

ICS 75.120

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

**中华人民共和国国家标准**

GB 12981-2012

Replace GB 12981-2003

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**Motor vehicle brake fluids**

**机动车辆制动液**

(ISO 4925: 2005, Road vehicles—Specification of non-petroleum-base brake fluids for hydraulic systems, MOD)

**Issued on May 11, 2012**

**Implemented on October 01, 2012**

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**Issued by General Administration of Quality Supervision, Inspection  
and Quarantine of the People's Republic of China**

**Standardization Administration of the People's Republic of  
China**

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## Foreword

Table 1 in Chapter 4 of this standard is mandatory (except the test method), while the rest is voluntary.

The standard was drafted in accordance with the rules set forth in GB/T 1.1-2009.

This standard can substitute for the GB 12981-2003 *Motor Vehicle Brake Fluids*, and the main technical differences between GB 12981-2003 and this standard are as follows:

- Warnings relating to safe handling are added in this standard;
- There is some change to the applicable scope in Chapter 1.
- The chapter “Terms and Definitions” is deleted in this standard, and the title of Chapter 3 is changed to “Product Classification and Marking” and the contents are also changed accordingly;
- Silicone base brake fluid is deleted from Chapter 3 of this standard, HZY5 only contains a product that corresponds to the internationally used DOT5.1 products; HZY6, a type that corresponds to class 6 in ISO 4925: 2005 is added; the contents concerning the product marking are added in 3.2.
- Chapter 4 Requirement and Test Methods are separately listed in Table 1 and Table 2; the determination of pH value in Table 1 is changed to the method in Annex D, with no more reference to the determination method in GB/T 7304, and accordingly, the Annex D pH Determination Method of Brake Fluid is added;
- The hiding power diagram used in the items such as fluidity and appearance at low temperature, water tolerance and fluid compatibility are deleted from Table 1 of Chapter 4; the test at the temperature of 70 °C is deleted from the rubber adaptability; and the volume increase measurement of SBR rubber cup is increased.
- Rust resistance item is added to Table 2 of Chapter 4; and the stroke simulation test item is changed to voluntary item.
- In Annex F, the calculation formula of change of packing cup hardness is changed from  $\Delta H=H_2 -H_1$  to  $\Delta H=H_1 -H_2$ ;
- The test method B is added in Annex H;
- The title of Annex I is changed to: Inspection method of brake fluid’s water tolerance and fluid compatibility; in the fluid compatibility test, the national standard sample of compatible fluid is used.

The standard is redrafted on the basis of ISO 4925: 2005 *Road Vehicles—Specification of Non-petroleum-base Brake Fluids for Hydraulic Systems* (English Version).

Compared with ISO 4925:2005, there are a lot of differences in terms of the structure. Annex A lists the Contrast Summary between Clause Numbers in ISO 4925:2005 and this standard.

There are technical differences between this standard and the ISO 4925:2005. Annex B sets forth the relevant technical differences and the underlying reasons.

This standard is proposed by the National Technical Committee 280 on Petroleum

Products and Lubricants of Standardization Administration of China (SAC/TC 280).

It is under the jurisdiction of the Sub-committee on Synthetic Grease of National Technical Committee 280 on Petroleum Products and Lubricants of Standardization Administration of China (SAC/TC 280/SC 5).

Units responsible for drafting this standard: China Petroleum & Chemical Co., Ltd. Lubricating Oil Chongqing Branch Research Institute of Highway Ministry of Transport, Vehicle Maintenance Supplies & Technologies Promotion Committee of China Association for Standardization, China FAW Group Corporation R&D Center, Material and Technology Institute of Dongfeng Motor Co., Ltd., Fujian Laike Petrochemical Co., Ltd., Liaoning Rundi Fine Chemicals., Ltd., Petrol-oil and Lubricants Research Institute of General Logistics Department, PLA., Zhejiang University Fangyuan Chemical Co., Ltd., Wuxi PetroChina Lubricating Grease Co., Ltd.

Units involved in drafting this standard: China FAW Group Tianjin Motor Co., Ltd., Shanghai Volkswagen Motor Co., Ltd., Traffic & Transportation Research Institute of General Logistics Department, PLA., Zhangjiagang TEEC Automotive Chemicals Co., Ltd., Zhejiang University Fine Chemical Co., Ltd., Jiangyin Yida Chemical Co., Ltd.

Main drafters of this standard: Yan Zili, Zhang Yang, Guo Yiming, Zhang Shuhua, Dai Fumin, Li Chunhui, Liu Jinlong, Leng Guanjun, Shan Jingbo and Yang Xiaojun.

The issuances of previous versions of the standard GB 12981 replaced by this standard are as follows:

——GB 12981—1991;

——GB 12981—2003.

# Motor vehicle brake fluids

**Warning: This product does not belong to inflammable and hazardous substance, but it can irritate the eyes and skin. Once touched, wash it with fresh water immediately; this product can corrode paints.**

## 1 Scope

The standard specifies the requirements and test methods of non-petroleum-base brake fluid for hydraulic brake and clutch system of motor vehicles, the inspection rules and markings, packaging, transport and storage.

The standard applies to the motor vehicle brake fluid with the non-petroleum base and addition of various additives that contacts with the seals made of Styrene butadiene rubber (SBR) or ethylene propylene diene monomer (EPDM).

This standard does not apply to motor vehicle brake fluids used in polar environments.

## 2 Normative References

The articles contained in the following documents have become this standard when they are quoted herein. For the dated documents so quoted, all the modifications (excluding corrections) or revisions made thereafter shall not be applicable to this Standard. For the undated documents so quoted, the latest editions shall be applicable to this Standard.

GB 265 Petroleum products-Determination of kinematic viscosity and calculation of dynamic viscosity

GB/T 514 Liquid in glass thermometers for petroleum products— Specification

GB/T 710 Hot-rolled quality carbon structural steel sheets and strips

GB/T 2520 Cold-reduced electrolytic tinplate

GB/T 3190 Wrought aluminium and aluminium alloy—Chemical composition (ISO 209: 2007(E),MOD)

GB/T 4756 Petroleum liquids--Manual sampling (ISO 3170: 1988,EQV)

GB/T 5231 Wrought copper and copper alloys chemical composition limits and forms of wrought products

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