



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

GB 24409-2020

Limit of Harmful Substances of Vehicle Coatings

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Foreword

All the technical content of this Standard is mandatory.

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

This Standard serves as a replacement of GB 24409-2009 Limit of Harmful Substances of Automobile Coatings. In comparison with GB 24409-2009, other than editorial modifications, the main technical changes are as follows.

---The scope of application of this Standard is modified (see Chapter 1; Chapter 1 of Version 2009);

---Normative reference "GB/T 1250" is deleted; normative references "GB/T 8170-2008, GB/T 9754-2007, GB/T 9758.5-1988, GB/T 9760-1988, GB/T 23985-2009, GB/T 23986-2009, GB/T 23990-2009, GB/T 23992-2009, GB/T 30647-2014, GB/T 34675-2017" are added (see Chapter 2; Chapter 2 of Version 2009);

---The definitions of "volatile organic compound" and "volatile organic compound content" are modified; the terms and definitions of "road vehicle", "rail transit vehicle", "power-driven vehicle", "passenger car", "bus (vehicle)", "goods vehicle", "powered car train-set", "railway vehicle", "carriage (railway vehicle)", "urban rail transit vehicle", "wagon", "special motor vehicle", "low-speed vehicle",

"trailer", "primer", "primer surfacer", "varnish", "effect pigment", "high decorative coatings including effect pigment" and "application condition" are added (see Chapter 3; Chapter 3 of Version 2009);

---The classification of products is modified (see Chapter 4; Chapter 4 of Version 2009);

---The "coating variety" of solvent-based coatings is modified; the limit value of VOC content is modified (see Table 2; Table 1 of Version 2009);

---The limit value of VOC content of water-based coatings and radiation-curing coatings is added (see Table 1 and Table 3);

---The limit value of the total content of toluene and xylene (containing ethylbenzene) in solvent-based coatings is modified; the control item of the total content of halogenated hydrocarbons in solvent-based coatings is added (see Table 4; Table 1 of Version 2009);

---The control item of the total content of benzene series in water-based coatings and water-based radiation-curing coatings is added (see Table 4);

---The control items of the benzene content, the total content of toluene and xylene (containing ethylbenzene), the total content of halogenated hydrocarbons, and the total content of glycol ethers and ether esters of non-aqueous radiation-curing coatings are added (see Table 4);

---The control varieties of glycol ethers and ether esters are modified (see Chapter 5; Chapter 5 of Version 2009);

---The test methods of "VOC content", "benzene content", "total content of toluene and xylene (containing ethylbenzene)", "total content of glycol ethers and ether esters" and "heavy metal content" are modified; the test methods of "total content of benzene series" and "total content of halogenated hydrocarbons" are added (see 6.2; 6.2 of Version 2009);

---The implementation of this Standard is added (see Chapter 9).

This Standard was proposed by and shall be under the jurisdiction of Ministry of

Industry and Information Technology of the People's Republic of China.

The issuing of the previous version.

---GB 24409-2009.

Limit of Harmful Substances of Vehicle Coatings

1 Scope

This Standard stipulates the product classification, requirements, test methods, inspection rules, packaging marks and implementation of the Standard related to the allowable limits of substances harmful to humans and the environment in various types of vehicle coatings.

This Standard is applicable to various kinds of original vehicle coatings, refinish coatings, rail transit vehicle coatings, motorcycle (including electric motorcycle) coatings, bicycle (including electric bicycle) coatings, and coatings for other vehicles (special motor vehicles, low-speed vehicles and trailers) and vehicle parts.

This Standard is not applicable to coatings for tractor transport units, special wheeled mechanical vehicles and military vehicles.

2 Normative References

The following documents are indispensable to the application of this document. In terms of references with a specified date, only versions with a specified date are applicable to this document. In terms of references without a specified date, the latest version (including all the modifications) is applicable to this document.

GB/T 1725-2007 Paints, Varnishes and Plastics - Determination of Non-volatile-matter Content

GB/T 3186 Paints, Varnishes and Raw Materials for Paints and Varnishes - Sampling

GB/T 6682-2008 Water for Analytical Laboratory Use - Specification and Test Methods

GB/T 6750-2007 Paints and Varnishes - Determination of Density - Pycnometer Method

GB/T 8170-2008 Rules of Rounding off for Numerical Values & Expression and Judgement of Limiting Values

GB/T 9750 Marks for Package of Coating Products

GB/T 9754-2007 Paints and Varnishes - Determination of Specular Gloss of Non-metallic Paint Films at 20°, 60° and 85°

GB/T 9758.5-1988 Paints and Varnishes - Determination of Soluble Metal Content - Part 5. Determination of Hexavalent Chromium Content of the Pigment Portion of the Liquid Paint or the Paint in Powder Form - Diphenylcarbazide Spectrophotometric Method

GB/T 9760-1988 Paints and Varnishes - Preparation of Acid Extracts from Paints in Liquid or Powder Form

GB/T 23986-2009 Paints and Varnishes - Determination of Volatile Organic Compound (VOC) Content - Difference Method

GB/T 23990-2009 Determination of the Contents of Benzene Toluene Ethylbenzene and Xylene in Coatings by Gas Chromatography

GB/T 23992-2009 Determination of Chlor-hydrocarbon Content in Coatings - Gas Chromatographic Method

GB/T 30647-2014 Determination of Harmful Elements Total Content of Coatings

GB/T 34675-2017 Determination of Volatile Organic Compound (VOC) Content in Radiation Curable Coatings

3 Terms and Definitions

The following terms and definitions are applicable to this document.

3.1 Road Vehicle

Road vehicle refers to vehicles that are designed and manufactured to carry passengers, transport goods or perform special operations on the road, and are legally allowed to travel on the road. Road vehicle includes motor vehicles and non-motor vehicles.

[GA 802-2014, Definition 3.1]

3.2 Rail Transit Vehicle