

**CHARACTERIZATION OF GREIGITE MINERAL BY XRD AND SEM/EDS
ANALYSES IN PLEISTOCENE AND PLIOCENE SEDIMENTS
FROM BLACK SEA-TURKEY**

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In Black Sea offshore, Turkey, a few wells have been studied in terms of lithostratigraphy. Among the investigated sediments, greigite mineral has been observed individually and/or as a mixture of greigite and mackinawite. They are found in Pleistocene and Pliocene aged mudstone and claystone lithologies in the form of disseminated nodules, framboidal grains and layers.

This study contains characterization of greigite mineral in Black Sea offshore. It was identified by X-ray diffraction technique and also corroborated by SEM analysis.

For XRD whole rock analysis (bulk mineralogy), powdered and oriented samples are prepared via the "Home method", and the conditions for XRD are as the following; generator: Rigaku D/Max-2200 Ultima+/PC, tube: Cu K α = 1.54059 Å, filter: Ni, accelerating voltage: 40 kV, current: 20 mA, goniometer speed:1°/min, and range:2-60° 2 theta. The XRD instrument is calibrated using silicon powder (NIST SRM 640 –c) before its use, and minerals are identified using International Center for Diffraction Data-Inorganic Crystal Structure Database (PDF-2).

Greigite (and also machinawite), a type of iron sulfide mineral, grows within anoxic sedimentary environments. Since there is the presence of this mineral within Pleistocene-Pliocene aged lithologies, it can be concluded that conditions in Black Sea at Pleistocene-Pliocene time period are similar to modern anoxic conditions.