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ASSOCIATION STANDARD

T/CSAE 71-2018

Cyclic corrosion test methods of automotive assemblies and materials

汽车零部件及材料循环腐蚀试验方法

(English Translation)

Issued on: March 1, 2018

Issued by: China Society of Automotive Engineers

Preview: page 1 of 5 shown, 11 in the full document. Complete English PDF, instant download:
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Table of Contents

Foreword
1 Scope
2 Normative references
3 Terms and definitions
3.1 Scratch layer width (Delamination)
3.2 Scratch Corrosion Width (Corrosion)
3.3 Scratch corrosion depth (Hole)
4 Test solution
5 Test equipment
5.1 Equipment materials
5.2 Test chamber
6 Sample
7 Test conditions
8 Test cycle
9 Results evaluation
9.1 Treatment of samples after test
9.2 Evaluation of test results
10 Test report
45 Mm
80 Mm

Foreword

This standard was proposed by the Automotive Anticorrosion and Aging Branch of the China Automotive Engineering Society.

This standard is approved by the China Automotive Engineering Society.

This standard is under the jurisdiction of the China Automotive Engineering Society.

This standard was drafted. China First Automobile Co., Ltd. Technology Center, US Q-Lab Company China Representative Office, Chongqing Chang an Automobile Co., Ltd., Zhejiang Zhongtai Automobile Manufacturing Co., Ltd., Dongfeng Commercial Vehicle Technology Co., Ltd. Dongfeng Commercial Vehicle Technology Center, God Long Automobile Co., Ltd. Technology Center, BYD Auto Industry Co., Ltd., Nanjing Automotive

Preview: page 2 of 5 shown, 11 in the full document. Complete English PDF, instant download:
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Group Co., Ltd. Automotive Engineering Research Institute, Ann Huijiang Huai Automobile Co., Ltd., Automotive Engineering Research Institute of Guangzhou Automobile Group Co., Ltd., Shanghai Automotive Group Co., Ltd.

Passenger car company, Changan Ford Motor Co., Ltd., FAW-Volkswagen Automotive Co., Ltd., Pan Asia Automotive Technology Center Co., Ltd.

Chery Commercial Vehicle (Anhui) Co., Ltd., Chery Shanghai Technology Center, China First Automobile Co., Ltd. Tianjin Technology Development Branch, Qoros Auto, Institute of Metal Research, Chinese Academy of Sciences, Hainan Tropical Vehicle Test Co., Ltd., China Shipbuilding Industry Corporation, 725 Xiamen Branch of the Institute, the 59th Institute of China Ordnance Industry, Standards Technical Service (Shanghai) Co., Ltd., Shanghai China Testing Zhengqi Testing Technology Co., Ltd., Shanghai Tianxiang Quality Technology Service Co., Ltd., Suzhou Xinxue Standard Technology Service Co., Ltd., Shanghai Bohai Testing Technology Co., Ltd., Akzo Nobel (China) Investment Co., Ltd., Shanghai Kaimiter Chemical Co., Ltd., Wuhan University of Science and Technology, Beijing University of Science and Technology.

1 Scope

This standard specifies the cyclic corrosion test method for automotive parts and materials.

This standard applies to all types of automotive parts and materials, including metal, metal coatings,, and other conversion coatings.

Quality control, performance verification, process verification and product structure design verification for layer and other anti-corrosion.

This standard applies to cyclic corrosion tests of automotive parts and materials conducted in the laboratory.

2 Normative references

The following standards are essential for the application of this document. All dated references, all subsequent modifications (not the inclusion of errata content or revisions does not apply to this standard, but parties to agreements based on this standard are encouraged to study the use of these documents.

The possibility of the latest version.

