

ICS 75.060
CCS E 24



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

GB/T 11060.6-2011

**Natural gas -- Determination of sulfur compounds -- Part 6:
Determination of hydrogen sulfide, mercaptan sulfur and
carbonyl sulfide sulfur by potentiometry**

(English Translation)

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Foreword

"GB/T 11060" Determination of sulfur compounds in natural gas "is divided into twelve parts."

- Part 1. Determination of hydrogen sulfide content by iodometry;
- Part 2. Determination of hydrogen sulfide content with methylene blue method;
- Part 3. Determination of lead acetate reaction rate of hydrogen sulfide content of the double optical path method;
- Part 4. Determination of total sulfur content by oxidation Microcoulometry;
- Part 5. hydrogen Solutions - rate meter colorimetric determination of total sulfur content;
- Part 6. Determination of hydrogen sulfide, mercaptan sulfur and sulfur-type carbon monoxide content by potentiometric method;
- Part 7. Determination of total sulfur content by Linge Nai combustion;
- Part 8. spectrophotometric determination of total sulfur content by UV fluorescence;
- Part 9. Determination of mercaptan sulfur content - iodometric method;
- Part 10. gas chromatography;
- Part 11. Determination of hydrogen sulfide content of the coloring length detector tube;
- Part 12. Determination of hydrogen sulfide content by laser absorption spectroscopy.

This section GB/T 11060 Part 6.

This section drafted in accordance with GB/T 1.1-2009 given rules.

The partial modification of the use of ISO 6326-3. 1989 "Part 3 Natural gas - Determination of sulfur compounds. Determination of hydrogen sulfide potential method, sulfur Alcohol,

sulfur, carbon monoxide "(in English).

This part of ISO 6326-3 the main technical differences.

Name --- The section from "Natural gas - Determination of sulfur compounds - Part 3. Determination of potential method hydrogen sulfide, mercaptans, sulfur, carbon monoxide Content "with" Natural gas - Determination of sulfur compounds - Part 6. Determination of hydrogen sulfide, mercaptans, sulfur, carbon monoxide potentiometric method content";

--- Delete Chapter 1 Scope. "Note. In all parts of ISO 6326, showing 1m³ of gas is at (0 °C and normal conditions 101.325kPa) ";

--- Chapter 2 normative references, and some apply to international standard formulation modified to apply to our standard formulation, ISO standards are replaced by the contents of the corresponding national standards, the remaining chapters corresponding to the content is modified accordingly, an increase of "GB/T 13609 Gas sampling Guidelines" normative references;

--- The ISO 6326-1:2007 Chapter 3 Sampling contents to Part 6 of this chapter in the sample;

Chapter 8 --- The precision has been modified;

--- In order to be consistent with our current "gas standard reference conditions" and other relevant standards, the ISO 6326-3. 1989 in Chapter 8 Gas sample volume measurement standard reference conditions "0 °C and 101.325kPa" to "20 °C and 101.325kPa".

This part of the National Gas Standardization Technical Committee (SAC/TC244) centralized.

This section drafted by. China Southwest Oil and Gas Field Branch Gas Research Institute of Petroleum.

1 Scope

This section provides test methods for natural gas hydrogen sulfide, carbon monoxide and sulfur mercaptan sulfur content - potentiometric method, measuring range greater than or Equal to 1mg/m³.

This section applies to clean, no fog, no oxygen than hydrogen cyanide and carbon disulfide, hydrogen sulfide and mercaptans content of, as well as hydrogen sulfide and mercaptans Content ratio not exceeding 50.1 gases.

This section does not apply to carbon dioxide gas is greater than 1.5% (volume fraction).

2 Normative references

The following documents for the application of this document is essential, dated references, only the dated version suitable for use herein Member. For cited documents without a date. The latest version (including any amendments) applies to this document.

GB/T 12805 Laboratory glassware burette (GB/T 12805-1991, ISO 385. 1984, EQV) GB/T 12806 Laboratory glassware single marking flask (GB/T 12806-1991, ISO 1042. 1983, EQV) GB/T 12808 standard laboratory glassware single line pipette (GB/T 12808-1991, ISO 648. 1977, EQV) GB/T 13609 Gas sampling guidelines (GB/T 13609-1999, ISO 10715:1997, EQV) Principle 3 with 35% (by mass) of potassium hydroxide solution absorbed by the sample in hydrogen sulfide and mercaptans, with 5% (by mass) solution of monoethanolamine Carbon dioxide absorbed by the sample of sulfur. Potentiometric titration with silver nitrate solution was absorbed by the silver/silver sulfide electrode indicates the titration end point.

4 Reagents and materials

Use only analytical reagent and distilled water or equivalent purity.

4.1 Potassium hydroxide solution

Was dissolved 35g of potassium hydroxide (KOH) in 65g of water.

NOTE: In order to avoid interfering heavy metal ions, the absorbing liquid was added per 50mL 0.5g polyamino acid mixture to reduce the activity of heavy metal ions.

The mixture consisting of equal amounts of the following materials.

Diethylene triamino pentaacetic acid sodium salt (Na₅DTPA) N- hydroxyethyl ethylene diamine triacetic acid trisodium salt (Na₃HEDTA) N, N- bis (2-hydroxyethyl) - sodium glycine (NaDHEG) Ethylenediaminetetraacetic acid tetrasodium salt (Na₄EDTA)

4.2 Monoethanolamine solution

Dissolving 5g monoethanolamine (C₂H₇ON) in 95g of ethanol.