

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

JT/T 1303-2019

**Supplemental additives for heavy-duty motor vehicle engine
coolant**

重负荷机动车发动机冷却液用补充添加剂 清晰版
(English Translation)

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Foreword

This standard is in accordance with GB/T Draft the rules given in 1-2009.

This standard was proposed and managed by the National Technical Committee for
Automobile Maintenance Standardization (SAC/TC 247).

This standard was drafted. Highway Research Institute of Ministry of Transport, Beijing
Zhonggong Gaoyuan Automobile Test Co., Ltd., Dongfeng Commercial Vehicle Co., Ltd.

Company Technology Center, Uniform Petrochemical Co., Ltd., Zhangjiagang Dick
Automobile Chemical Co., Ltd., Tianjin Product Quality Supervision and Testing Technology
Institute of Technology.

1 Scope

This standard specifies the technical requirements and test methods, inspection rules, and
standards for supplementary additives for engine coolant of heavy-duty vehicles.

And storage requirements.

This standard is applicable to the production, inspection and maintenance of
supplementary additives for heavy-duty motor vehicle engine coolants containing nitrite and
molybdate components.

use.

2 Normative references

The following documents are essential for the application of this document. For dated references, only the dated version applies to this article. For undated references, the latest version (including all amendments) applies to this document.

GB/T 6682 Analytical laboratory water specifications and test methods GB/T 8926 Lubricants in use-Determination of insoluble matter GB 2743-2013 Motor vehicle engine coolant JT/T 1230 Determination of inorganic anions in motor vehicle coolants by ion chromatography SH/T 0066 Engine Coolant Foam Tendency Determination Method (Glassware Method) SH/T 007 Determination of Ash Content in Engine Coolants and Rust Preventives SH/T 0069 Engine Antifreeze, Rust Preventive and Coolant PH Determination Method Test method for the effect of chemical solution of cooling system SH/T 0884 on organic coatings on automobiles SH/T 0885 Determination of engine coolant corrosion (glassware method) SH/T 0087 Test Method for Cavitation Corrosion of Engine Coolant Aluminum Pumps SH/T 0888 Engine Coolant Simulation Using Corrosion Test Method SH/T 009 Determination of Alkalinity of Engine Coolant and Rust Preventives Method for determination of corrosion of cast aluminum alloy under heat transfer state of SH/T 0620 engine coolant SH/T 0621 Determination of Chlorine Content in Engine Coolant NB/SH/T 0828 Determination of silicon and other elements in engine coolants Inductively coupled plasma atomic emission Notation

3 Terms and definitions

The following terms and definitions apply to this document.

Supplementary additive for engine coolant of heavy-duty motor vehicles supplemental advances fortune, dueto motor vehicle engine coolant (SCA) A type that is added to the cooling system of a heavy-duty motor vehicle engine and has the effect of inhibiting cavitation corrosion and reducing hot surface deposits substance.

Note: SCA can be used to supplement the consumption of heavy-duty motor vehicle engine coolant during use, or it can be added to the silicon content is not greater than the 125mg/kg light-duty motor vehicle engine coolant makes it able to meet the requirements of heavy-duty motor vehicle engines.

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Pre-dose dosage Add the amount of SCA per unit of engine coolant to be added for the first time.

4 Technical requirements and test methods

4.1

Physical and chemical properties SCA according to A. 2. If the test solution is formulated according to the requirements of Table 1, the physical and chemical performance requirements and test methods shall meet the requirements of Table 1.

Table 1 Physical and chemical performance requirements and test methods

project

Claim

Single component ≥ 300 experiment method Nitrite (calculated as NO_2) content (mg/kg) ≥ 1.200 -JT/T 1230 Nitrite (as NO_2) and molybdate (as MoO_4) Total (mg/kg) ≥ 780 Single component content (mg/kg)-two components JT/T 1230 NB/SH/T 0828 no pungent odor Ash content (mass fraction) (%) ≤ 5 SH/T 0067 pH value 7. 5 to 11. 0 SH/T 0069 Reserve Alkalinity (mL) Reported Value SH/T.2009 Chlorine content (mg/kg) ≤ 25 SH/T 0621a JT/T 1230 Silicon content (mg/kg) ≤ 250 NB/SH/T 0828 no effect on automotive organic coatings SH/T 0884 a In case of dispute, SH/T 0621 is the arbitration method.

4.2

Performance

SCA according to A. 2. If the test solution of 2 is formulated, its performance requirements and test methods shall meet the requirements of Table 2.

Table 2 Performance requirements and test methods

Project Requirements Test Method Glassware corrosion (Low dose) ($88^\circ\text{C} \pm 2^\circ\text{C}$, 336h $\pm$ 2h) Test piece quality change (mg) Copper-10 $\sim$ + 10 Brass-10 $\sim$ + 10 Steel-10 $\sim$ + 10 Cast iron-10 $\sim$ + 10 Solder-30 to + 30 Cast aluminum-30 to + 30 SH/T 0085 JT/T 1303-2019

Table 2 (continued)

Project Requirements Test Method Glassware corrosion (High dose) ($88^\circ\text{C} \pm 2^\circ\text{C}$, 336h $\pm$ 2h) Test piece quality change (mg) Copper-10 $\sim$ + 10 Brass-10 $\sim$ + 10 Steel-10 $\sim$ + 10 Cast iron-10 $\sim$ + 10 Solder-30 to + 30 Cast aluminum-30 to + 30 SH/T 0085 Simulate the use of corrosion ($88^\circ\text{C} \pm 3^\circ\text{C}$, 1064h $\pm$ 2h) Test piece quality change (mg) Copper-20 to + 20 Brass-20 $\sim$ + 20 Steel-20 $\sim$ + 20 Cast iron-20 $\sim$ + 20 Solder-60 $\sim$ + 60 Cast aluminum-60 $\sim$ + 60 SH/T 008 Bubble tendency Foam volume (mL) ≤ 150 Foam disappearing time (s) ≤ 5.0 SH/T 0066a Heat transfer corrosion of cast aluminum alloy ($135^\circ\text{C} \pm 1^\circ\text{C}$, 168h $\pm$ 2h) Mass change (mg/cm²)-1. 0 to + 1. 0 SH/T 0620 Cavitation corrosion of aluminum pump ($113^\circ\text{C} \pm 1^\circ\text{C}$, 103kPa $\pm$ 3kPa, 100h) (level) ≥ 8 SH/T 0087 Compatibility (mL) Reported Values Appendix B a The reference solution for the foam tendency test was prepared according to Appendix B of GB 2743-2013.

5 Inspection rules

5.1

Inspection classification and inspection items

5.1.1

Type inspection Type inspection items are all items specified in Chapter 4.

Type inspection should be carried out in the following cases.

- When a new product is put into production or the product is typed;
- When major changes occur in raw materials, processes, etc., which may affect product quality;
- When the results of the factory inspection or periodic inspection are significantly different from the results of the last type inspection;
- When the quality supervision and inspection of the relevant national agency fails;
- When the product is transferred to production or transferred to the factory;
- Type inspection is carried out every 2 years.

5.1.2

Factory inspection the factory inspection items are part of the inspection items specified in Chapter 4, including. nitrite content, molybdate content, odor, ash content, pH value, reserve alkalinity, chlorine content, silicon content, foam tendency.

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5.2

batches

Under the condition of unchanged raw materials and processes, each batch of one or more pots is uniformly mixed into one batch.

5.3

sampling

Small packaging products are randomly selected from products with the same production process and production batch. The sampling volume must meet the inspection and sample retention requirements.

6 Marking and storage