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GB/T 15336-2013

Replacing GB/T 15336-2006

Phthalic anhydride

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Foreword

This Standard is drafted in accordance with the rules provided in GB/T 1.1-2009.

This Standard replaces GB/T 15336-2006 “Phthalic anhydride”; compared with GB/T 15336-2006, the main technical changes, other than editorial changes, are as follows:

- Add CAS No. (see chapter 1);
- Add technical indicators and inspection methods for determination of purity through gas chromatographic method (see chapter 3; 5.9);
- Delete technical indicators and inspection methods for determination of phthalic anhydride content through chemical method in original standard (chapter 3 and 5.7 of edition 2006).
- Revise the indicators of superior products on sulfuric acid colour No. (see chapter 3; 3 of edition 2006);
- Delete the technical indicators and test methods of ash content in original standard (chapter 3 and chapter 6 of edition 2006);
- Revise crystallization point to type inspection items (see 7.1; 7.1 of edition 2006);
- Add “safety information” (see chapter 4).

This Standard was proposed by China Petroleum and Chemical Industry Federation.

This Standard shall be under the jurisdiction of National Technical Committee on Dyestuff of Standardization Administration of China (SAC/TC 134).

Drafting organizations of this Standard: The Organic Chemical Co., Ltd. of Tongling Chemical Industry Group Corporation AND Shenyang Research Institute of Chemical Industry Co., Ltd.

Main drafters of this Standard: Yang Jiaren, Yang Jiemin and Cao Wenlian.

Previous versions replaced by this Standard are as follows:

- GB/T 15336-1994, GB/T 15336-2006.

Phthalic anhydride

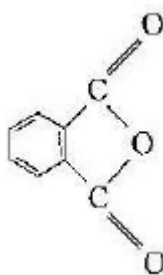
Warning — Personnel that use this Standard shall have practical experience in normalized laboratory. This Standard does not indicate all possible safety issues. Users have the responsibilities to take appropriate safety and health measures, and ensure the conformity to relevant national laws and regulations.

1 Scope

This Standard specifies the phthalic anhydride's requirements, safety information, sampling, test methods, inspection rules, marking, labelling, packaging, transportation and storage.

This Standard applies to product quality control of phthalic anhydride.

Structural formula:



Molecular formula: $C_8H_4O_3$

Relative molecular mass: 148.12 (based on international relative atomic mass in 2009)

CAS RN: 85-44-9

2 Normative references

The following documents are indispensable for application of this document. For the dated documents so quoted, only the dated versions apply to this document. For the undated documents so quoted, the latest versions (including all modification sheets) apply to this document.

GB190 Packing symbol of dangerous goods

GB/T 191 Packaging - Pictorial markings for handling of goods (GB/T 191-2008, ISO 780:1997, MOD)

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

4 Safety information

4.1 Safety

According to GB/T2268-2012, phthalic anhydride belongs to the eighth category of corrosive substances; hazardous material No. is UN: 2214 (CN: 81631). It stimulates eyes and skins, and contact with the skin may cause allergies. Necessary protective measures shall be taken during use and handling, so as to avoid contact with eyes and skins; pay close attention to safety.

4.2 Safety technical instructions

According to GB/T 16483, this product shall be accompanied with detailed safety technical instructions during delivery, which shall include following contents:

- a) Providing risk information of this product;
- b) Safe application method;
- c) Transportation and storage requirements;
- d) Protective measures;
- e) Emergency measures, etc.

5 Sampling

Sampling is based on batches; uniform-products for each inspection are regarded as one batch. The number of samples for each batch shall conform to the provisions in 7.6 of GB/T 6678-2003. Packages of all samples shall be intact; be sure to prevent foreign matters from falling into products. During sampling, use a probe tube to take samples from three parts of the upper, middle and lower; total amount of samples taken shall not be less than 500 g; respectively put into two clean, dry and well-sealed containers after sufficiently mixing the samples taken; affix with labels. Indicate the product name, batch No., name of manufacturer, sampling date and place. One sample for inspection; the other one for future reference.

