

ICS 87.040
CCS G 51



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

GB 24613-2009

**Limit of harmful substances of coatings for toys
(English Translation)**

Issued on: November 15, 2009

Implemented on: October 1, 2010

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

Table of Contents

Foreword...	3
1 Scope...	4
2 Normative references...	4
3 Terms and definitions...	4
4 Requirements...	5
5 Test methods...	6
6 Inspection rules...	6
7 Package markings...	7
Appendix A (Normative) Determination of lead content...	8
Appendix B (Normative) Determination of soluble element content...	13

1 Scope

This Standard specifies the requirements, test methods, inspection rules, as well as packaging and markings for the limit of substances harmful to human health and the environment in coatings for toys.

This Standard applies to various coatings for toys.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, all subsequent amendments (not including errata content) or revisions do not apply to this standard. However, parties to agreements that are based on this Standard are encouraged to study whether the latest versions of these documents can be used. For undated references, the latest edition applies to this Standard.

GB/T 1250, Representation and determination of limit values

GB/T 1725-2007, Paints varnishes and plastics - Determination of non-volatile- matter content (ISO 3251.2003, IDT)

GB/T 3186, Paints varnishes and raw materials for paints and varnishes -

Sampling (GB/T 3186-2006, ISO 15528.2000, IDT)

GB/T 6682, Water for analytical laboratory use - Specification and test methods (GB/T 6682-2008, ISO3696.1987, MOD)

GB/T 6750-2007, Paints and varnishes - Determination of density - Pycnometer method
(ISO 2811-1.1997, Paints and varnishes - Determination of density - Part

1.Pycnometer method, IDT)

GB/T 9750, Marks for package of coating products

3 Terms and definitions

The following terms and definitions are applicable to this Standard.

3.1

coatings for toys

The general term for liquid or solid coatings that can be applied to the surface of toys to form a film.

3.2

volatile organic compound; VOC

Any organic compound with an initial boiling point below or equal to 250 °C under standard atmospheric pressure of 101.3 kPa.

3.3

volatile organic compound content; VOC content

The content of volatile organic compounds obtained by testing the product according to the prescribed test methods.

4 Requirements

The limit of harmful substances in the product shall meet the requirements of Table 1.

5.1 Sampling

Product sampling shall be carried out in accordance with GB/T 3186.

5.2 Test methods

5.2.1

The determination of lead content shall be carried out in accordance with the provisions of Appendix A of this Standard.

5.2.2

The determination of soluble elements shall be carried out in accordance with the provisions of Appendix B of this Standard.

5.2.3

The determination of phthalates shall be carried out in accordance with the provisions of Appendix C of this Standard.

5.2.4

The determination of volatile organic compounds shall be carried out in accordance with the provisions of Appendix D of this Standard.

5.2.5 The determination of the total content of benzene, toluene, ethylbenzene and

xylylene shall be carried out in accordance with the provisions of Appendix E of this Standard.

6 Inspection rules

6.1

All requirements listed in this Standard are type test items.

6.1.1

Under normal production conditions, a type test shall be carried out at least once a year.

6.1.2

Type test shall be carried out immediately under any of the following circumstances.

- When a new product is initially finalized;
- When the product is manufactured in a different location;
- When there are significant changes in the production formula, process, source of key raw materials, and product application ratio;
- When production is resumed after a three-month shutdown.

6.2 Determination of the test result

6.2.1

The test results shall be determined according to the rounding value comparison method in GB/T 1250. When the test result after rounding is 0 or 0.0, the result shall be reported with one significant figure.

6.2.2

When reporting the test results, the application ratio specified in the product shall also be noted.

6.2.3

The product is considered to conform to this Standard if the test results of all items meet the requirements of this Standard.

7 Package markings

7.1

In addition to complying with the provisions of GB/T 9750, products that have passed the inspection according to this Standard may clearly indicate this on the package markings.

7.2

For coatings composed of two or more components, the mixing ratio of each component shall be clearly stated on the package marking or in the product instructions.

For coatings that require dilution during application, the dilution ratio shall be clearly stated on the packaging marking or in the product instructions.

Appendix A (Normative)

Determination of lead content

A.1 Principle

For the dried coating film, use a suitable method to remove all organic substances; then, use a suitable analytical instrument to determine the lead content in the test solution.

A.2 Reagents

In the analysis test, only use reagents that are confirmed to be analytical reagents; the used water shall meet the requirements of Grade-3 water in GB/T 6682.

A.2.1 Nitric acid. approximately 65% (mass fraction), density approximately 1.40 g/mL.

Nitric acid that has turned yellow shall not be used.

A.2.2 Hydrogen peroxide. approximately 30% (mass fraction), density approximately

1.10 g/mL.

A.2.3 Magnesium carbonate.

A.2.4 Nitric acid solution. 1:1 (volume ratio).

A.2.5 Nitric acid solution. 2:98 (volume ratio).

A.2.6 Lead standard stock solution. concentration of 100 mg/L or 1 000 mg/L.