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

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Clethodim emulsifiable concentrates

烯草酮乳油

(English Translation)

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Foreword

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

Appendix A of this standard is the data appendix.

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 clethodim EC requirements, test methods and marking, labeling, packaging, storage and transportation.

This standard applies to the clethodim original drug and preparation of the emulsifier is dissolved in a suitable solvent clethodim EC.

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 Determination of GB/T 1601 Pesticides pH value GB/T 1603 Determination of emulsion stability of pesticide GB/T 1604 Goods pesticide regulations for acceptance GB/T 1605-2001 Sampling Method commercial pesticides GB/T 4472 chemical product density, relative density measurement General GB 4838 EC pesticide packaging GB/T 19136 Determination of Pesticide Thermal storage stability GB/T 19137 Pesticide cryogenic stability Determination

3.1 Composition and appearance

This product should be compliant clethodim original drug is made into a stable homogeneous liquid, free from visible suspended matter or precipitation.

3.2 Technical Specifications

Clethodim EC shall comply with the requirements of Table 1.

Table 1 clethodim EC Control Project Index

project

index

120g/L 240g/L 24%

Clethodim mass fraction a /% Clethodim or mass concentration (20 °C) / (g/L) 13.0 + 1.4-0.7 + 14-7 120 26.0 + 2.6-1.3 + 24-12 240 24.0 + 2.4-1.2 Moisture content /% ≤ 0.4 pH value of 4.0 to 7.0 Emulsion stability (diluted 200 times) Qualified Low temperature stability Qualified b Thermal storage stability b qualified the mass fraction was measured to arbitration when a dispute occurs when the quality.

B when normal production, low temperature stability test, thermal storage stability test for detection of at least once every 3 months.

Test Method 4

4.1 Sampling

According to GB/T 1605-2001 in "liquid formulations sampling" approach. Determined by sampling a random number table method packages, the final sample size not less than

200mL.

4.2 Identification Test

HPLC --- The identification test can be carried out simultaneously with the determination of the content of clethodim. Under the same chromatographic operating conditions, the test A sample solution peak retention time compared with standard sample solution clethodim chromatographic retention time, the relative difference should be less than 1.5%.

4.3.1 Method summary

Sample dissolved in mobile phase to dichloromethane + hexane + glacial acetic acid as the mobile phase, to use as filler stainless Hypersil silica Steel column and UV detector (254nm), the sample of clethodim normal phase high performance liquid chromatography, external standard. You can also use RP-HPLC, chromatography operating conditions, see Appendix A.

4.3.2 Reagents and solutions

Methylene chloride;

N-hexane;

Glacial acetic acid;

Clethodim lithium salt standard. clethodim known lithium salt mass fraction $\geq 98.0\%$.

4.3.3 Instruments

High performance liquid chromatography. a variable wavelength UV detector;

Chromatographic data processor;

Column. 150mm x 3.9mm (i.d) stainless steel column, built Hypersil silica, 5 μ m packing;

Filter. pore size of about 0.45 μ m;

Micro injector. 50 μ L;

Quantitative sample line. 5 μ L;

Ultrasonic cleaner.

4.3.4 HPLC operating conditions

Mobile phase. psi (dichloromethane. n-hexane. acetic acid) = 75.25.0.5 by membrane filtration, and degassing;

Flow rate. 1.0mL/min;

Column temperature. 30 °C;

Detection wavelength. 254nm;

Injection volume. 5μL;

Retention time. clethodim about 10.4min.

It said operating parameters are typical, according to the characteristics of different instruments, given operating parameters adjusted as appropriate, in order to obtain the best results.

Typical EC clethodim normal phase HPLC is shown in Figure 1.

1 --- clethodim.

Figure 1 EC clethodim normal phase HPLC chromatogram

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

4.3.5.1 Preparation of standard solution

Weigh clethodim standard lithium salt 0.1g (accurate to 0.0002g), a 50mL volumetric flask, add 3 drops of glacial acetic acid and shaking the mobile phase Dissolved, mobile phase and dilute to the mark. With said pipette 5mL 50mL test solution to another flask with the mobile phase Dilute to the mark.

4.3.5.2 Preparation of sample solution

Weigh 0.1g sample containing clethodim the (accurate to 0.0002g), a 50mL volumetric flask, add the mobile phase was shaken to dissolve with Mobile phase and dilute to the mark. With said pipette 5mL 50mL test solution to another flask with the mobile phase diluted to the mark, Shake well.

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 clethodim peak area relative change After 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 needle sample solution and measured before and after the two doses of the standard sample solution clethodim peak areas are averaged. Sample clethodim (1)