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

HJ 687-2014

**Solid waste. Determination of Hexavalent Chromium. Alkaline
digestion/flame atomic absorption spectrophotometric**

固体废物 六价铬的测定 碱消解火焰原子吸收分光光度法

(English Translation)

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Foreword

To implement the "People's Republic of China Environmental Protection Law" and "People's Republic of China Solid Waste Pollution Prevention Law," to protect the ecological Environment, safeguarding human health, standardized measurement method of solid waste hexavalent chromium, the development of this standard.

This standard specifies the determination of solid waste hexavalent chromium in alkali digestion/flame atomic absorption spectrophotometry.

This standard applies to the determination of hexavalent chromium in solid waste.

This standard is the first release.

Drafting of this standard. Shanghai Environmental Monitoring Center.

The standard verification. Jiangsu Provincial Environment Monitoring Center, Nanjing Environmental Monitoring Center, Shanghai Textile energy saving center, on Mirage Environmental Sciences, Environmental Monitoring Station of Putuo District, Shanghai Pudong New Area Environmental Monitoring Station.

This standard MEP January 13, 2014 for approval.

This standard since April 1, 2014 implementation.

The standard explanation by the Ministry of Environmental Protection.

Solid waste - Determination of hexavalent chromium Alkaline Digestion/Flame atomic absorption spectrophotometry

1 Scope

This standard specifies the determination of solid waste hexavalent chromium in alkali digestion/flame atomic absorption spectrophotometry.

This standard applies to the determination of hexavalent chromium in solid waste.

When the amount of solid waste sampling 2.5g, constant volume of 100ml, the method detection limit of 2mg/kg, detection limit of 8mg/kg, Determination of the range of 8mg/kg ~ 320mg/kg.

2 Normative references

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

HJ/T 20 industrial solid waste sampling sample preparation Technical Specifications HJ/T 298 Identification of Hazardous Waste Technical Specifications GB/T 6682 national laboratory use - Specification and test methods

3 PRINCIPLE OF THE METHOD

Samples in alkaline medium by adding magnesium chloride and potassium hydrogen phosphate - potassium dihydrogen phosphate buffer solution, digestion dissolution of hexavalent chromium, flame original Sub absorption spectrophotometry content of hexavalent chromium.

4 and elimination of interference Sample in an alkaline medium, the magnesium chloride and potassium hydrogen phosphate - potassium dihydrogen phosphate buffer solution inhibiting presence of trivalent chromium to hexavalent chromium Determination without interference.

5 Reagents and materials

Unless otherwise indicated, the use of line with national standards of analytical reagent analysis, laboratory water, deionized water, in line with GB/T 6682, three.

5.1

concentrated nitric acid. $\rho(\text{HNO}_3) = 1.42\text{g/ml}$, pure class distinctions.

5.2

Sodium carbonate (Na_2CO_3).

5.3

Sodium hydroxide (NaOH).

5.4

Magnesium chloride (MgCl_2).

Hydrogen 5.5 dipotassium phosphate (K_2HPO_4) - potassium dihydrogen phosphate (of KH_2PO_4) buffer solution. ($\text{pH} = 7$).

Weigh 87.1g and 68.0g potassium hydrogen phosphate potassium dihydrogen phosphate dissolved in deionized water and dilute the volume to 1L.

5.6

Sodium carbonate (Na_2CO_3)/sodium hydroxide (NaOH) mixed solution of Weigh 20.0g of sodium hydroxide and 30.0g of sodium carbonate dissolved in deionized water, diluted to 1L. Stored in a sealed polyethylene bottle. use Before measuring the pH value, if less than 11.5 to be re-formulated.

5.7

potassium dichromate ($\text{K}_2\text{Cr}_2\text{O}_7$). reference reagent or pure class distinctions.

Weigh 5.0g potassium dichromate in a magnetic crucible and bake in oven at 105°C for 2h, cooled to room temperature and stored in a dryer set aside.

5.8

Potassium dichromate stock solution. $\rho(\text{Cr}_6) = 1000\text{mg/L}$.

Accurately weigh 2.829g potassium dichromate (5.7) dissolved in deionized water and dilute the volume to 1000ml. It can also be purchased directly commercially certified Reference materials or certified reference solution. Storage at room temperature for 6 months.

5.9

Potassium dichromate standard solution. $\rho(\text{Cr}_6) = 100\text{mg/L}$.

Take 10.00ml potassium dichromate stock solution (5.8) transferred to a 100ml volumetric flask, diluted with deionized water to the mark, shake. Room temperature Stored for 6 months.

6 Instruments and equipment

Unless otherwise indicated, all using the national standard of Class A Glass Container analysis.

6.1

Flame atomic absorption spectrophotometer.

6.2

chromium hollow cathode lamp.

6.3

and heated with stirring apparatus. a heating magnetic stirrer, temperature control device (NIST with scale), and heated to 100 °C.

6.4

vacuum filtration apparatus.

6.5

pH meter. accuracy 0.01pH units.

6.6

Balance. accuracy 0.0001g.

6.7

membrane (0.45μm). fiber material or polycarbonate membrane.

6.8

round-bottomed flask. 250ml, silicate glass or quartz material.

6.9

polyethylene film.

6.10

General common laboratory instruments.

7 Sample

Samples collected 7.1 Sampling and preservation of samples of solid waste in accordance with HJ/T 20, the relevant provisions of HJ/T 298's. Sample collection and preservation should use plastic or glass device and the container can not use metal reservoir.

7.2 Preparation and storage of samples

After the sample collection of solid waste, according to HJ/T 20, HJ/T 298 of the relevant provisions of preparation and preservation.

Preparation 7.3 sample of Accurately weighed sample of solid waste (7.2) 2.50g (m) (accurate to 0.0001g) set 250ml round-bottomed flask (6.8), and 50.0ml of sodium carbonate/sodium hydroxide solution (5.6), plus magnesium chloride 400mg (5.4) and