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

GB/T 45372-2025

**Determination of phenols in liquid products from coal chemical
industry - Comprehensive two dimensional gas chromatography-mass
spectrometry/hydrogen flame ionization detector**

煤基液相酚类化合物的测定 全二维气相色谱-质谱/氢火焰离子化检测器联用

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1 Scope

This document describes an experimental method for the determination of coal-based liquid phase phenolic compounds by comprehensive two-dimensional gas chromatography-mass spectrometry/hydrogen flame ionization detection.

This document applies to the following coal tar and coal coking wastewater with boiling point $\leq 360\text{ }^{\circ}\text{C}$ phenol, C1-phenol, C2-phenol, C3-phenol, diphenyl ether, Determination of phenol, indane alcohol, naphthol and C1-naphthol compounds.

--The detection limit of phenol in coal tar is 0.015%, the detection limit of C1-phenol and C2-phenol is 0.035%, and the detection limit of C3-phenol is The detection limits of hydroquinone, indane alcohol, naphthol and C1-naphthol are 0.15%, and the detection limits of these two substances are all in terms of mass fraction.

--The detection limit of phenol in coal coking wastewater is 1.5 mg/L, the detection limit of C1-phenol and C2-phenol is 2.5 mg/L, and the detection limit of C3-phenol is 2.5 mg/L.

The detection limit of phenol, indane alcohol, naphthol and C1-naphthol is 5.0 mg/L, and the detection limit of phenol, indane alcohol, naphthol and C1-naphthol is 15.0 mg/L.

2 Normative references

GB/T 1999

GB/T 6682

3 Terms and definitions

There are no terms or definitions that require definition in this document.

4 Principle

The sample was introduced into a comprehensive two-dimensional gas chromatograph

equipped with a one-dimensional non-polar chromatographic column and a two-dimensional medium-polar chromatographic column.

The components separated by the chromatographic column enter the mass spectrometer detector and the hydrogen flame ionization detector simultaneously.

The sub-peaks, characteristic ion peaks, one-dimensional retention time, and two-dimensional retention time were jointly qualitatively determined; the detection was carried out by hydrogen flame ionization detector, using Quantification by internal standard method.

5 Reagents and Materials

Unless otherwise specified, only reagents of analytical grade or higher and distilled water of level 2 or higher conforming to GB/T 6682 were used in the experiments.

Distilled water or water of equivalent purity. 5.1 Anhydrous methanol.

5.2 Hydrochloric acid. 6 mol/L.