

ICS 71.080.01
CCS G 15



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

GB/T 6324.3-2011

**Test method of organic chemical products -- Part 3:
Determination of permanganate-reducing substances
(English Translation)**

Issued on: June 16, 2011

Implemented on: November 1, 2011

**Issued by: General Administration of Quality Supervision, Inspection and
Quarantine**

Table of Contents

Foreword...	3
1 Scope...	5
2 Normative references...	5
3 Test method...	5

Foreword

GB/T 6324 Test method of organic chemical products consists of six parts.

- Part 1. Water miscibility test of liquid organic chemical products;
- Part 2. Determination of dry residue after evaporation on a water bath for volatile organic liquids;
- Part 3. Determination of permanganate-reducing substances;
- Part 4. Determination of trace sulfur in organic liquid products - Microcoulometric method;
- Part 5. Determination of trace quantities of carbonyl compounds in organic chemicals;
- Part 6. Determination of color for liquids - Tristimulus colorimetry.

This Part is the third part of GB/T 6324.

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

This Part replaces GB/T 6324.3-1993 Organic chemical products for industrial use - Test method for the determination of permanganate-reducing substances.

Compared with GB/T 6324.3-1993, the main technical changes are as follows.

- modified Standard's name;
- modified the reagents used to prepare standard colorimetric solutions (see 3.3.2.2 of this Edition, 3.1.2.2 of Edition 1993);
- modified the observation way in the analysis procedure from axial observation to axial or lateral observation (see 3.3.4 of this Edition, 3.1.2.2

of Edition 1993);

- deleted the recommended ratio table of standard colorimetric solution used by part of products (see Table A.1 of Edition 1993).

This Part was redrafted on the basis of adopting ASTM D 1363.2006 Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers - Tension.

The degree of conformance with ASTM D1363.2006 is non-equivalent.

This Part was proposed by China Petroleum and Chemical Industry Association.

This Part shall be under the jurisdiction of Subcommittee on Organic, National Technical Committee on Chemical of Standardization Administration of China (SAC/TC 63 / SC 2).

Main drafting organizations of this Part. Beijing Research Institute of Chemical Industry, China Petroleum & Chemical Corporation, SINOPEC Sichuan Vinylon Works.

The drafting organizations of this Part. Jiangsu Thorpe (Group) Co., Ltd., Daqing Oilfield Methanol Plant, Sinopec Beijing Yanshan Company, Zhejiang Jinju Chemical Co., Ltd., Shaanxi Yulin Natural Gas Chemical Industry Co., Ltd..

Main drafter of this Part. Guo Yanling, Pu Lijun, Zeng Yan.

This Part was issued in April 1986 for the first time and revised in December

1993 for the first time.

Test method of organic chemical products - Part 3.

Determination of permanganate-reducing substances

1 Scope

This Part specifies the visual colorimetric method and titration method used for the determination of potassium permanganate in organic chemical products.

The visual colorimetric method of this Part is applicable to the determination of potassium permanganate in neutral, weakly acidic and weakly basic organic chemical products. The titration method is applicable to organic chemical products with potassium permanganate index equal to or greater than 10 mg /

100mL and which do not react with potassium permanganate under acidic conditions.

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 601 Chemical Reagent - Preparations of Standard Volumetric Solutions

GB/T 603 Chemical Reagent - Preparations of Reagent Solution for Use in Test (GB/T 603-2002, ISO 6353-1.1982, NEQ)

GB/T 3143 Color determination method of liquid chemicals (Hazen unit--Platinum-cobalt scale)

3.1 Warning

Some test procedures specified in the test method may result in hazardous situations, and the operator shall take appropriate safety and protective measures.

3.2 General

Unless otherwise stated, only reagents identified as analytically pure and grade

3 water as specified in GB/T 6682 can be used in the analysis.

The standard titration solutions, preparations and products used in the analysis, in the absence of any other indication, shall be prepared in accordance with the provisions of GB/T 601 and GB/T 603.

3.3.1 Method summary

Under specified conditions, the potassium permanganate solution is added to the sample. For the substance capable of reacting with potassium

permanganate, reduce it to manganese dioxide, and make test solution changed from pink to orange. Observe and record the fading time of potassium permanganate pink or the time taken for the color of the test solution to match the color of the standard colorimetric solution. The test results shall be expressed in terms of potassium permanganate time.

3.3.3.1 Low temperature water bath. temperature can be controlled at $(15 \pm 0.5)^{\circ}\text{C}$ or $(25 \pm 0.5)^{\circ}\text{C}$.

3.3.5.1 Potassium permanganate time. from the addition of potassium permanganate solution to the beginning of the test solution pink just fade time OR the time when the color of the test solution is consistent with the color of the standard colorimetric solution in minutes (min).

3.3.5.2 If the residual color of the test solution is deeper than the color of the standard colorimetric solution, the potassium permanganate time shall be reported greater than t min. If the residual color of the test solution is comparable to that of the standard colorimetric solution, the potassium permanganate time shall be reported equal to t min. If the residual color of the test solution is lighter than the color of the standard colorimetric solution, the potassium permanganate time shall be reported less than t min. Where, t min is the index value specified in the product standard for the test sample.

3.4.1 Method summary

Under specified conditions, in acidic medium, the sample is reacted with an excess of potassium permanganate solution. Use the iodometric method to determine the amount of potassium permanganate remained. The number of milligrams of potassium permanganate reduced by 100 mL of sample shall be potassium permanganate index.