6 Test methods

6.1 General provisions

Unless otherwise specified, only use reagents that are verified analytically pure and Grade-3 water prescribed in GB/T 6682-2008. When there is no other requirement, the standard titration solutions, preparations and products used in test shall be prepared and calibrated according to the provisions of GB/T 601 and GB/T 603; determination of inspection results are based on rounding-value comparison method in 4.4.3 of GB/T 8170-2008.

same volume (colorimetric method is same as 6.3).

6.4.2 Tolerance

The same as 6.3.3.

6.5 Determination of sulfuric acid chromaticity

6.5.7 Determination steps

Weigh 2 g of fine phthalic anhydride sample (accurate to 0.1 g); place into a dry and clean colorimetric tube; add sulfuric acid to 25 mL; shake until the sample is completely dissolved; make it stand for 20 min; compare with chromaticity standard solution of the same volume along axial direction (colorimetric method is same as 6.3).

6.5.2 Tolerance

The same as 6.3.3.

6.6 Determination of crystallizing point

Conduct in accordance with the provisions of GB/T 2385.

6.7 Determination of phthalic anhydride purity

6.7.1 Determination principles

Adopt gas chromatographic method; the sample is separated through capillary chromatographic column; detected by flame ionization detector; and measured through peak area normalization method.

6.7.2 Reagents

Acetone: Chromatographically pure.

6.7.3 Instruments and equipment

- a) Gas chromatograph: Instrument sensitivity and stability shall conform to the provisions of 6.3 and 6.4 in GB/T 9722-2006.
- b) Detector: Flame ionization detector (FID);
- c) Chromatographic work station or integrator;
- d) Micro-injector: 1.0 μ L~10.0 μ L;
- e) Chromatographic column: Length is 30 m, inner diameter is 0.32 mm, film thickness is 0.25 μ m, stationary phase is (50% phenyl)-methylpolysilicone (e.g. DB-17 or other capillary columns that can achieve the same separation effect).

7.2 Exit-factory inspection

Phthalic anhydride shall pass the inspection by quality inspection department of the manufacturer and may be delivered only after certificate of quality has been attached. Manufacturer shall ensure that all delivered products conform to requirements of this Standard.

7.3 Re-inspection

If one indicator in inspection results does not conform to this Standard, it is necessary to take samples from a double amount of packaged products for inspection; the entire batch of products is deemed as disqualified even if only one indicator in re-inspection results does not conform to the requirements in this Standard.

8 Marking, labelling, transportation and storage

8.1 Marking

Each packaging container of phthalic anhydride shall be marked durably and clearly according to relevant provisions of GB 190 and GB/T 191; contents of marking shall at least include:

- a) Product name;
- b) Manufacturer's name and address;
- c) Production date/batch No.;
- d) Production license No. and mark;
- e) Net content;
- f) Warning mark (corrosive substances).

8.2 Labelling

Products shall bear labels, which shall conform to the provisions of GB 15258. Label shall indicate production date, certificate of quality, executive standard No. and batch No.

8.3 Packaging

Phthalic anhydride is packaged in woven bag with lining plastic bag or multilayer moisture-proof Kraft paper bag; net content of each bag is 25 kg $\pm$ 0.25 kg or 50 kg $\pm$ 0.50 kg. Other packages may be determined through negotiation with users. Product packaging shall conform to GB 12463 or the provisions on packaging of hazardous chemicals.

8.4 Transportation

Phthalic anhydride may not be close to fire source during product transportation; protective

equipment must be used during handling; handle gently and avoid exposure to the sun and rain. Phthalic anhydride has a stimulatory effect on eyes and skins; close attention shall be paid during handling. Be sure to avoid skin contact and inhalation.

8.5 Storage

Phthalic anhydride is a corrosive substance and shall be kept in a clean, cool and dry warehouse in accordance with GB 15603 and relevant provisions; keep it out of the sun and away from fire source; storage temperature shall not exceed 40°C. Storage life of phthalic anhydride is three months; the product shall comply with provisions of this Standard during storage life.

_____**END**_____

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