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

HJ 686-2014

**Water quality. Determination of volatile organic compounds.
Purge and trap/gas chromatography**

水质 挥发性有机物的测定 吹扫捕集气相色谱法

(English Translation)

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Foreword

To implement the Environmental Protection Law of the People's Republic of China and the Law of the People's Republic of China on Water Pollution Prevention and Control, to protect the environment, this standard is formulated to ensure human health and to regulate the determination of volatile organic compounds in water.

This standard specifies the determination of the extraction, capture and gas of volatile organic compounds in surface water, groundwater, domestic sewage and industrial wastewater.

Phase chromatography.

This standard is the first release.

Appendix A of this standard is a normative appendix, and Appendix B is an informative appendix.

This standard was formulated by the Science and Technology Standards Department of the Ministry of Environmental Protection.

This standard is mainly drafted by. China Environmental Monitoring Center, Jiangsu Environmental Monitoring Center.

This standard is verified by. Taizhou Environmental Monitoring Center Station, Sichuan Environmental Monitoring Center Station, and Liaoning Province Environmental Monitoring Inspection Center, Dalian Environmental Monitoring Center, Ningbo Environmental Monitoring Center and Changzhou Environmental Monitoring Center.

This standard was approved by the Ministry of Environmental Protection on January 13, 2014.

This standard has been implemented since April 1, 2014.

This standard is explained by the Ministry of Environmental Protection.

Water quality - Determination of volatile organic compounds - Sw Warning. The chemicals used in this method are harmful to human health, and protective equipment should be worn as required during operation.

Avoid contact with skin and clothing. All standard samples, reagents, etc. should be completely sealed and stored separately, and placed in a cool, cool place.

In order to avoid leakage of pollution.

1 Scope of application

This standard specifies the purge and trap/gas chromatography for the determination of 21 volatile organic compounds in water.

This standard applies to the determination of volatile organic compounds in surface water, groundwater, domestic sewage and industrial wastewater. When sampling when the concentration is 5 ml, the detection limit of the target compound is 0.1-0.5 µg/L, and the lower limit of determination is 0.4-2.0 µg/L.

See Appendix A for details of compound and detection limits.

Other volatile organic compounds may also be analyzed by this method after verification of suitability.

2 Normative references

The contents of this standard refer to the following documents or their terms. For undated references, the valid version is appropriate.

Used in this standard.

HJ/T 91 Surface Water and Wastewater Monitoring Technical Specifications HJ/T 164
Technical Specifications for Groundwater Environmental Monitoring

3 Principle of the method

The volatile organic compounds in the sample are adsorbed in the trap tube after being purged with high-purity nitrogen, and the trap tube is heated and high-purity nitrogen gas.

Backflushing, the thermally desorbed components are separated by gas chromatography and ionized by an electron capture detector (ECD) or hydrogen flame.

The detector (FID) is tested and characterized by retention time and by external standard method.

4 Interference and elimination

4.1

Interfering agents for the analysis of volatile organic compounds by laboratory solvents, reagents, glassware and other components used for pretreatment, it can be tested by laboratory blanks. When you find that the laboratory analysis process does interfere with the sample, you should look carefully the source of the disturbance is eliminated in time, and the sample analysis can be continued only after the laboratory blank inspection and

analysis is passed.

4.2

During the process of sampling, shipping and storage, volatile organic compounds in the air will be contaminated by the diffusion of the seal of the sampling bottle.

It can be checked by a full program blank. Care should be taken when the sampling, shipping or storage process does interfere with the sample.

Look for interference sources. If there is interference that affects the analysis results, you need to re-sample the analysis.

4.3

Alternate analysis of high concentration samples and low concentration samples may cause interference. When analyzing a high concentration sample, analyze one.

Blank samples to check for cross contamination.

5 Reagents and materials

Unless otherwise stated, analytically pure reagents and distilled water in accordance with national standards were used for the analysis.

5.1 Blank reagent water

Secondary distilled water or water prepared by pure water equipment, passed the test without the target combination of the method detection limit (MDL) when the substance is detected, it can be used as a blank reagent water. It can be removed by heating or boiling with inert gas to remove volatilization from water.

Sexual organic matter interferes.

5.2 Methanol (CH₃OH)

Agricultural residue level, used to prepare standard samples. Different batches of methanol are subjected to blank inspection. The test method is to take 20μl of methanol to join in the blank reagent water, the analysis was carried out under exactly the same conditions as the actual sample analysis.

5.3 Standard stock solution. $\rho = 100\mu\text{g/ml}$.

The standard stock solution of volatile organic compounds should be stored in the dark and should be used as soon as possible after opening. Such as the storage liquid after opening Storage should be stored frozen at -10 to -20 °C. The stock solution to be stored should be tested before use, if compound response is found If the value or type is abnormal, discard it and use it to restore room temperature.