QC

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Replacing QC/T 625-2013

Metallic Coatings and Conversion Coatings for Automobile

汽车用涂镀层和化学处理层

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Foreword

This document was drafted in accordance with the rules provided in GB/T 1.1-2020 *Directives for Standardization - Part 1: Rules for the Structure and Drafting of Standardizing Documents*.

This document serves as a replacement for QC/T 625-2013 *Metallic Coatings and Conversion Coatings for Automobile*. In comparison with QC/T 625-2013, the main technical changes are as follows:

a) The scope of application of metallic coatings and conversion coatings for automobile is modified (see Chapter 1; Chapter 1 of Version 2013);

b) The provision on the thickness of the chromium coating of copper + nickel + chromium and nickel + chromium electroplated coating is modified (see Table 2; Table 2 of Version 2013);

c) The provision on the salt spray corrosion resistance of copper + nickel + chromium electroplated coating on the plastic substrate is modified (see Table 3; Table 3 of Version 2013);

d) The provision on the time that substrate corrosion appears on the corrosion resistance of zinc electroplated coating is added (see Table 5);

e) The requirements for the surface friction coefficient of zinc electroplated coating are added (see 6.5);

f) The provision that threaded fasteners shall comply with GB/T 5267.1 is deleted (see 5.5 of Version 2013);

g) The requirements for the surface friction coefficient of copper electroplated coating are added (see 9.3);

h) The provisions on the thickness of zinc-nickel alloy electroplated coating and the color passivation layer of zinc-nickel alloy electroplated coating are added (see Table 18);

i) The requirements for the time that zinc corrosion appears on the corrosion resistance of zinc-nickel alloy electroplated coating are modified, and the provision on the time that substrate corrosion appears on the corrosion resistance of zinc-nickel alloy electroplated coating is added (see Table 19; Table 19 of Version 2013);

j) The requirements for the surface friction coefficient of zinc-nickel alloy electroplated coating are added (see 17.4);

k) The provision on the thickness of zinc-iron alloy electroplated coating is added (see Table 20);

Metallic Coatings and Conversion Coatings for Automobile

1 Scope

This document specifies the requirements, technical conditions and test methods for metallic coatings and conversion coatings of automobile parts and accessories.

This document is applicable to the metallic coatings and conversion coatings of automobile parts and accessories.

2 Normative References

The content of the following documents constitutes indispensable clauses of this document through normative references in the text. 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 4340.1 Metallic Materials - Vickers Hardness Test - Part 1: Test Method

GB/T 4955 Metallic Coatings - Measurement of Coating Thickness - Coulometric Method by Anodic Dissolution

GB/T 4956 Non-magnetic Coatings on Magnetic Substrates - Measurement of Coating Thickness - Magnetic Method

GB/T 4957 Non-conducive Coatings on Non-magnetic Basis Metals - Measurement of Coating Thickness - Eddy Current

GB/T 5270 Metallic Coatings on Metallic Substrates - Electrodeposited and Chemically Deposited Coatings - Review of Methods Available for Testing Adhesion

GB/T 6461 Methods for Corrosion Testing of Metallic and Other Inorganic Coatings on Metallic Substrates - Rating of Test Specimens and Manufactured Articles Subjected to Corrosion Tests

GB/T 8013.1 Anodic Oxide Coatings and Organic Polymer Coatings on Aluminum and Its Alloys - Part 1: Anodic Oxide Coatings

GB/T 8014.2 Anodizing of Aluminum and Its Alloys - The Measuring Method of Thickness of Anodic Oxide Coatings - Part 2: Mass-loss Method

GB/T 9797 Metallic and Other Inorganic Coatings - Electrodeposited Coatings of Nickel, Nickel plus Chromium, Copper plus Nickel and of Copper plus Nickel plus Chromium

GB/T 9799 Metallic and Other Inorganic Coatings - Electrodeposited Coatings of Zinc with

Supplementary Treatments on Iron or Steel

GB/T 9800 Chromate Conversion Coatings on Electroplated Zinc and Cadmium Coatings

GB/T 10125 Corrosion Tests in Artificial Atmospheres - Salt Spray Tests

GB/T 11376 Metallic and Other Inorganic Coatings - Phosphate Conversion Coating of Metals

GB/T 11379 Metallic Coatings - Electroplated Coatings of Chromium for Engineering Purposes

GB/T 12333 Metallic Coatings - Electroplated Coatings of Copper for Engineering Purposes

GB/T 12599 Metallic Coatings - Electroplated Coatings of Tin - Specification and Test Methods

GB/T 12600 Metallic Coatings - Electroplated Coatings of Nickel plus Chromium on Plastics Materials

GB/T 12967.3 Test Methods for Anodic Oxidation Coatings and Organic Polymer Coatings on Aluminum and Aluminum Alloys - Part 3: Salt Spray Test

GB/T 13912 Metallic Coatings - Hot Dip Galvanized Coatings on Fabricated Iron and Steel Articles - Specifications and Test Methods

GB/T 15519 Chemical Conversion Coatings - Black Oxide Coating on Iron and Steel - Specification and Test Methods

GB/T 16921 Metallic Coatings - Measurement of Coating Thickness - X-ray Spectrometric Methods

GB/T 41950 Metallic Coatings - Electroplated Coatings of Zinc and Zinc Alloys on Iron or Steel with Supplementary Cr (VI)-free Treatment

QC/T 721 Non-electrolytically Applied Zinc Flake Coatings for Automobile

SJ/T 11110 Specification for Electrodeposited Silver Coatings

3 Terms and Definitions

This document does not have terms or definitions that need to be defined.

4 Representation Method of Metallic Coatings and Conversion Coatings for Automobile

The representation method of metallic coatings and conversion coatings for automobile mainly consists of the following three parts (see Figure 1).

Use chemical symbols to represent the base metal or the main metal in the alloy matrix, followed by a slash (/).

Use chemical symbols, Arabic numerals and lowercase pinyin letters to indicate the category, thickness and type of coatings. If copper or brass containing more than 50% copper is used as an intermediate coating, use the chemical symbol Cu to represent the copper coating.

The number after the symbol represents the minimum thickness of the coating, which is expressed in (μm).

EXAMPLE:

The steel substrate is coated with copper with a minimum thickness of 20 μm, a nickel layer with a minimum thickness of 30 μm is plated on the copper, and ordinary chromium is coated with a minimum thickness of 0.25 μm on the nickel layer. Its code is: Fe/Cu20Ni30dCr0.25.

5 Copper + Nickel + Chromium and Nickel + Chromium Electroplated Coating

5.1 Working Condition No.

The working condition No. is used to specify the harshness of the working environment of coated parts.

The working condition No. of copper + nickel + chromium and nickel + chromium electroplated coating is shown in Table 1.

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