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**NB**

**ENERGY INDUSTRY STANDARD OF THE PEOPLE'S  
REPUBLIC OF CHINA**

**中华人民共和国能源行业标准**

**NB/T 47013.5-2015**

Replacing JB/T 4730.5-2005

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**Nondestructive testing of pressure equipments-**

**Part 5: Penetrant testing**

承压设备无损检测

第 5 部分：渗透检测

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## Foreword

This Standard NB/T 47013 Nondestructive testing of pressure equipments is divided into the following 13 parts:

- Part 1 General requirements
- Part 2 Radiographic testing
- Part 3 Ultrasonic testing
- Part 4 Magnetic particle testing
- Part 5 Penetrant testing
- Part 6 Eddy current testing
- Part 7 Visual testing
- Part 8 Leak testing
- Part 9 Acoustic emission testing
- Part 10 Ultrasonic time of flight diffraction technique testing
- Part 11 X-ray digital radiosopic examination
- Part 12 Magnetic flux leakage testing
- Part 13 Pulsed eddy current testing

This Part is part 5 of NB/T 47013: Penetrant testing

This Part is drafted according to the rules provided in GB/T 1.1-2009 *Directives for standardization—Part 1:Structure and drafting of standards*

This Part replaced JB/T 4730.5-2005 Nondestructive testing of pressure equipments Part 5: Magnetic particle testing and the main technical changes are as follows compared with JB/T 4730.5-2005:

- Expanded the applicable scope of testing temperature;
- Modified normative references;
- Added contents of process procedure and safety requirements;

This part is proposed and is under the jurisdiction of National Technical Committee of Boiler and Pressure Vessel Standardization (SAC/TC262).

Drafting units of this Part: Hefei General Machinery Research Institute, China Special Equipment Inspection Institute, Lanzhou Petroleum and Chemical Equipment Testing Co.,

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Jinan Municipal Bureau of Quality & Technical Supervision.

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The historical version replaced by this Part is as follows:

JB 4730—1994 and JB/T4730. 5—2005.

## **Nondestructive testing of pressure equipments**

### **Part 5: Penetrant testing**

#### **1 Scope**

This part of NB/T 47013 specifies the liquid penetrating testing methods and quality grading of pressure equipments.

This part applies to the testing of surface opening flaws produced in the manufacturing, installation and use of pressure equipments manufactured by non-porous metallic materials.

#### **2 Normative references**

The following documents are necessary to the application of this document. For all dated references, only the dated edition applies to this document. For all undated references, the latest edition (including all amendments) applies.

GB 11533	STANDARD logarithmic visual acuity charts
GB/T 12604.3	Non-destructive testing—Terminology—Terms used in penetrant testing
JB/T 6064	Non-destructive testing-Blocks for penetrant testing
JB/T 7523	Non-destructive testing-Materials for penetrant testing
NB/T 47013.1	Nondestructive testing of pressure equipments-Part 1: General requirements

#### **3 Terms and definitions**

For the purpose of this document, the following terms and definitions defined in GB/T 12604.3 and NB/T 47013.1 shall apply.

##### **3.1**

##### **Relevant indication**

Magnetic particle indication formed by the penetrating agents leaked from the flaw and it is usually referred as flaw indication.

##### **3.2**

##### **Non-relevant indication**

Indications formed by external factors irrelevant to flaws.

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