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**DA**

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

**DA/T 81-2019**

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**Technical specifications for monitoring of archival repository  
air quality  
(English Translation)**

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## Table of Contents

- Foreword
- Introduction
- 1 Scope
- 2 Normative references
- 3 Terms and definitions
- 4 Layout and sampling
  - 4.1 Distribution principle
  - 4.2 Distribution method
  - 4.3 Sampling time and frequency
  - 4.4 Closing time
  - 4.5 Sampling method
  - 4.6 Sampling records
  - 4.7 Sampling device
  - 4.8 Quality control of sampling
- 5 Transportation and storage of samples
- 6 Test items and analysis methods
  - 6.1 Test items
  - 6.2 Analysis method
- 7 Test data processing and reporting
  - 7.1 Test data processing
  - 7.2 Evaluation and report of test results
- 8 Quality Assurance and Quality Control
  - 8.1 Basic requirements for inspectors
  - 8.2 Quality control of sampling
  - 8.3 Quality control of on-site inspection

### Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

Please note that certain contents of this document may involve patents. Publication of this document the agency is not responsible for identifying these patents.

This standard was proposed and managed by the National Archives of the People's

Republic of China.

This standard was drafted. Archives Science and Technology Research Institute of National Archives Administration.

## Introduction

The air quality in the archive warehouse is not only an important factor affecting the quality and life of archives, but also affects the health of archive staff.

Health has an impact. In order to improve the management level of the archives warehouse, improve the air quality inspection system of the warehouse, and promote the archives department to understand and evaluate the archives the air quality status of the warehouse is specially formulated for this standard.

The air quality testing of archive warehouses is different in the aspects of object (archive warehouse), testing items and scope, layout sampling, safety factors, etc.

Air quality testing in other environments.

Technical specifications for air quality testing in archive warehouses

## 1 Scope

This standard provides methods for air quality testing in archive warehouses.

This standard applies to the archive warehouses of various types of archives at all levels in my country, including in-use archive warehouses and newly-built archive warehouses.

## 2 Normative references

The following documents are indispensable for the application of this document. For dated reference documents, only the dated version applies to this article Pieces. For undated references, the latest version (including all amendments) applies to this document.

GB 50325 Code for indoor environmental pollution control of civil construction engineering  
GB/T 601 Preparation of Standard Titration Solution for Chemical Reagents GB/T 602  
Preparation of standard solutions for impurity determination in chemical reagents GB/T  
6167 Dust particle counter performance test method GB/T 6682 Analytical laboratory water  
specifications and test methods GB/T 8170-2008 Numerical rounding rules and the  
expression and determination of limit values GB/T 11605 Humidity measurement method  
GB/T 11742 Standard method for hygienic inspection of hydrogen sulfide in the atmosphere  
of residential areas methylene blue spectrophotometry GB/T 14582 Standard measurement  
method for radon in ambient air GB/T 16147 Scintillation flask measurement method of  
radon concentration in air GB/T 18204.1 Hygienic inspection methods for public places Part  
1: Physical factors GB/T 18204.2 Hygienic inspection methods for public places Part 2:

Chemical pollutants GB/T 18883-2002 Indoor Air Quality Standard Evaluation of detection limit and quantification limit of GB/T 27415 analytical method GB/T 27703-2011 Document preservation requirements for information and documentation libraries and archives GBZ/T 160.33 Determination of Toxic Substances in Workplace Air GBZ/T 300.44 Determination of Toxic Substances in Workplace Air Part 44: Yellow Phosphorus, Phosphine and Phosphoric Acid GBZ/T 300.111 Determination of Toxic Substances in Workplace Air Part 111: Ethylene Oxide, Propylene Oxide and Epichlorohydrin HJ504 Ambient air ozone-Determination of indigo disulfonate sodium spectrophotometric method HJ590 Ambient air ozone determination Ultraviolet photometric method HJ618 Ambient air PM<sub>10</sub> and PM<sub>2.5</sub> determination of gravimetric method HJ644 Determination of Volatile Organic Compounds in Ambient Air Adsorption Tube Sampling-thermal Desorption/Gas Chromatography-Mass Spectrometry HJ759 Ambient air volatile organic compounds determination tank sampling/gas chromatography-mass spectrometry JGJ25-2010 Architectural Design Code for Archives JGJ/T 309-2013 Building Ventilation Effect Test and Evaluation Standard JJG846 Dust Concentration Measuring Instrument Verification Regulation JJF1190 dust particle counter calibration specification

### 3 Terms and definitions

The following terms and definitions apply to this document.

Archives

Special room for archives.

[DA/T 1-2000, definition 8.5] 3.2 Air quality parameters of archive warehouse the physical, chemical, biological and radiological parameters related to file storage and human health in the air in the archive warehouse.

**Note:** Rewrite GB/T 18883-2002, definition 3.1.

Instantaneous sampling in a short time, collect samples.

Continuous sampling

During the entire operation or within a predetermined period of time, uninterrupted sampling.

Standard status

The dry matter state when the temperature is 273K and the pressure is 101.325kPa.

[GB/T 18883-2002, definition 3.4] 3.6 Fresh air volume when the doors and windows are closed, the total amount of air entering the room from the air-conditioning system passages and room gaps per unit time, the unit is cubic Meter per hour (m<sup>3</sup>/h).

Air exchange rate

The ratio of the total amount of indoor air entering the room from outside to the total amount of indoor air in a unit of time (h), in units of hour (h-1).

Inhalable particulate matter Suspended in the air, particles with aerodynamic diameter  $\leq 10\mu\text{m}$ .

[HJ618-2011, definition 3.1] 3.9 fine particles Suspended in the air, particles with aerodynamic diameter  $\leq 2.5\mu\text{m}$ .

[HJ618-2011, definition 3.2] 3.10 Radon concentration the actual measurement of the content of radon per unit volume of air, the unit is beques per cubic meter (Bq/m<sup>3</sup>).

### 3.11

Volatile Organic Compound Compounds with boiling points ranging from 50°C~100°C to 240°C~260°C.

### 3.12

Total volatile organic compounds Use TenaxGC or TenaxTA sampling, non-polar column (polarity index less than 10) for analysis, the retention time is in n-hexane Volatile organic compounds between n-hexadecane.

[GB/T 18883-2002, definition 3.3]

## 4.1 Distribution principle

The number of sampling points is determined according to the size of the archive warehouse to be tested and the site conditions, and the measured value should truly reflect the library the air quality of the room. In principle, each relatively independent warehouse should have 1~3 points; when the area exceeds 100m<sup>2</sup>, sampling points should be appropriately increased.

## 4.2 Distribution method

When multi-point sampling, the points should be distributed evenly according to the diagonal or quincunx pattern, and the vents should be avoided, the distance from the wall should be greater than 0.5m, and the distance from the doors and windows should be greater than 1.0m. The height of the sampling point is generally 1.0m~1.5m above the ground. Those with special requirements can be determined according to specific circumstances.

## 4.3 Sampling time and frequency

Newly built or renovated archive warehouses should be tested before they are officially used, and should meet the requirements of GB 50325 for Class II public construction projects.