

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

HJ 690-2014

**Stationary source emission. Determination of benzene soluble
particulate matter. Soxhlet extraction gravimetric method**

固定污染源废气 苯可溶物的测定 索氏提取—重量法

(English Translation)

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Table of Contents

Preface

1. Scope .1

2 Normative references .1

3 Terms and definitions

4 Principle of the method .1

5 Reagents and materials

6 Instruments and equipment

Sample 2

Foreword

To implement the "People's Republic of China Environmental Protection Law" and "People's Republic of China Air Pollution Prevention Law," to protect the environment, Protection of human health, standardized measurement method fixed source emission of benzene soluble matter, the development of this standard.

This standard specifies the determination of the exhaust gas from stationary sources Soxhlet extraction of benzene-soluble matter - Gravimetric method.

This standard is the first release.

This standard is developed by the Ministry of Environmental Protection Science, Technology organization.

This standard drafting of the main unit. Shanxi Province Environmental Monitoring Center.

The standard verification unit. Taiyuan Environmental Monitoring Center, Environmental Monitoring Station Datong, Linfen City Environmental Monitoring Station, transport City environmental monitoring, environmental monitoring stations in Jinzhong City, Qingxu County Environmental Monitoring Station this standard MEP February 7, 2014 for approval.

This standard since April 15, 2014 implementation.

The standard explanation by the Ministry of Environmental Protection.

Stationary source emission measurement of benzene solubles Soxhlet - gravimetric method Warning. benzene, organic reagents used in the tests is flammable volatile carcinogenic chemicals, operation should be ventilated bar Good member fume hood. The operator should be required to wear protective equipment requirements to avoid inhalation or contact with skin and clothing, Guard against fire. Extract must be reasonably safe

disposal.

1 Scope

This standard specifies the exhaust gases from stationary sources of benzene soluble matter measured Soxhlet - gravimetric method.

This standard applies to the determination of fugitive particulate matter emissions of benzene-soluble matter in coke oven roof. Other stationary sources of benzene-soluble the test substance may refer to this standard.

When the sample size is 24m³, the method detection limit of 0.02mg/m³.

2 Normative references

This standard refers to the contents of the following documents or the terms. For undated references, the effective version suitable for this standard.

GB 16171 coking chemical industry emission standards

3 Terms and definitions

Benzene solubles Benzene-Soluble Particulate Matter it refers to polycyclic aromatic hydrocarbons and other components of particulate matter that can be extracted with benzene.

4 Principle of the method

Under the dynamic action of the pump, a volume of air or gas through the constant weight of glass fiber filters, the particles Material is retained on the filter. The filters were sampled weighed into a Soxhlet extractor using benzene as solvent extraction, after extraction Membrane through volatilization after drying to constant weight, according to the previous extraction, and the difference between the weight of the membrane after sampling volume, calculate the benzene solubles concentration.

5 Reagents and materials

5.1

benzene, AR.

5.2

slow quantitative filter diameter of 90mm, for the analysis of process backdrop protect the sample filters.

5.3

ultra-fine glass fiber filters, diameter 90mm, 0.3 μ m membrane holdout efficiency of standard particle is not less than 99%. Membrane so that Before use, do not overlap flat in a muffle furnace burning about 400 °C 1h, cooled to 7.3 and 8.1 deal with constant weight (W0) on a smooth in a clean paper bag and stored in a box back. Filter before sampling can not be bent and folded.

6 Instruments and equipment

6.1-volume sampler (with no cover, no hierarchical sampling head). Range 90 ~ 120L/min, flow error $\leq 5\%$.

6.2

equilibrium chamber. built-in color gel glass drier placed balance room.

6.3

Analytical balance. verification scale 0.01mg.

6.4

Soxhlet extractor. for extracting a sample on the filter particles soluble in benzene, volume 100ml.

6.5

muffle furnace. Temperature range 250 °C ~ 1000 °C, with a temperature value is displayed.

6.6

temperature water bath. single row, the temperature can be regulated.

6.7

blast oven.

6.8

Membrane storage bags and storage boxes.

7.1 Sample Collection

7.1.1

Sample collection shall be in accordance with the relevant provisions of GB 16171 5.3.3 at the time of normal production status, continuous sampling 4h in a filter on.

Point 7.1.2 of the sample arrangement, collection frequency should be consistent GB 16171 of the relevant provisions of 5.3.3. Point a schematic arrangement Shown in Figure 1, the sample inlet should be 1.5m from the base surface Above relative height.

7.1.3 Before the beginning of the sampling, the filters with tweezers from a paper bag

Remove the "matte side" up sampling head mounted on the recording sampling Point number, date, time.

7.1.4 Start sampler, the flow rate adjusted 100L/min, 5min after sampling starts, before sampling the middle, end of sampling 5min, each record atmospheric pressure and a flow rate, temperature and Meteorological parameters.

7.1.5 Traffic frequently observed during sampling, due to the concentration of pollutants

Resulting in high sample flow rate falls more than 5%, in 4 hours when sampling within the segment, each segment recording sampling time and volume, Consolidate average concentration.

7.1.6 Sampling finished, close the sampler, sampling record

Room tweezers carefully remove the membrane, so that the stack twice in the dust on face, back into the original bag and stored in a box and returned to the laboratory analysis.

7.1.7 field blank. The filters were prepared to transport 5.3 sample site, the filters were installed in random sampling head, do not smoke Take air or gas, immediately remove from the sampling head into the original bag, the same processing as the sample filters.

7.2 Sample Storage

Filter after sampling if not promptly returned to the laboratory or timely analysis shall be wrapped with aluminum foil, and stored back into the original bag in box, sealed conditions at 4 °C cold storage, complete extraction within 14d.

7.3 Preparation of the sample

The filters and standard filters after sampling, field blank membrane, laboratory blank filters (from 5.3 spare filter randomly selected Take) together into balance indoor 24h become a sample for analysis.

Analysis Step 8

After sample weighing 8.1 Samples were removed from the balance placed on weighing scales chamber, recording the weight W1 and balance room temperature and humidity. Balance room temperature should be maintained at between 18 ~ 35 °C, relative humidity should be less than 50%. Under the same conditions of equilibrium, balance again one hour after weighing, 1 oven roof schematic arrangement of sampling points Detecting apertures Coal loading hole Sampling point Dust removal device Movement route Oven