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

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**Chemical products for industrial use -- Determination of vapour
pressure of solids and liquids in the rang 10-1 to 105 Pa --
Static method**

工业用化学品 固体及液体的蒸气压在10-1Pa至105Pa 范围内的测定 静态法

(English Translation)

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Foreword

This standard is equivalent to using NFT20-048. 1985 "industrial chemicals and 105Pa 10-1Pa range of solid and liquid vapor Static pressure measurement method "(French version).

For ease of use, has been modified following editorial.

- a) delete the original standard preface;
- b) use punctuation "," instead of the original standard by "*" notation;
- c) the original standard 0 chapter, "Introduction" to the introduction of this standard.

This standard is managed by the National Standardization Technical Committee chemicals dangerous (SAC/TC251) and focal points.

Participated in the drafting of this standard. the Chemical Institute of standardization, Hubei Exit Inspection and Quarantine.

Drafters of this standard. Cui Hairong, Wang Xiaobing Guo Jian, Jian Mei, Cheng Ye, Zhou Wei, Ling about Tao, Zhang Jianfeng, Zhang Jun Xi Yang wind, Wang Fan.

This standard is the first release.

Introduction

Before measurement start, the proposed test, first grasp the basic information on chemicals, according to the state of the product, melting point, boiling point to be tested.

It is not possible there is a vapor pressure within each range are able to apply a method that is less than the vapor pressure range 10-3Pa ~ 105Pa, which is why the need to set up a series of test methods based on the physical state of the product of reason. These trials Party Method are summarized in Table 1 below.

Table 1 according to Rao vapor pressure range recommended methods of measurement
experiment method

product

Solid and liquid

Pressure range/Pa Repeatability/Reproducibility% /% Kinetic $10^3 \sim 2 \times 10^{-3}$ $2 \times 10^3 \sim 10^5$
1 to 2.5×10^5 Method Static X X $10^{-1} \sim 10^5$ b $5 \sim 10$ $5 \sim 10$ Liquid vapor pressure meter X X
 $10^2 \sim 10^5$ $5 \sim 10$ $5 \sim 10$ Vapor pressure balance method X X $10^{-3} \sim 1$ $5 \sim 20$ 50 Gas
saturation method X X 1 Scope this standard was determined by a static method for
industrial chemicals vapor pressure.

This standard applies to all values of the vapor pressure of solids and liquids
within range to 10^{-1} Pa $\sim 10^5$ Pa.

Impurities have a certain impact on the chemical nature of the measurement, such as
volatile solvents.

2 Terms and definitions

The following terms and definitions apply to this standard.

Saturation vapor pressure of solid or liquid substances, expressed in units of Pa. In the
case of dynamic equilibrium thermodynamics, the vapor pressure of pure substances only
take Depends on the temperature within a certain temperature range, the logarithm of the
vapor pressure of the linear function is inversely proportional to temperature.

Principle 3

The standard vapor pressure measurement method is based on the thermodynamic
equilibrium at a certain temperature within a closed system.

4 Reagents

4.1

nitrogen.

4.2

Mercury. for vapor pressure in the range of $10^2 \sim 10^5$ Pa.

4.3

silicone or phthalates. for vapor pressure in the range 10 Pa $\sim 10^2$ Pa.

4.4

liquid nitrogen.

4.5

dry ice.

5.1 Measuring Instruments

The sample was loaded into a glass bulb, the glass bulb at one end connected to the valve, and the other end connected to the U-tube. U-tube that has the right amount for Determination of pressure liquid (4.2 or 4.3). U-tube pressure and the pressure inside the liquid glass bubbles in the sample generated vapor pressure and barometer displays Force values \u200b\u200bmatch. The lower limit of the measuring instrument measures 10-1Pa.

The end of the U-tube is connected to a tee, corresponding attaching a vacuum pump, the nitrogen cylinder and pressure gauge (5.6).

5.2 pump (with tubing).

5.3 temperature water bath. temperature adjustment range of 0 °C ~ 100 °C, the minimum temperature adjustment scale is 0.1 °C.

5.4 Thermometer. STL/0.1, the measurement range is 5 °C ~ 105 °C.

Thermometer 5.5. The minimum unit of measurement is 0.1 °C, the measurement range of 0 °C ~ 100 °C.

5.6 Precision Barometer. Measurement range 10-1Pa ~ 105Pa.