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NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA

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GB/T 21892-2015

Replacing GB/T 21892-2008

p-Aminophenol

对氨基苯酚

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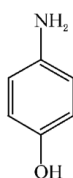
p-Aminophenol

WARNING -- Personnel using this Standard should have practical experience in laboratory work. This Standard does not address all safety issues. Users are responsible for taking appropriate safety and health measures and ensuring compliance with the conditions stipulated in relevant national laws and regulations.

1 Scope

This Standard specifies the requirements, sampling, test methods, inspection rules, as well as marks, labels, packaging, transportation and storage of p-aminophenol.

This Standard applies to the quality control of p-aminophenol products.



Structural formula:

Molecular formula: C_6H_7NO

Relative molecular mass: 109.13 (according to the 2009 International Atomic Mass Standard)

CAS RN: 123-30-8

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

GB/T 190, *Labels for packages of dangerous goods*

GB/T 191, *Packaging and storage marks*

GB/T 601, *Chemical reagent -- Preparations of reference titration solutions*

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

GB/T 2384, *Dyes intermediates -- General method for the determination of melting range*

GB/T 2386-2014, *Dyestuffs and intermediate of dyes -- Determination of moisture content*

GB/T 6678-2003, *General principles for sampling chemical products*

GB/T 6682-2008, *Water for analytical laboratory use -- Specification and test methods*

GB/T 8170-2008, *Rules of rounding off for numerical values and expression and judgement of limiting values*

GB 12268-2012, *List of dangerous goods*

GB 12463, *General specifications for transport packages of dangerous goods*

GB 15258, *General rules for preparation of precautionary label for chemicals*

GB 15603, *General rules for the hazardous chemicals warehouse storage*

GB/T 16483, *Safety Data Sheet for Chemical Products -- Content and Order of Sections*

GB 20814, *Limit and determination of the quantity of heavy-metal elements in dye products*

GB/T 21876, *Solvent dyes and intermediate of dyes -- Determination of ash content*

3 Requirements

The quality requirements for p-aminophenol shall comply with the requirements in Table 1.

4 Safety information

4.1 Safety

According to GB 12268-2012, p-aminophenol is designated as a dangerous good (UN: 2512). It is classified as Class 6.1, a toxic substance. It is flammable when exposed to open flames or high temperatures. It reacts with strong oxidants. It decomposes upon heating, releasing toxic and corrosive gases. Contact with hot surfaces can cause allergic reactions. Ingestion or inhalation of dust can cause death or health damage. Strict safety precautions must be observed during use and handling.

4.2 Safety data sheet

According to GB/T 16483, p-aminophenol should be provided with a detailed safety data sheet before leaving the factory. The safety data sheet should include the following:

- a) Provide information on the hazards of the product;
- b) Instructions for safe use;
- c) Transportation and storage requirements;
- d) Protective measures;
- e) Emergency response measures and other safety information.

5 Sampling

Sampling is conducted in batches. Manufacturers consider uniform products to be a

batch. The number of samples collected per batch should comply with the requirements of Section 7.6 of GB/T 6678-2003. The packaging of the sampled products must be intact. Avoid the ingress of foreign matter into the product during sampling. Use a probe to collect samples from the upper, middle, and lower sections. The total sample volume should be no less than 500 g. After thoroughly mixing the samples, divide them into two clean, dry, well-sealed containers and label them. Indicate the product name, batch number, manufacturer name, sampling date, and location. Keep one container for inspection and one for future reference.

6 Test methods

6.1 General

Unless otherwise specified, only reagents that are confirmed as analytically pure and Grade 3 water as specified in GB/T 6682-2008 are used. Standard titrant solutions, preparations, and products used in the tests, unless otherwise specified, are prepared and calibrated in accordance with GB/T 601 and GB/T 603. Test results are determined using the rounded value comparison method described in 4.3.3 of GB/T 8170-2008.

6.2 Appearance assessment

Visual assessment is performed under natural northern daylight.

6.3 Determination of p-aminophenol mass fraction (amino value)

6.3.1 Determination principle

Use diazotization method.

The mass fraction of p-aminophenol is determined based on the principle that aromatic primary amines react with sodium nitrite to form diazonium salts in a low temperature and excess inorganic acid environment.

6.3.2 Reagents and solutions

6.3.2.1 Hydrochloric acid.

6.3.2.2 Potassium bromide solution: 100 g/L.

6.3.2.3 Sodium nitrite standard titration solution: $c(\text{NaNO}_2) = 0.1 \text{ mol/L}$; use starch-potassium iodide test paper to determine the endpoint during calibration.

6.3.2.4 Starch-potassium iodide test paper.

6.3.3 Determination steps

Weigh approximately 0.25 g~0.30 g of the specimen (accurate to 0.0001 g) into a 250

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