

ICS 55.020



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

GB/T 14188-2008

**General rules for selection and using of packaging materials
with volatile corrosion inhibitor**

气相防锈包装材料选用通则

(English Translation)

Issued on: June 30, 2025

Implemented on: January 1, 2026

Issued by: State Administration for Market Regulation

Table of Contents

Foreword...	3
1 Scope...	5
2 Normative References...	5
3 Terms and Definitions...	5
4 Main Types...	5
5 Selection Requirements...	5
6 Usage Requirements...	8

1 Scope

This document specifies the selection and usage requirements for packaging materials with volatile corrosion inhibitor.

This document applies to the selection of packaging materials with volatile corrosion inhibitor when packaging metal materials and their products (hereinafter referred to as the products) with volatile corrosion inhibitor.

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 dated references, only the version with the specified date applies 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 11372 Rust Prevention Terminology

GB/T 30435 Electric Gravity Convection and Forced Ventilation Ovens

3 Terms and Definitions

The terms and definitions defined in GB/T 11372 are applicable to this document.

4 Main Types

Packaging materials with volatile corrosion inhibitor are generally classified into paper, film, agent, liquid, buffer, and others. Agents include powders and granules, while liquids include aqueous solutions, oil solutions, and other solutions. The main types are paper with volatile corrosion inhibitor, plastic film with volatile corrosion inhibitor, and volatile corrosion inhibitor.

See Appendix A for the types, compositions, characteristics, and main purposes of commonly used packaging materials with volatile corrosion inhibitor.

5.1.1 For precision parts and components, valuable products, and other applications requiring

high-quality corrosion inhibiting packaging, materials or combinations of materials with high physical strength and excellent corrosion inhibiting performance should be selected.

5.1.2 If a single packaging material with volatile corrosion inhibitor cannot meet the corrosion inhibiting packaging requirements, two or more materials may be simultaneously used.

However, the compatibility between these materials shall be confirmed, and the test methods are as per Appendix B.

5.1.3 Unless otherwise stated or verified, packaging materials with volatile corrosion inhibitor

shall not be used to protect optical devices and highly explosive substances, or their connected emitters.

5.1.4 For precision moving components coated with corrosion inhibitors or lubricants, packaging materials with volatile corrosion inhibitor shall not be used if there is an impact on their performance.

5.1.5 Packaging materials with volatile corrosion inhibitor shall not be used in food packaging.

5.2 Packaging Requirements and Characteristics

5.2.1

In addition to corrosion inhibition, materials with other functions shall be selected in accordance with the requirements for packaging mode. Specific recommendations are as follows.

---Wrapping packaging should preferably use packaging materials with volatile corrosion inhibitor that have a certain elongation;

---Self-sealing packaging should preferably use bag-shaped and cover-shaped packaging materials with volatile corrosion inhibitor that have good barrier properties;

---Heat shrink packaging should preferably use packaging materials with volatile corrosion inhibitor that have heat shrinking function;

---Cushioning packaging should preferably use packaging materials with volatile corrosion inhibitor that have cushioning function.

5.2.2

When the internal space of the packaging is very small and there is not enough space to place other materials, volatile corrosion inhibitor should be selected.

5.2.3

When packaging operations are carried out in high humidity environments, packaging materials with volatile corrosion inhibitor that have drying and moisture absorption functions should be selected.

5.3 Product Requirements and Characteristics

5.3.1

When products have specific requirements in terms of pollution prevention, explosion prevention, lubrication, discoloration prevention, and aging and deterioration prevention, as well as corrosion inhibition of specific materials, a suitable packaging material with volatile corrosion inhibitor shall be selected. If it is uncertain whether it is suitable, it shall be verified in accordance with Appendix B and other relevant requirements. The products include, but are not limited to, the following.

---Containing optical devices;

---Containing explosive substances;

---Non-ferrous metal materials, especially those containing zinc, zinc plates, cadmium, cadmium plates, zinc-based alloys, magnesium-based alloys, lead-based alloys, and other alloys (including solders) and their workpieces containing greater than 30% zinc or greater than 9% lead;

---Metal parts and components, or assembling units containing non-metallic materials, including plastics, rubber, oils and coatings, etc.;

---Combinations containing lubricants.

5.3.2

For products with coating treatment on the surface, such as corrosion inhibiting liquids and corrosion inhibiting oils, packaging materials with volatile corrosion inhibitor compatible with the coated products shall be selected. Compatibility verification can be performed in accordance with methods including but not limited to Appendix B.

5.3.3

When there are requirements for the appearance color of the products, materials that do not affect discoloration or prevent discoloration shall be selected.

5.3.4

When there are requirements for the surface cleanliness of the products, materials that do not leach or have the influence of packaging residues shall be selected, such as plastic films with volatile corrosion inhibitor and with a plastic layer in contact with the products, clean paper with volatile corrosion inhibitor, clean cloth with volatile corrosion inhibitor, etc.

5.3.5

When the surface of the products is coated with oils, it is advisable to select oil-resistant packaging materials with volatile corrosion inhibitor to prevent oil absorption and seepage, which could cause contamination.

5.3.6

Heavy products such as steel coils and plates should be packaged with flexible materials that have high physical strength; light and small products, for example, small parts and components, should be packaged with flexible materials that have low basis weight and small thickness.

5.3.7

Based on metal material, such as steel, copper, aluminum, coated metals or alloys, select suitable volatile corrosion inhibitor (VCI) formulations. These formulations include materials specifically for single-metal products or general-purpose materials for multiple metal products.

5.3.8

Tubular and perforated products should select long, strip-shaped packaging materials with volatile corrosion inhibitor, such as rods and ropes, etc.

5.3.9 For products with a self-contained sealed space, volatile corrosion inhibitors, volatile

corrosion inhibiting liquids, and volatile corrosion inhibiting oils can be selected in accordance with requirements.

5.3.10 For products temporarily stored between processes within the factory, lightweight and

reusable packaging materials with volatile corrosion inhibitor should be selected. If necessary, packaging materials with volatile corrosion inhibitor with drying function can be selected.