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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 30578-2025

Replacing GB/T 30578-2014

Risk-based inspection and evaluation for atmospheric pressure storage tanks

常压储罐基于风险的检验及评价

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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 replaces GB/T 30578-2014 "Risk-based inspection and evaluation of atmospheric pressure storage tanks" and is consistent with GB/T 30578-2014.

In addition to structural adjustments and editorial changes, the main technical changes are as follows.

a) Added terms and definitions (see 3.1);

b) Added a risk matrix diagram corresponding to risk values (see 5.1);

c) Added the failure probability classification determined by the damage coefficient calculation results (see 5.3.2);

d) The general provisions on risk-based inspection have been modified (see Chapter 6, Chapter 6 of the 2014 edition);

e) The inspection types and selection principles in risk-based inspection have been

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changed (see Chapter 6, Chapter 6 of the 2014 edition);

f) Added detection methods and test effectiveness (see Table 5);

g) The effectiveness classification and inspection method for corrosion thinning have been changed (see 6.5.2.4, 6.5.2.4 of the 2014 edition);

h) The basic assumptions for evaluating corrosion rates have been changed (see A.3, A.3 of the 2014 edition);

i) The soil condition adjustment factor has been changed (see Table B.4, Table B.4 of the 2014 edition);

j) Added soil side temperature adjustment coefficient for stainless steel materials (see Table B.9);

k) Changed the medium side temperature range in the medium side temperature adjustment coefficient table for carbon steel and low alloy steel, and added the medium side temperature adjustment coefficient for stainless steel Temperature adjustment factor (see Table B.12, Table B.12 of the 2014 edition);

l) Added basic assumptions for quantitative calculation of failure consequences (see C.1);

m) The definitions of some symbols have been changed (see C.2, C.1 of the 2014 edition).

Please note that some of the contents of this document may involve patents. The issuing organization of this document does not assume the responsibility for identifying patents.

This document is proposed and coordinated by the National Technical Committee for Standardization of Boilers and Pressure Vessels (SAC/TC262).

This document was drafted by: China Special Equipment Testing and Research Institute, SINOMACH Special Equipment Inspection Co., Ltd., and Zhenhai National Petroleum Reserve Base.

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This document was first published in 2014 and this is the first revision.

1 Scope

This document describes a risk-based inspection and evaluation approach for vertical cylindrical steel welded atmospheric storage tanks.

This document applies to the risk-based inspection and evaluation of vertical cylindrical steel welded atmospheric pressure storage tanks. Other atmospheric or low pressure (working pressure The risk-based inspection and evaluation of storage tanks (less than 0.1MPa) can be carried out in accordance with this document.

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2 Normative references

GB/T 26610.1

GB/T 26610.2

GB/T 26610.4

GB/T 26610.5

3.1 Terms and Definitions

The terms and definitions defined in GB/T 26610.1, GB/T 26610.2 and GB/T 26610.5 and the following terms and definitions apply to this document.

3.1.1 Off-line inspection

Inspection of the inside and outside of a tank after emptying the tank of its contents.

3.1.2 Online inspection

Inspection of storage tanks without removing the medium from the tanks.

3.1.3 Fitness-for-service assessment

Evaluate storage tanks or their components that contain excessive defects or do not meet relevant standard requirements to determine whether they can continue to serve. process.

3.2 Notation

The following symbols apply to this document.

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C(t)---consequences of failure.

Df-total---total damage coefficient, that is, the sum of all damage factors.

Dbritf-gov---brittle fracture damage factor.

Delinf --- Lining destruction factor.

Dextdf-gov---External damage factor.

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