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

GB/T 31456-2026

Replacing GB/T 31456-2015

**Technical specification for surface geochemical exploration for
oil and gas**

石油与天然气地表地球化学勘探技术规范

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1 Scope

GB/T 31456-2026 is the Chinese national standard covering looking for oil by sampling the surface - the trace hydrocarbons that migrate up from a reservoir and alter the soil and its microbiology above it, the survey design, the sampling and analysis and the interpretation of an anomaly. It replaces GB/T 31456-2015 and has been in force since 1 July 2026. It was issued on 31 March 2026 and has been in force since 1 July 2026, replacing GB/T 31456-2015. The document is under the responsibility of the Standardization Administration of China. This page is published from the official record of the 2026 edition; the clause text of a standard this recent is not yet in circulation, and the figures, limits and tables it contains are those of the document itself, delivered in full with the English translation.

This document specifies the work phases and tasks for surface geochemical exploration of oil and gas, as well as field preparation, field sampling, and... Test items, determination of surface geochemical background, determination of surface geochemical anomalies, evaluation of favorable oil and gas areas, and submission of results. This document applies to onshore surface geochemical exploration of oil and gas.

4.1 General Survey

4.1.1 Evaluation Object Sedimentary basins or depressions with limited exploration.

4.1.2 Work Tasks Investigate and study regional geochemical characteristics and regional anomaly zones, and combine geological and geophysical data to predict the distant oil and gas potential of basins or depressions. The scene provides a basis for early evaluation.

4.1.3 Sampling Density For area measurements, the distance between sampling points and the distance between sampling points should be less than or equal to 10 km. For profile measurements, the distance between sampling points should be less than or equal to 10 km.

4.2 Census

4.2.1 Evaluation Object Basins, depressions, or zones with potential for oil and gas production.

4.2.2 Work Tasks The investigation and study will determine the regional geochemical background and anomaly characteristics, delineate favorable oil and gas accumulation zones, and provide a basis for detailed seismic surveys and parameter well location. Provide evidence.

4.2.3 Sampling Density Network sampling is performed with line spacing less than or equal to 1 km and point spacing less than or equal to 1 km.

4.3 Detailed Investigation

4.3.1 Evaluation Object Favorable oil and gas accumulation areas or favorable traps determined by geology and seismic activity.

4.3.2 Work Tasks Investigate and study the concentration, combination characteristics, anomaly morphology, and distribution direction of surface geochemical anomalies, combined with petroleum geology and geophysics. The data were comprehensively evaluated to select the best traps, providing a basis for the deployment of exploratory wells.

4.3.3 Sampling Density Sampling should be performed using a grid with a line spacing of 0.5 km or less and a point spacing of

0.5 km or less. The area of the background zone for measurement should be [area missing]. The area is 3 to 5 times the size of the target area.

4.4 Detailed Investigation

4.4.1 Evaluation Object A trap for expanding oil and gas reservoirs or for unexplored oil and gas potential reservoirs.

4.4.2 Work Tasks Investigate and study the geography between discovered oil and gas reservoirs and their surrounding areas, or between traps with existing oil and gas discoveries and adjacent unexplored traps. Similarity in chemical anomalies can be used to predict oil and gas extents or select optimal drilling targets, and this can be combined with geological, drilling, and geophysical data for comprehensive analysis. Evaluation serves as a basis for the expansion and rolling exploration of known oil and gas fields or for the deployment of evaluation wells.

4.4.3 Sampling Density Sampling should be conducted using a grid with a line spacing of 0.25 km or less and a point spacing of

0.25 km or less. The area measurement range should cover the background area. The area should be 3 to 5 times the area of the target area.

5.1 Data Collection

5.1.1 Latest topographic map, geological map, stratigraphic columnar section, structural map, and fault distribution map of the work area.

5.1.2 Aerial and satellite photographs.

5.1.3 Gravity, magnetic, electrical, seismic, and geochemical data.

5.1.4 Drilling data.

5.1.5 Regional geological survey reports, research reports and related literature.

5.1.6 Geological, hydrological, geochemical landscape and meteorological data.

5.1.7 Natural geography, transportation and social environment data.

5.2 Site Survey

5.2.1 Understand the natural economic geography, topography, transportation conditions, and distribution of settlements in the work area.

5.2.2 Select 3 to 5 test sites in each geochemical landscape area.

5.2.3 Soil and gas samples were collected from different lithological sections below the surface disturbance zone at each test point, with longitudinal sampling intervals of less than 0.5m.

5.2.4 The samples were analyzed according to the test items in

6.3.1 and 6.3.3.

5.2.5 Determine the sampling depth, stratigraphy, and lithology of surface geochemical samples based on the test and analysis results.

5.3 Construction Design

5.3.1 The construction design document should include. project background, geological tasks, preliminary tests, sample point deployment, sampling requirements, experimental testing items, and construction procedures. Quality requirements, work plan, organizational structure, safeguard measures, health, safety and environmental management, main technical equipment, budget, and expected delivery. Results.

5.3.2 If discrepancies are found between the design content and the actual situation during fieldwork, the design should be adjusted and modified in a timely manner.

5.4 Personnel Training

5.4.1 Before conducting field sampling operations, all personnel should receive job skills training to master sampling skills and clarify each person's responsibilities. Work tasks.

5.4.2 Before conducting field sampling operations, all personnel should receive emergency training on safety, environmental protection, and personal protection.

6.1 Sampling Point Deployment

6.1.1 Arrange the sampling points on the topographic map according to the design requirements, and locate the sampling points according to latitude and longitude or plane rectangular coordinates.

6.1.2 The sampling point movement error shall meet the following requirements.