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

GB/T 43884-2024

**Metallic coatings - Zinc diffusion coatings on ferrous
products-sherardizing - Technical requirements**

金属覆盖层 钢铁制件的锌扩散层-渗锌 技术要求

(English Translation)

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting:

This document is modified to adopt ISO 17668:2016 "Zinc diffusion layer for steel parts - Technical requirements for sherardizing":

This document has the following structural adjustments compared to ISO 17668:2016:

- Appendix A corresponds to Appendix C in ISO 17668:2016;
- Appendix B corresponds to Appendix D in ISO 17668:2016;

--- Appendix C corresponds to Appendix B in ISO 17668:2016;

--- Appendix D corresponds to Appendix A in ISO 17668:2016:

The technical differences between this document and ISO 17668:2016 and their reasons are as follows:

--- Replaced ISO 2064 (see Chapter 3) with the normative reference GB/T 12334, replaced with the normative reference GB/T 4956 ISO 2178 (see 6.2:2) was replaced by ISO 2808 (see 6.2:2) with the normative reference GB/T 13452.2:

The referenced GB/T 13825 replaces ISO 1460 (see 6.2:2, 6:2:4, 6:2:5), and the normative referenced GB/T 18253 replaces ISO 10474 (see Chapter 7) was changed to adapt to my country's technical conditions and increase operability:

The following editorial changes were made to this document:

--- The name of the document was changed to "Zinc Diffusion Layer of Metal Covered Steel Parts - Technical Requirements for Sherardizing" to enhance the coordination of the standard system Tonality;

--- Deleted Note 2 of 3:2;

--- Changed the carburized layer thickness grade in Table 2;

--- Changed references:

Introduction

Sherardizing is a heat diffusion process for steel parts in the presence of a sherardizing agent: The sherardizing agent contains zinc powder and sometimes inert Material:

Sherardizing is carried out at a temperature of 300°C~500°C in a sealed, slowly rotating (or fixed) container:

Below the melting point of zinc (419°C):

During sherardizing, zinc reacts with the surface of the steel workpiece to form an alloy layer:

The thickness of the zinc layer can be increased by negotiation if necessary:

The amount, shearing time and shearing temperature are controlled: The shearing layer tightly covers the surface of the workpiece contour and the surface of the workpiece (including irregularly shaped parts) Get a uniform thickness:

After the sherardizing is finished, the material in the sherardizing furnace is cooled and the sherardized workpiece and the remaining sherardizing agent are separated by sieving:

The gold-plated parts are post-treated (phosphating, chromating or other suitable

passivation methods) to obtain a clean and passivated surface:

Typically, the zinc-iron alloy layer can be used as the base layer or primer of the composite coating system of steel products:

For more information on the herringitising process and the applications of herringitised products, see Ref: [12] and Ref: [13]:

Metal covering of steel parts Zinc diffusion layer-zinc infiltration technical requirements

1 Scope

This document specifies the minimum thickness requirements for six grades of zinc diffusion layers produced by the sherardizing process for the purpose of corrosion and wear protection:

This document does not make any requirements on the surface condition (smoothness or roughness) of the base material before sherardizing treatment:

This document does not specify post-treatment (conversion coating), supplementary treatment or organic coating (applicable to composite coating systems) of sherardized parts:

NOTE 1 For general information on post-treatment of sherardizing, see Annexes A and B:

This document is applicable to the zinc diffusion layer - zinc-diffusion layer on the surface of steel parts, and is not applicable to the corresponding document specifications and the documents contain more or sherardized products (e.g. fasteners, fittings) with requirements different from those stated in this document:

Note 2: The technical specifications for anti-corrosion coatings of certain products may refer to this document number, or refer to this document for revision:

2 Normative references

The contents of the following documents constitute essential clauses of this document through normative references in this document:

For documents with no date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies:

in this document:

GB/T 4956 Measurement of coating thickness of non-magnetic coatings on magnetic substrates - Magnetic method (GB/T 4956-2003, ISO 2178:1982,IDT) GB/T 12334 Definitions and general rules for thickness measurement of metals and other non-organic coatings (GB/T 12334-2001,ISO 2064:1996,IDT) GB/T 13452.2 Determination of film

thickness of paints and varnishes (GB/T 13452.2-2008, ISO 2808:2007, IDT) GB/T 13825 Metallic coatings - Method for weighing the mass per unit area of hot-dip galvanized layer of ferrous metal materials (GB/T 13825-2008, ISO 1460:1992, IDT) GB/T 18253 Types of inspection documents for steel and steel products (GB/T 18253-2018, ISO 10474:2013, IDT)

3 Terms and definitions

The terms and definitions defined in GB/T 12334 and the following apply to this document:

sherardizing process the steel parts are placed in full contact with the sherardizing agent (3:3), usually in a sealed, slowly rotating container or a stationary container:

A zinc diffusion layer process for thermally forming a carburized layer (3:2):

sherardized layer

Zinc diffusion layer zinc diffusion layer A zinc-iron alloy layer formed by the sherardizing process:

NOTE: "Zirconized layer" is referred to as "carburized layer" in this document: