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

GB/T 17455-2008

Replacing GB/T 17455-1998

**Non-destructive testing -- Metallographic replica techniques of
surface examination**

无损检测 表面检测的金相复型技术

(English Translation)

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Foreword

This standard is identical with ISO 3057:1998 "Non-destructive testing - Metallographic replica surface inspection technology" (in English).

This standard is equivalent translation ISO 3057:1998.

For ease of use, this standard made the following editorial changes.

--- "This International Standard" be replaced by "this standard";

--- Delete international standards foreword.

This standard replaces GB/T 17455-1998 "Non-destructive testing - Metallographic replica surface inspection technology." this standard 17455-1998 major changes compared to GB/T as follows.

--- Modifications and adjustments of the range (the 1998 edition Chapters 1 and 2, Chapter 1 of this edition);

--- Modified replica operation (1998 edition, Chapter 4, Section 3 of this edition);

--- Added Note 2 and Note 3.

The standard proposed by China Machinery Industry Federation.

The standard non-destructive testing by the National Standardization Technical Committee (SAC/TC56) centralized.

This standard was drafted. Shanghai Baosteel Industry Inspection Corporation, Shanghai

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1 Scope

This standard specifies a transparent nitrocellulose membrane material, cellulose acetate or plastic material (with or without a carrier) surface detection Replica technique for recording mechanical or metallurgical state of the metal surface causes unevenness.

Advantages of this method is that the standards required by applicable to certain parts difficult to detect or does not allow the destruction of the workpiece. Moreover, the complex type member can on-site observation or to laboratory testing under a powerful microscope with a low power optical devices.

2.1 Cleaning the detection surface

Should be sufficiently cleaned surface of the subject, the removal of grease and dried. Using a suitable solvent, with acetone or ethanol to remove surface oil, and Heated air dry surface.

2.2 Preparation of the macro detection surface

Preparation of the macro detection surface suitable for all types of surfaces, including surface rupture caused by the operation. According to the provisions of 2.1, only the detection surface Surface cleaning, degreasing and drying.

2.3 Preparation of microscopic detection surface

2.3.1

Detection aims to show the status of surface metallurgy. After removing the grease, the surface should be a series of detailed mechanical polishing, this research Procedure should be finer than before the procedure after grinding. Typically, surface grinding depth less than 0.2mm. In many cases, the grinding depth is very shallow of. When grinding operation, it should not have too much pressure, so as not to overheat the metal hardening occurs. Each time the last grinding Fang Xiangyi Cross or vertical direction, and after each operation with acetone or ethanol to clean the surface.

2.3.2

above mechanical polishing, the need for final polishing. Such polishing may be any of the following methods.

- a) by selecting the appropriate equipment and electrolyte electrolytic method;
- b) method in a small electrolytic cell;

c) to generate a compliant surface, the available diamond abrasive paste, aluminum oxide or other compounds mechanically polished.

After the completion of polishing, the surface should be as clean and dry 2.1. Is the final stage of surface preparation using appropriate reagents moderate Erosion. After etching, the surface should be as clean and dry again 2.1.

3.1 Overview

Should ensure that replica operated at all as dry and dusty conditions have been removed.

3.2 Replica film material

Membrane material should be transparent and nitrocellulose, cellulose acetate or plastic as the basic raw material. Pay particular attention to the film should not be agitated before application Material, otherwise it will form a bubble, adversely affect the results. Membrane material should be spread on the surface of the subject to form a thin layer of uniform thickness, the membrane material must shall be uniform, no bubbles and brush marks, and then the coating material to the manufacturer's instructions for drying.

3.3 Diaphragm replica

3.3.1

subject surface wetting with a suitable solvent. Select has the right ingredients, size and thickness to ensure the stability and representative complex A sheet of plastic film material is applied to the surface of the subject.

3.3.2

recommends operating the central part of the plastic film placed on the surface of the subject near the center. This helps remove excess solvent, and can Avoid the formation of wrinkles and bubbles. To facilitate plastic film adhered to the metal surface, applying some pressure on the finger the plastic film, the pressure the middle to both sides of the direction of the applied from the inside out.

GB/T 17455-2008/ISO 3057:1998