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

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Replacing GB/T 14092.1-2009

**Environmental conditions for machinery products - Part 1:
Warm damp**

机械产品环境条件 第1部分：湿热

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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 is Part 1 of GB/T 14092 Environmental Condition for Machinery Products. GB/T 14092 has issued the following parts:

---GB/T 14092.1-2023 Environmental Condition for Machinery Products - Part 1: Warm Damp;

---GB/T 14092.2-2023 Environmental Condition for Machinery Products - Part 2: Cold;

---GB/T 14092.3-2009 Environmental Condition for Machinery Products - High Altitude;

---GB/T 14092.4-2009 Environmental Condition for Machinery Products - Ocean;

---GB/T 14092.5-2009 Environmental Condition for Machinery Products - Industrial Corrosion;

---GB/T 14092.6-2009 Environmental Condition for Machinery Products - Mine;

---GB/T 14092.7-2009 Environmental Condition for Machinery Products - Dry Heat. This document serves as a replacement of GB/T 14092.1-2009 Environmental Condition for Machinery Products - Warm-damp. In comparison with GB/T 14092.1-2009, apart from structural adjustments and editorial modifications, the main technical changes are as follows:

- a) The content of the chapter "General Requirements" is modified, and the title of the chapter is modified into "Environmental Condition" (see Chapter 4; Chapter 3 of Version 2009);
- b) The content of the section "environmental condition of warm damp" is modified, and the title is modified into "severity levels of various environmental conditions" (see Chapter 5; 3.7 of Version 2009);
- c) The contents of "environmental condition of climate", "environmental condition of special climate", "environmental condition of chemical active substance", "environmental condition of mechanical active substance" and "mechanical environmental condition" are modified, and the new classification is used to replace the old classification (see Table 1 ~ Table 5; Table 1 ~ Table 5 of Version 2009);
- d) The content of "biological environmental condition" is added (see 5.6). Please be noted that certain content of this document may involve patents. The institution issuing this document does not undertake the responsibility of identifying these patents. Environmental Condition for Machinery Products - Part 1: Warm Damp

1 Scope

Part 1 of China's series on the environmental conditions for machinery products, covering warm damp. It specifies the environmental parameters and the severity levels for machinery products in warm damp conditions. This is not a test standard, and the distinction matters: a test standard says how to expose a product to heat and humidity, but it does not say how hot and how humid. This document supplies that. It sets out the parameters that describe a warm damp environment and the graded severity levels a designer chooses from before knowing which test the product will eventually face - so that a specification can say what the machine must withstand rather than which laboratory procedure it must pass. Warm damp is the environment that quietly destroys machinery in tropical and subtropical service, and its effects are cumulative rather than dramatic: condensation forming on cold surfaces when warm humid air reaches them, corrosion of steel and of electrical contacts, absorption of moisture by insulating materials with the loss of insulation resistance and the tracking that follows, swelling and dimensional change in organic materials, mould growth, and the deterioration of lubricants. Because the damage happens over years and out of sight, the design decision has to be made at the start, and the severity levels are how it is made. The application clause is what makes the document usable: it relates the levels to real service situations, so that a designer can select the level that corresponds to where the machine will actually stand rather than choosing the most severe and paying for it. Issued on 23 May 2023 and in force since 1 December 2023, it replaces GB/T 14092.1-2009.

This document specifies the environmental parameters and severity levels of machinery products in the environmental condition of warm damp. This document applies to machinery

products used in the environmental condition of warm damp. The environmental condition stipulated in this document include the environmental parameters and severity levels that the products are subject to and affected by. Applicable items and levels are selected for various types of products in accordance with the degree of environmental impact to which they are subject.

2 Normative References

The contents of the following documents constitute indispensable clauses of this document through the 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 4798.10 Environmental Conditions Existing in the Application of Electric and Electronic Products - Guidance

3 Terms and Definitions

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

4 Environmental Condition

The environmental condition of warm damp is respectively and hierarchically described by the environmental condition of climate (K), the environmental condition of special climate (Z), the condition of chemical active substance (C), the condition of mechanical active substance (S), the condition of mechanical environment (M) and the condition of biological environment (B). The classification of environmental conditions allows possible combinations of multiple environmental conditions, which can truly reflect the impact of environmental conditions on product storage, transportation and usage. For some environmental parameters, it is quite difficult to quantify their severity levels. In accordance with the requirements of GB/T 4798.10, the level of environmental condition is marked as follows:

---The first digit, which identifies the application conditions (1 indicates storage, 2 indicates transportation, 3 indicates fixed use in a place with weather protection, and 4 indicates fixed use in a non-weather-protected place);

---Letter, the environmental condition of climate (K), the environmental condition of special climate (Z), the condition of chemical active substance (C), the condition of mechanical active substance (S), the mechanical environmental condition (M) and the biological environmental condition (B);

---Another digit, which identifies the severity level. Generally, the larger the value, the more

severe the condition. For example: level 2K30, in which, 2 indicates transportation; K indicates the environmental condition of climate; 30 indicates the severity level.

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