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HJ

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

HJ 901-2017

**Ambient air. Determination of organochlorine pesticides. Gas
chromatography**

环境空气 有机氯农药的测定 气相色谱法

(English Translation)

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1 Ambient air Determination of organochlorine pesticides by gas chromatography

Warning. The solvents and reagents used in this method are toxic. The experimental procedure should be carried out in a fume hood.

Wear protective equipment as required and avoid contact with skin and clothing.

1 scope of application this standard specifies the determination of organochlorine pesticides in ambient air by gas chromatography.

This standard applies to ambient air and particulate matter hexachlorobenzene, alpha-BHC, gamma-BHC, beta-BHC, delta-VI Hexachlorocyclohexane, Aldrin, Epichlorohydrin B, gamma-Chlordane, alpha-Chlordane, Endosulfan I, 4,4'-DDE, Dieldrin, Endrin, 4,4'-DDD, 2,4'-DDT, endosulfan II, 4,4'-DDT, isodilal, endosulfan sulfate, methoxy DDT, Moxa total of 23 kinds of organochlorine pesticides determination. See Appendix B for details.

When the sampling volume is 350 m³ (standard state) and the volume of concentrated volume is 1.0 ml, this method measures 23 organic the detection limit of chlorine pesticides was 0.02 ng/m³ ~ 0.06 ng/m³, and the lower limit of determination was 0.08 ng/m³ ~ 0.24 ng/m³. See Appendix A for details.

2 Normative references

This standard references the following documents in the terms. For undated references, the effective version applies this standard.

HJ 194 Manual Air Quality Monitoring Technical Specifications HJ 691 Environmental airborne semi-volatile organic compounds sampling techniques

3 Method principle

A large flow sampler is used to collect the organochlorine pesticides in the ambient air and particulate matter into the filter and polyurethane foam (PUF), extracted with ether-n-hexane mixed solvent, the extract was concentrated, purified, gas chromatographic separation, electron Capture detector detection, according to the retention time qualitative, internal standard method or external standard method.

4 Interference and elimination

Other organic matter in the sample may interfere with the determination, choose to use sulfuric acid, magnesium silicate column and other purification methods to remove interference, However, the purification of sulfuric acid can cause the decomposition of some organochlorine pesticides, as detailed in 7.3.3.

5 Reagents and materials

Unless otherwise specified, analytical grade analytical reagents used in accordance with national standards were used. Experimental water is freshly prepared Pure water.

5.1

acetone (C_3H_6O). pesticide grade.

5.2

n-hexane (C_6H_{14}). pesticide residues.

5.3

ether ($C_4H_{10}O$). Chromatography.

5.4

Dichloromethane (CH_2Cl_2). pesticide grade.

25.5 Anhydrous sodium sulfate (Na_2SO_4). Bake in a muffle furnace at 400 ° C for 4 h before use, cool, Sealed and saved

5.6

Sodium chloride (NaCl). Bake in a muffle furnace at 400 ° C for 4 h before use, then cool and seal in a ground-glass jar. Save.

5.7

sulfuric acid (H₂SO₄). $\rho = 1.84 \text{ g/cm}^3$, excellent grade pure.

5.8

ether - n-hexane mixed solvent. 1:9, Pro use now.

5.9

acetone - n-hexane mixed solvent. 1:9, Pro use now with.

5.10

ether - n-hexane mixed solvent. 5:5, Pro use now.

5.11

ether - n-hexane mixed solvent. 6:94, Pro use now with.

5.12

ether - n-hexane mixed solvent. 15:85, Pro use now.

5.13

Sodium chloride solution. $\rho = 50 \text{ g/L}$.

Weigh 50.0 g of sodium chloride (5.6) in a beaker, dissolved in water and set the volume to 1000 ml, mix, Pro use now.

5.14

Endrin and 4,4'-DDT standard solution. $\rho = 100 \text{ } \mu\text{g/L}$.

Buy a commercially available standard solution directly and dilute with n-hexane (5.2).

5.15

Substitute stock solution. $\rho = 500 \text{ } \mu\text{g/ml}$.

Direct purchase of a certified commercial standard solution containing 2,4,5,6-tetrachloro-m-xylene (TCX) and decabllylene (DCBP) mixed Combined solution or single standard solution. Other suitable alternatives may also be used.

5.16

Substitute intermediate solution. $\rho = 50.0 \text{ } \mu\text{g/ml}$.

Pipette 1.00 ml of stock solution (5.15) in a 10 ml volumetric flask, dilute with n-hexane (5.2) and mix well.

5.17

Alternative solution. $\rho = 1.00 \mu\text{g/ml}$.

Pipette 1.00 ml of intermediate stock solution (5.16) into a 50 ml volumetric flask and dilute with n-hexane (5.2) and mix well.

5.18

Internal standard stock solution. $\rho = 1000 \mu\text{g/ml}$.

Direct purchase of a certified commercial standard solution containing 1-bromo-2-nitrobenzene (BNB).

5.19

Internal standard intermediate solution. $\rho = 100 \mu\text{g/ml}$.

Pipette 1.00 ml internal standard stock solution (5.18) in a 10 ml volumetric flask with n-hexane (5.2), and mix well.

5.20

Internal standard solution. $\rho = 10.0 \mu\text{g/ml}$.

Pipette 1.00 ml internal standard intermediate solution (5.19) in 10 ml volumetric flask, with n-hexane (5.2) volume, mix.

5.21

standard stock solution. $\rho = 2000 \mu\text{g/ml}$.

Direct purchase of the market a certified standard solution, including alpha-BHC, gamma-BHC, beta-BHC, delta-BHC, heptachlor, Aldrin, epichlorohydrin B, gamma-chlordane, alpha-chlordane, endosulfan I, 4,4'-DDE, dieldrin, endrin, 4,4'-DDD, Endosulfan II, 4,4'-DDT, isoderaldehyde, endosulfan sulfate, methylated DDT and docetaxel, a total of 20 kinds of organochlorine pesticides mixed Combined solution, the concentration of $2000 \mu\text{g/ml}$. Hexachlorobenzene, 2,4'-DDT, Mirex single standard solution, concentration $2000 \mu\text{g/ml}$. Can also be equipped System of 23 kinds of organochlorine pesticide mixed solution. 4°C the following sealed, or reference standard solution certificate preservation conditions.

5.22

standard intermediate solution. $\rho = 40.0 \mu\text{g/ml}$.

Pipette 1.00 ml standard stock solution (5.21) in a 50 ml volumetric flask, make up with n-hexane, and mix well.

5.23

standard solution. $\rho = 1.00 \mu\text{g/ml}$.