GB/T 10125-2012 Artificial atmosphere corrosion test salt spray test GB/T 13452.2-2008 Determination of film thickness of paints and varnishes ISO 3574 commercial grade and stamping grade cold rolled carbon steel sheet ISO 4628-2 Evaluation of coatings and varnishes -- Determination of the extent , s Evaluation of the level of foaming ISO 4628-3 Evaluation of coatings and varnishes -- Determination of the extent , s Assessment of rust rating ISO 4628-4 Evaluation of coatings for lacquering and varnishing -- Assessment of the

Preview: page 3 of 5 shown, 11 in the full document. Complete English PDF, instant download:
https://chinastandards.org/standards/t-csae-71-2018

extent, number and size of general type of damage - Part 4.

Evaluation of cracking grade ISO 4628-5 -- Evaluation of coatings and varnishes -- Determination of s Evaluation of shedding grade ISO 4628-6 Evaluation of coatings and varnishes -- Determination of the extent , s Evaluation of the chalking grade of the tape method ISO 4628-7 -- Evaluation of coatings and varnishes -- Determination of s Evaluation of velvet powdering grade ISO 4628-8 Evaluation of coatings and varnishes -- Determination of the extent, and size of general type of damage - Part 8.

Scratch delamination and corrosion degree assessment ISO 4628-10 Evaluation of coatings and varnishes -- Determination of s Points. Filament Corrosion Rating ISO 8407 Corrosion of metals and alloys Corrosion of corrosion products in samples 2T/CSAE xx-2018

3 Terms and definitions

The following terms and definitions apply to this standard.

3.1 Scratch layer width (Delamination)

The width of the various layers of the scratch at the scratch loss. The distance from the edge of the scribe line to the farthest point where the film loses adhesion.

3.2 Scratch Corrosion Width (Corrosion)

The various layers of the scratch have a width of visible corrosion. The distance from the edge of the scribe line to the farthest point of corrosion.

3.3 Scratch corrosion depth (Hole)

Each type of film at the scratch has a visible corrosion point and a depth developed toward the depth of the base metal.

4 Test solution

The reagents used in this standard are those of analytically pure or analytically pure reagents.

The salt solution configured in this standard is a 1% sodium chloride solution, and the pH of the solution is adjusted to 4.0 ± 0.1 with 0.5 mol/L sulfuric acid.

Note 1: The pH value should be measured with a pH meter at 25 °C ± 2 °C, or precision pH test paper with a measurement accuracy of not less than 0.3.

Conduct daily testing.

Note 2: The solution is filtered prior to use to avoid solids in the solution clogging the device nozzle.

Preview: page 4 of 5 shown, 11 in the full document. Complete English PDF, instant download:
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Note 3: The used spray solution should not be reused.

5.1 Equipment materials

The material used to make the test equipment must be a material that resists salt spray corrosion and does not affect the test results.

5.2 Test chamber

5.2.1

The volume of the test chamber should be not less than 0.4 m3, because it is difficult to ensure the uniformity of the spray due to the small volume. For large volumes the tank needs to ensure that the spray solution is evenly distributed during the spray test. The top of the box should avoid dripping of the accumulated solution during the test.

Go to the sample.

5.2.2

Place at least two salt solution collectors in the tank, one close to the nozzle and one away from the nozzle. The collector is inert with glass the material is made into a funnel shape with a diameter of 100 mm and a collection area of about 80 cm2. The funnel tube is inserted into a container with a scale.

The collection is a salt solution, not a liquid that is dripped from the sample or other parts.

5.2.3

The sprayed solution through the nozzle can be adjusted and sprayed evenly on the sample. The shape and size of the test chamber should be such the collection rate of the solution in the tank is. 16 minutes of spraying time in the first step to the second step (repeated 4 times) in Table 1 of Section 7.1 of this standard.

The average sedimentation rate of the salt solution is 39 mL to 79 mL in the horizontal area of 80 cm2.

5.2.4

The heating system of the test chamber shall meet the different stages of the test, and the temperature inside the tank shall reach and maintain 25 °C ± 2 °C, 3T/CSAE xx-2018 35 ° C ± 2 ° C and 50 ° C ± 2 ° C requirements. The temperature measurement area should be no less than 100 mm from the inner wall of the box.

6 Sample

6.1

The type, quantity, shape and size of the sample used for the cyclic corrosion test are agreeable. The sample can be a part or a template.

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