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

GB/T 11060.11-2014

**Natural gas -- Determination of sulfur compounds -- Part 11:
Determination of hydrogen sulfide content by length-of-stain
detector tubes method**

天然气 含硫化合物的测定 第11部分：用着色长度检测管法测定硫化氢含量
(English Translation)

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Foreword

GB/T 11060 "Determination of sulfur compounds in natural gas" is divided into 12 sections.

- 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, carbon monoxide and sulfur mercaptan sulfur 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. Determination of sulfur compounds using 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 11.

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

This section uses redrafted law revision adopted ASTM D4810-2006 "Determination of hydrogen sulfide gas detector tube with colored length method Test methods" content.

Technical differences and their causes and ASTM D4810-2006 this section are as follows.

--- Modified "8.2 repetitive" content, in order to improve the operability determination to eliminate ambiguity.

This part made the following changes.

--- Modify the standard name, "Standard Test Method for Determination of hydrogen sulfide gas detector tube with a length of colored Law" by the words "natural Determination of gas sulfur compounds - Part 11. Determination of hydrogen sulfide content "with colored length detector tube;

--- Delete the original standard in Chapter 2, "reference document";

--- Delete the original standard Chapter 4, "meaning and purpose";

--- Delete the original standard Chapter 7, "quality assurance";

--- Delete the original content in standard 8.1;

--- Delete the original standard Chapter 9 "key words." this part of the National Gas Standardization Technical Committee (SAC/TC244) and focal points.

This section drafted by. China Southwest Oil & Gas Field Branch, Research Institute of Petroleum, Shenzhen CIQ, Chinese OCTG Road Technology Research Center.

1 Scope

GB/T 11060 provisions of this part of the test method for natural gas hydrogen sulfide content of the tube was measured by the length of the colored detection.

This section applies to the rapid determination of hydrogen sulfide gas content measurement range $0.5 \times 10^{-6} \sim 0.4$ (volume fraction).

NOTE: sulfur dioxide and mercaptans usually produces a positive interference, nitrogen dioxide and in some cases cause negative interference. Most tubes are detected with the elimination of certain stem Prewash interference layer. Specific interference information can be found in test tube specification.

This section does not involve the use of all their security-related issues before using this section, the user has the responsibility to establish appropriate safety and security Protective measures, and determine its suitability before use.

Principle 2

Manual piston pump or bellows pumping gas sample to at a flow rate controlled by filled with specially prepared chemicals Qualitative test tube, a color change or chemical reaction between hydrogen sulphide colored and detection of the sample tube. When the volume of a sample Timing detector tube is directly proportional to the length of the colored content of hydrogen sulfide in the sample. With the detector tube calibrated scale compared with the resulting Color length converted to hydrogen sulfide content.

3.1 Shader length scale calibration and test tube

Sealed off both ends of the glass tube, seat tube and pump size match. Reagent layer tube, usually silicon coated with an active chemical substance glue. It can produce significant changes in the color of the reagent layer in contact with a gas containing hydrogen sulfide in the sample. All known interfering substances should be detected Pipe specification listed. Calibrated scale should be directly on the test tube, if the test tube to provide a separate calibrated scale, should be converted to sulfur Identification of the other hydrogen content. Concentration of hydrogen sulfide should be calibrated scale associated with a coloration width.

3.2 Detector tube pump

Manual piston pump or bellows-type pump. Each stroke should be able to sample through the detector tube 100mL volume deviation of $\pm 5\text{mL}$.

Note: The test tube and detector tube pump supporting the use. Manufacturers test tube calibrated flow characteristics make it consistent with the detector tube pump. If different brands of pumps and test tube mix will result in decreased accuracy of measurement results.

3.3 Gas sampling chamber

At atmospheric pressure gas sample evenly through any channel and the sample container detector tube and spaced from the surrounding air. In the gas supply valve and Installed between the gas sampling chamber stainless steel needle valve (or pressure regulator) to control sample flow. Test tube during sampling, sample flow per Min sample chamber volume of about 1 to 2 times, or at least a sampling chamber can be discharged.