

HJ

INDUSTRY STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

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Ambient air - Determination of dustfall - Gravimetric method

环境空气 降尘的测定 重量法

(English Translation)

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1 Scope of application

This standard specifies the gravimetric method for the determination of dust fall in ambient air.

This standard applies to the determination of dust fall in ambient air.

The detection limit of the method for dust fall measured in this standard is 0.3 t/km² -30 d, and the lower detection limit is 1.2 t/km² -30 d.

2 Normative references

This standard refers to the following documents or clauses thereof. For dated references, only the dated version applies to this standard.

For undated references, the latest edition (including all amendments) applies to this standard.

HJ 194 Technical Specification for Manual Monitoring of Ambient Air Quality

3 Terms and Definitions

The following terms and definitions apply to this standard.

dustfall

Particles that naturally settle in the dust collection tank by gravity under air ambient conditions.

4 Principles of the method

The particles that can settle in the air are settled in the dust collecting tank filled with ethylene glycol aqueous solution as the collecting liquid. After evaporation, drying and weighing, Calculate the amount of dust fall.

5 Interference and cancellation

Leaves, dead branches, bird droppings, insects, tidbits, etc. will interfere with the measurement and should be removed before the sample measurement.

6 Reagents and Materials

Unless otherwise stated, analytical reagents that meet national standards are used in the analysis, and the experimental water is distilled water or water of equivalent purity.

6.1

Ethylene glycol (C₂H₆O₂).

6.2

Aqueous glycol solution.

Ethylene glycol (6.1) and water were mixed in a volume ratio of 1.1.

7 Instruments and equipment

7.1

Dust collection cylinder. cylindrical cylinder with inner diameter of 15 cm ± 0.5 cm and height of 30 cm, made of plexiglass, glass or ceramics, with a flat bottom.

The inner wall is smooth. If worn, it should be replaced immediately.

7.2

Metal or nylon sieve. aperture 1 mm.

7.3

Soft silicone scraper.

7.4

Porcelain crucible. 100 ml.

7.5

Electric heating plate..2000W~4000W.

7.6

Oven.

7.7

Electronic analytical balance. the actual division value is 0.1 mg.

7.8

Common laboratory instruments and equipment.

8.1 Setting of sampling points

8.1.1

The layout of monitoring points shall meet the relevant technical requirements for the layout of monitoring points in HJ 194.

8.1.2

When selecting sampling points, priority should be given to the places where the dust collection cylinder is not easily damaged, and the operator should also consider the easy replacement of the dust collection cylinder.

It is generally set on the roof of the building, and obvious signs should be set up around the sampling point to prevent accidental entry.

8.1.3

The dust collecting tank should be placed at a height of 8m to 15m from the ground, that is, the 3rd to 5th floors of ordinary residences. In the same area, each sampling point collects dust the height of the cylinders should be as consistent as possible. On the premise of ensuring that the monitoring points are spatially representative, if the radius around the selected monitoring point is the average height of buildings within the range of 300 m to 500 m is more than 25 m, and when the height setting requirements cannot be met, the dust collector can be placed at a height of Select within the range of 20 m to 30 m. If it is placed on the roof, the distance between the mouth of the dust collector and the surface of the building wall, roof and other supports should be greater than 1 m to avoid the influence of dust on the support.

8.1.4

The support of the dust collecting tank should be stable and firm to prevent it from swinging or being blown down by the wind.

8.1.5

When setting up spots in forest areas, parks and other places where birds gather, you can, as needed, without affecting sample collection and human safety.

Birds are repelled by means of sound waves, light waves, and installation of anti-bird devices.

8.2 Preparations

Before placing the dust collection tank at the sampling point, add 120 ml of ethylene glycol aqueous solution (6.2), and in areas with arid and high evaporation, ethylene glycol can be added as appropriate the amount of alcohol solution added. After adding the solution, cover the cylinder mouth with plastic wrap to prevent dust and record it.

8.3 Collection of samples

Remove the plastic wrap when placing the tank, record the location, tank number, and release time (month, day, hour). Regularly replace the dust collector on a monthly basis (28 d ~ 31 d) cylinder, the sampling and recording time should be accurate to 0.1 d. When taking the tank, check the location and number of the tank, and record the time of taking the tank (month, day, hour), and keep it fresh.

The membrane covers the cylinder mouth to prevent dust and bring it back to the laboratory. In the rainy summer and winter snowy seasons, you should pay attention to the accumulation of water or snow in the tank.

If the snow overflows, the tank should be replaced with a new one in time, and the collected samples should be combined for determination. During the sample collection process, if the height of the collected liquid in the tank is less than 0.3 cm, Aqueous glycol solution (6.2) should be appropriately supplemented.

8.4 Sample Storage

The sample should be analyzed as soon as possible after collection. If it cannot be analyzed within 24 hours, the sample should be transferred according to step 9.2.1, and an appropriate amount of ethylene glycol should be added.

(6.1), and cover the mouth of the beaker with plastic wrap, and measure within 7 days.