

ICS 73.080

CCS D53



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

GB/T 14506.33-2019

**Methods for chemical analysis of silicate rocks - Part 33: Determination
of arsenic, stibium, bismuth and mercury elements content - Hydride
generation atomic fluorescence spectrometry**

硅酸盐岩石化学分析方法 第33部分：砷、锑、铋、汞量测定 氢化物发生-原子荧光光谱法

Issued on: December 10, 2019

Implemented on: July 1, 2020

**Issued by: State Administration for Market Regulation;
Standardization Administration of China**

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Foreword

GB/T 14506 `` Chemical Analysis Methods for Silicates " consists of the following 34 parts.

- Part 1. Determination of the amount of adsorbed water;
- Part 2. Determination of the amount of combined water;
- Part 3. Determination of the amount of silica;
- Part 4. Determination of the amount of aluminum oxide;
- Part 5. Determination of total iron content;
- Part 6. Determination of the amount of calcium oxide;
- Part 7. Determination of the amount of magnesium oxide;
- Part 8. Determination of titanium dioxide content;
- Part 9. Determination of phosphorus pentoxide content;
- Part 10. Determination of manganese oxide content;
- Part 11. Determination of potassium oxide and sodium oxide;
- Part 12. Determination of fluorine content;
- Part 13. Determination of sulfur content;

1 Scope

GB/T 14506.33-2019 is the Chinese national standard on methods for chemical analysis of silicate rocks - part 33: determination of arsenic, stibium, bismuth and mercury elements content - hydride generation atomic fluorescence spectrometry, 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 December 2019 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 July 2020. Classification: ICS 73.080, CCS D53. 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 part of GB/T 14506 specifies the hydride generation-atomic fluorescence spectrometry for the determination of arsenic, antimony, bismuth and mercury in silicate rocks. This section applies to the determination of arsenic, antimony, bismuth, and mercury in silicate rocks by atomic fluorescence spectrometry, and also applies to soil and sediment samples. Measurement of the amount of the above elements. The method detection limits and determination ranges are shown in Table 1. Table

1 Method detection limits and measurement ranges in micrograms per gram Element
method detection limit determination range As 0.028 0.092 ~

25 Sb 0.011 0.036 ~

22 Bi 0.006 0.018 ~

2 Normative references

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

GB/T 6379.2 Accuracy of measurement methods and results (correctness and precision).
Part 2. Determination of standard measurement method duplication Basic methods of reproducibility and reproducibility

GB/T 6379.4 Accuracy of measurement methods and results (correctness and precision)
Part 4. Confirming that standard measurement methods are correct Basic method

GB/T 6682 Analytical laboratory water specifications and test methods

GB/T 14505 General rules and general requirements for chemical analysis methods of rocks and ores

GB/T 21191 Atomic Fluorescence Spectrometer

3 Principle

Digestion samples were heated with aqua regia in a boiling water bath, and bismuth (Bi) and The original arsenic (As) and antimony (Sb) are reduced to trivalent volatile hydrides (BiH_3 , AsH_3 , SbH_3), and mercury (Hg) is directly reduced into atomic mercury. They are brought into the atomizer by a carrier gas (argon), and the ground-state atoms formed are excited to a high-energy state and deactivated back to