.6 Calculation

The two needles in the sample solution and measured before and after the two-pin standard sample solution fenitrothion and the internal standard peak area ratios are averaged.