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

**GB/T 1270-2023**

**Chemical reagent-Cobalt(II) chloride hexahydrate**

化学试剂 六水合氯化钴（氯化钴）

**(English Translation)**

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### Foreword

This standard gives two levels. analytically-pure and chemically-pure, of which analytically-pure equivalently uses R 55 "cobalt chloride hexahydrate" in ISO 6353-3.1987 "Reagents for chemical analysis - Part 3.Specifications - Second series". The differences are as follows.

### 1 Standard preparation

According to China's national conditions, this Standard adds three chapters. traits, inspection rules, packaging and marks.

#### 2.1 Items

According to China's national conditions, this Standard adds nitrate, manganese, iron, compared with ISO 6353-3.1987.

#### 2.2 Indicators

Analytically-pure nickel and ammonium sulfide without precipitation are stricter than ISO 6353-3.1987. Other items are the same as ISO 6353-3.1987.

### 3 Tests

The determination methods for content, sulfate, ammonium sulfide non-precipitate in this Standard are basically the same as ISO 6353-3.1987. But

there are differences in determination conditions. Experiments show that there is no significant difference in the results. Other items refer to the corresponding standards in a set of general test method standards for chemical reagents that China has developed. This set of standards is basically formulated using ISO 6353-1.1982 "Reagents for chemical analysis - Part 1.General test methods". This Standard revised and replaced GB 1270-85 "Chemical reagent - Cobalt chloride". Compared with GB 1270-85, it deleted the level of guaranteed. In order to adopt the international standard, corresponding changes have been made in specifications and test methods in this Standard.

This standard will replace GB 1270-85 from the effective date.

This Standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This Standard was proposed by Ministry of Chemical Industry of the People's Republic of China.

Chemical reagent - Cobalt (II) chloride hexahydrate

Molecular formula.  $\text{CoCl}_2 \cdot 6\text{H}_2\text{O}$

Relative molecular mass. 237.93

## 1 Scope

This Standard specifies technical requirements, test methods, inspection rules and packaging as well as marks for chemical reagent - cobalt (II) chloride hexahydrate.

## 2 Normative references

The following standards contain provisions which, through reference in this Standard, constitute provisions of this Standard. At the time of publication, the editions indicated are valid. All standards are subject to revision. The parties who are using this Standard shall explore the possibility of using the latest version of the following standards.

GB/T 601-88, Chemical reagent - Preparations of standard volumetric solutions

GB/T 602-88, Chemical reagent - Preparations of stock standard solutions

GB/T 603-88, Chemical reagent - Preparations of reagent solutions for use in test methods

GB/T 619-88, Chemical reagent - Regulations for sampling and acceptance

GB 6682-92, Water for analytical laboratory use - Specification and test methods (eqv ISO 3696:1987)

GB/T 9723-88, Chemical reagent - General rules for flame atomic absorption spectrometry

GB/T 9738-88, Chemical reagent - General method for the determination of water insoluble matter (eqv ISO 6353-1:1982)

GB 15346-94, Chemical Reagent - Packaging and Marking

Where,

X - Mass percentage of cobalt chloride hexahydrate, %;

V - Volume of standard titration solution of disodium ethylenediaminetetraacetic acid, mL;

c - Concentration of ethylenediaminetetraacetic acid disodium standard titration solution, mol/L;

**237.9 - Molar mass of cobalt chloride hexahydrate  $[M(\text{CoCl}_2 \cdot 6\text{H}_2\text{O})]$ , g/mol;**

m - Sample mass, g.

## **5.2 Water insoluble matter**

Weigh 10g of sample. Dissolve in 100mL of boiling water. Cool to room temperature. Determine according to GB/T 9738.

### **5.3.1 Preparation of sulfate-free cobalt chloride hexahydrate solution**

Weigh 1g of sample. Dissolve in 20mL of water. Add 10mL of 95% ethanol, 2mL of hydrochloric acid solution (10%). Under constant shaking, add 5mL of barium chloride solution in drops (250g/L). Dilute to 50mL. Shake well. Place for 12h~18h. Filter it.

### 5.3.2 Determination method

Weigh 1g of sample. Dissolve in water. Dilute to 50mL. Take 10mL. Add 5mL of 95% ethanol, 1mL of hydrochloric acid solution (10%). Under constant shaking, add 3mL of barium chloride solution (250g/L). Dilute to 25mL. Shake well. Place for 10min. The turbidity of the solution shall not be greater than the standard comparison solution.

Preparation of standard comparison solution. take 10mL of sulfate-free cobalt chloride hexahydrate solution and sulfate standard solution that contains the following quantity.

Analytically-pure

Chemically-pure

Light source. iron hollow cathode lamp;

Wavelength. 248.3nm;

Flame. acetylene-air.

### 5.6.2 Determination method

Weigh 25g of sample. Dissolve in water. Dilute to 100mL. Take 20mL, four portions in total. Determine according to the provisions of 6.2.2 in GB/T 9723-88.

## 5.7 Nickel

Determine according to the provisions of GB/T 9723, of which.

### 5.7.1 Instrument conditions

Light source. nickel hollow cathode lamp;

Wavelength. 232.0nm;

Flame. acetylene-air.

### 5.7.2 Determination method

Weigh 5g of sample. Dissolve in water. Dilute to 100mL. Take 10mL, four portions in total. Determine according to the provisions of 6.2.2 in GB/T 9723-