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

DZ/T 0276.17-2015

**Regulation for testing the physical and mechanical properties
of rock. Part 17: Test for determining the specific radioactivity of
rock**

岩石物理力学性质试验规程 第17部分：岩石放射性比活度试验 清晰版
(English Translation)

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Foreword

DZ/T 0276 "Testing Procedures for Physical and Mechanical Properties of Rocks" is divided into 31 parts.

- Part 1. General and general provisions;
- Part 2. Rock moisture test;
- Part 3. Rock particle density test;
- Part 4. Rock density test;
- Part 5. Rock water absorption test;
- Part 6. Rock hardness test;
- Part 7. Rock gloss test;
- Part 8. Rock antifreeze test;
- Part 9. Rock resistance to disintegration test;
- Part 10. Rock expansion test;
- Part 11. Rock erosion test;
- Part 12. Rock acid and alkali resistance test;
- Part 13. Rock specific heat test;
- Part 14. Rock thermal conductivity test;
- Part 15. Rock breakdown voltage and breakdown strength test;
- Part 16. Rock volume resistivity and surface resistivity test;

- Part 17. Rock radioactivity specific activity test;
- Part 18. Rock uniaxial compressive strength test;
- Part 19. Rock uniaxial compression deformation test;
- Part 20. Rock triaxial compression strength test;
- Part 21. Rock tensile strength test;
- Part 22. Rock flexural strength test;
- Part 23. Rock point load strength test;
- Part 24. Rock acoustic wave velocity test;
- Part 25. Rock shear strength test;
- Part 26. Rock mass deformation test (bearing plate method);
- Part 27. Rock mass deformation test (drilling deformation method);
- Part 28. Rock mass strength test (direct shear test);
- Part 29. Rock mass strength test (bearing plate method);
- Part 30. Rock mass bolt load test;
- Part 31. Rock sound wave velocity test.

This part is the 17th part of DZ/T 0276.

This part is drafted in accordance with the rules given in GB/T 1.1-2009.

This part is proposed by the Ministry of Land and Resources of the People's Republic of China.

This part is under the jurisdiction of the National Land Resources Standardization Technical Committee (SAC/TC93).

This section drafted by. Hubei Institute of Geological Experiments.

1 Scope

This part of DZ/T 0276 specifies the test method for rock radioactivity specific activity test.

This section applies to rock radioactivity specific activity test in rock physical and mechanical properties test. Suitable for gamma spectrometry in the laboratory the specific activity of radionuclides in the rock. The count rate of the sample to be tested is less than 105 cpm, and the activity should be higher than the detection limit of the gamma spectrometer.

2 Terms and definitions

The following terms and definitions apply to this document.

Radioactivity the number of atoms that a radionuclide decays per unit time, indicating its radioactivity, in units of Beck.

Radioactive specific activity the ratio of the radioactivity of a certain nuclide in the sample to the mass of the sample after the rock sample has been pulverized.

3 Principle

The rock radioactivity specific activity test refers to the difference in the gamma ray spectrum of uranium, radium, thorium, potassium and thorium, and the low background multi-channel gamma spectroscopy the instrument measures the gamma ray intensity of uranium, radium, thorium, potassium and strontium in rock, and derives the specific activity of radioactivity.

4 Instruments

4.1

Low background multi-channel gamma spectrometer.

4.2

Balance. The maximum weighing value is.2000g, and the reading accuracy is 0.1g.

4.3

Reference materials. radioactive reference materials for uranium, radium, thorium, potassium and thorium.

4.4

Sample box. A cylindrical plastic case with a diameter of 76 mm and a height of 70 mm.

4.5

Drying box.

4.6

Dryer.

5 Sample

5.1

The number of test samples in each group is 2, the mass of the single sample is not less than 2kg, one is sealed and one is used as the test sample.

5.2

The test sample is broken and ground to a particle size of not more than 0.16 mm.

6 Test steps

6.1

Put the prepared sample into a dry box, dry it to a constant weight at a temperature of 105 ° C ~ 110 ° C, take out the sample, and place it in a desiccator.