

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

SN 0190-1993

Replacing SN/T 0190-1993

**Determination of ethylenethiourea residues in fruit and
vegetable for export. GC-MS method
(English Translation)**

Issued on: January 1, 1970

Implemented on: January 1, 1970

Issued by: General Administration of Customs

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Foreword

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

This standard replaces SN 0190-1993 "fruit for export ethylene thiourea residues in." this standard compared with SN 0190-1993, the main technical changes are as follows.

--- The name of the standard was revised;

--- The original standard was extended detection range, in addition to fruits and vegetables increased;

--- Derivatized method is improved by the GC to GC-MS method;

--- Omitted sampling procedure.

This standard is proposed and managed by the National Certification and Accreditation Administration Committee.

This standard was drafted. People's Republic of China Shanghai Entry-Exit Inspection and Quarantine Guangzhou People's Republic of China Xinsha Office.

1 Scope

This standard specifies the export of fruits and vegetables Determination of ethylene thiourea residues.

This standard applies to fresh orange, water chestnut, apple, broccoli, spinach and other fruits and vegetables Determination of ethylene thiourea residues.

2 Method summary

Methanol extract residual ethylene thiourea sample, extract with 1% benzyl chloride - methanol solution was refluxed in a boiling water bath for generating an ethylene benzyl Thiourea, by adjusting the pH and liquid-liquid extraction purification, and then

trifluoroacetic anhydride derivative, gas phase chromatography - mass spectrometer, external standard.

3 Reagents and materials

Unless otherwise specified, reagents were analytical pure, distilled water.

3.1

methanol. liquid chromatography.

3.2

dichloromethane. residual level.

3.3

hexane. Residual level.

3.4

Toluene. residual level.

3.5

ethylene thiourea standards (Ethylenethiourea, formula $C_3H_6N_2S$, CASN 096-45-7). purity > 99%.

3.6

benzyl chloride.

3.7

anhydrous sodium. 650 °C burning 4h, stored in a desiccator, cool reserve.

3.8 5mol/L sodium hydroxide solution. Weigh 20g sodium hydroxide dissolved in an appropriate amount of water, and diluted with water to 100mL.

3.9 6mol/L hydrochloric acid solution. lessons 54mL of concentrated hydrochloric acid, diluted with water to 100mL.

3.10

trifluoroacetic anhydride/toluene solution. 19, volume ratio.

3.11 1% benzyl chloride - methanol solution.199, by volume.

3.12

ethylene thiourea standard solution. Weigh accurately ethylene thiourea standards, dissolved in methanol, and formulated to a concentration of 1.0mg/mL Standard Stock solution. Methanol diluted to concentrations applicable standard working standard solution was needed then.

4 Instruments and equipment

4.1

Gas chromatography - mass spectrometry. with electron impact ionization source.

4.2

Organization mixer.

4.3

oscillator.

4.4

centrifuge.

4.5

electric heated water bath.

4.6

vortex mixer.

4.7

rotary evaporator.

4.8

nitrogen blowing instrument.

4.9

plastic centrifuge tube, 50mL.

Derivatized 4.10 2mL vial with a screw cap (with Teflon liner seal).