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

GB/T 11060.9-2011

**Natural gas -- Determination of sulfur compounds -- Part 9:
Determination of mercaptan sulfur content by iodometric
titration method**

(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 9.

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

This part of the Russian State Standard GOCT22387.2-97 "Natural gas - Determination of hydrogen sulfide and mercaptan sulfur-Part 7. Iodine Determination of the amount of mercaptan sulfur-titration "(Russian) of non-equivalent, the main differences are as follows.

--- Standard name changed to "Natural gas - Determination of sulfur compounds - Part 9. Determination of mercaptan sulfur content - iodometry."

--- Chapter 2 normative references use our standards.

--- Increasing the absorption of hydrogen sulphide, a mercaptan absorber, the absorber holder and four schematic absorbing device.

--- Part GOCT22387.2-97 7 by the highest gas flow rate 90L/h to 60L/h.

--- GOCT22387.2-97 provisions of Part 7, removal of hydrogen sulfide cadmium chloride acidic solution should be selected according to the concentration of hydrogen sulphide 10% or 30%, the concentration of hydrogen sulfide without making clear instructions. This section provides that when the concentration of hydrogen sulfide $\leq 100\text{mg/m}^3$, chlorine Cadmium acid solution at a concentration of 10%; when the hydrogen sulfide concentration $> 100\text{mg/m}^3$, the concentration of cadmium chloride acidic solution is 30%.

--- Taking into account the water vapor pressure on the sample volume corrected impact modified calibration gas sample volume formula.

This part of the National Gas Standardization Technical Committee (SAC/TC244) and focal points.

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

1 Scope

This section specifies the test method for the determination of gas mercaptan sulfur content - iodometry.

This section applies to the determination of mercaptan sulfur content - natural gas, the measuring range. (10 ~ 1000) mg/m^3 .

This section does not address all the safety issues related to its application. Before using this section, the user has the responsibility to develop appropriate safety and Protective measures, and clarify the scope of its qualified.

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 6682 analytical laboratory use specifications and test methods (GB/T 6682-1992, ISO 3696. 1987, NEQ) Determination of GB/T 11060.1 gas hydrogen sulfide content Iodimetry GB/T 13609 Gas sampling guidelines (GB/T 13609-1999, ISO 10715:1997, EQV) Principle 3 Iodine solution with an alkaline solution of cadmium chloride absorption from a pre-removal of hydrogen sulfide gas samples thiols, mercaptans cadmium, adding an excess of oxide green Thiol cadmium into the remaining iodine solution with sodium

thiosulfate standard titration. Then according to the amount of consumption of sodium thiosulfate, mercaptan type sulfur calculated content.

4 Reagents and materials

4.1

Distilled water. third grade water GB/T 6682 stipulated technical requirements.

4.2

Potassium dichromate. reference reagents.

4.3

sodium thiosulfate ($\text{Na}_2\text{S}_2\text{O}_3 \cdot 5\text{H}_2\text{O}$). AR.

4.4

Iodine. AR.

4.5

KI. AR.

4.6

soluble starch. AR.

4.7

cadmium chloride ($\text{CdCl}_2 \cdot 5\text{H}_2\text{O}$). AR.

4.8

Concentrated hydrochloric acid. AR.

4.9

Sodium hydroxide. AR.

4.10

anhydrous sodium carbonate. AR.

4.11

latex tube. diameter 6mm, the outer diameter of 9mm, a wall thickness of 1.5mm.

4.12

needle valve.

4.13

screw clamp.