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Oil-bearing detection technology and device of drilling fluid based on ultraviolet light induced fluorescence technology

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In order to solve the problem of oil-bearing in drilling fluid in time, a new oil-bearing detection technology and device based on ultraviolet light-induced fluorescence technology is proposed, which can be used for fast detection and continuous detection. Under ultraviolet laser irradiation, oil-containing drilling fluid can make the conjugate key electrons in the oil jump, and when the electrons return to the ground state from the excited states, they will release the energy in the form of light wave or fluorescence. The device mainly includes the device body, the detection light source part of the body, the signal acquisition department, display department. The device body is an explosion-proof protective cover. The detection light source includes a xenon lamp light source and a light source filter element which can continuously produce a detecting light source. The light filter element can filter the detection light produced by the xenon lamp light source into a ultraviolet detection light source only having ultraviolet light band, and the light source filter element is the first band pass filter which can only make the ultraviolet detection light source pass. The signal acquisition department includes: acquisition probe, signal processing element, data transmission element, second band pass filter. The acquisition probe can collect the fluorescence signal of the drilling fluid to be tested. The signal processing element connected with the acquisition probe can convert the fluorescence signal to the corresponding digital signal. A data transmission element connected to the signal processing element that transmits the digital electrical signal to the display part by means of a wireless transmission. The second band pass filter is arranged at the front of the acquisition probe to filter out the interference signal in the fluorescence signal emitted by the drilling fluid. The display department is able to display digital data.

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