

ICS 73.020

CCS D14



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

GB/T 13073-2010

Replacing GB/T 13073-1991

**Rock samples - Determination of radium - 226 - Emanation
technique**

岩石样品 ^{226}Ra 的测定 射气法

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Quarantine of the People's Republic of China;
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Foreword

This standard replaces GB/T 13073-1991 "rock sample analysis 226Ra Emanation technique." This standard compared with GB/T 13073-1991, the main changes are as follows:

- A standard specification title;
- Increased alert, warnings;
- Provision increases the processing of waste;
- Deleted directory;
- Simplifies the measuring instruments;
- Corrected some errors. The standard proposed by the People's Republic of China Ministry of Land Resources. This standard by the National Standardization Technical Committee of Land and Resources. This standard is drafted by: National Geological Experimental Test Center. This standard was drafted. Nuclear Industry Beijing Institute of Geology. The main drafters of this standard. Wu Zhaohui, Li-kun. This standard replaces the standards previously issued as follows:
 - GB/T 13073-1991. Rock samples 226Ra measured emanation method Warning. Use of this standard shall have a person experiences regular laboratory work. This standard does not point out all possible security issues. Users have the responsibility to take appropriate safety and health practices and to ensure compliance with the conditions relevant national regulations.

1 Scope

GB/T 13073-2010 is the Chinese national standard on rock samples - determination of radium - 226 - emanation technique, in the field of mining and minerals. The /T suffix marks it as a recommended standard: it is not compulsory by itself, but it becomes binding as soon as a contract, a tender or a customer specification calls it up - which in practice is how most foreign buyers meet it. It was issued on 10 November 2010 by the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic

of China; Standardization Administration of China, and has been in force since 1 February 2011. Classification: ICS 73.020, CCS D14. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This standard specifies the method in rock samples emanation measurements of ^{226}Ra . This standard applies to rock samples, soil samples measurements of ^{226}Ra . Biological samples and other solid samples decompose properly and radium After enrichment, it can also refer to use. Measurement range. barium sulfate - disodium edetate (EDTA disodium) law $\geq 9.0 \times 10^{-9}\text{Bq/g}$, barium - hydrochloric law $\geq 1.8 \times 10^{-2}\text{Bq/g}$.

2 Normative references

The following documents contain provisions which, through this standard reference and become the standard terms. For dated references, all subsequent Amendments (not including errata content) or revisions do not apply to this standard, however, encourage the parties to study under this agreement is standard Whether the latest versions of these documents. For undated reference documents, the latest versions apply to this standard.

GB/T 6379 (all parts) of measurement methods and results Accuracy (trueness and precision)

GB 9133 Classification of radioactive waste

GB 14500 radioactive waste management Principle 3

3.1 Method summary Obtained by measuring the ^{222}Rn ^{226}Ra content. Wherein the preparation of rock samples decomposition and ^{226}Ra solution include. alkali fusion - barium sulfate Coprecipitation - dissolution method disodium edetate and alkali fusion - barium carbonate coprecipitation - hydrochloric acid dissolution method. Two methods can be arbitrarily choose to use. ^{222}Rn It was determined by scintillation emanation method.

3.2 Barium sulfate - disodium edetate law The samples were sodium hydroxide, sodium peroxide mixed reagent at $650\text{ }^{\circ}\text{C}$ melted, extracted with water, acidified with hydrochloric acid. Barium sulfate coprecipitation enrichment radium, Then diethylamine edetate dissolved in a small volume to give a clear solution, into the diffuser, closed several days accumulation of radon, air wash with making of radon Then transferred to scintillation cell 50min from the solution in the measurement of indoor radon monitor, compared with the standard solution of radium, radium content in the samples.

3.3 barium - hydrochloric acid method The samples were sodium hydroxide, sodium peroxide, barium chloride anhydrous sodium carbonate and a mixed reagent at $650\text{ }^{\circ}\text{C}$ melted, extracted with water, filter paper. With hot hydrochloric acid precipitate was

dissolved in the original beaker, into the diffuser, closed several days accumulation of radon below

3.2 in the same manner with the measurement and calculation.

4 Reagents

Unless otherwise stated in this section, both in the analysis using analytical grade and distilled water or equivalent purity water in line with national standards.

4.1 sodium hydroxide.

4.2 sodium peroxide.

4.3 anhydrous sodium carbonate.

4.4 barium chloride ($\text{BaCl}_2 \cdot 2\text{H}_2\text{O}$, ^{226}Ra specific activity of less than $2.0 \times 10^{-2}\text{Bq/g}$).

4.6 hydrochloride ($\rho 1.19\text{g/mL}$).