

PETROCHEMICAL AND MINERAL STUDY OF THE DIORITIC VEINS NETWORK OF THE WESTERN SAMOTHRAKI (NORTHERN AEGEAN)

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Ophiolitic outcrops consisting of cumulitic gabbroic rocks which pass upwards to non-cumulitic diorites and massive diabases and basaltic lavas, occur in Samothraki island. The diorites are considered as fractional crystallization products of the gabbroic rocks and are related with plagiogranites and rarely with rodingites, forming a complex of irregular veins, the "dioritic veins network". The typical assemblage of the diorites, hornblende and plagioclase, is intensively affected by deformational and less by metamorphic episodes, with formation of actinolite and chlorite at the expense of the former and saussuritized products from the last.

The study of the relatively rich in K and compositionally homogeneous magnesio-hornblendes from the dioritic veins, record a continuous decompression, with pressures from 3-4 kb in their cores to 1-2 kb in their rims, during crystallization, together with increment of oxygen fugacity. The formation of these diorites probably happened in two stages. Firstly, under relatively low f_{O_2} conditions, rocks rich in amphiboles, sulfides and minor ilmenite and magnetite, were formed. In the second stage, increment of oxygen and water fugacities, indicated as well by a paucity of sulfides, caused an enrichment in amphiboles and Fe-Ti oxides.

The presence of a hydrous mineral (amphibole), the transitional between MORB and IAT chemical character of the diorites as well as the presence of more felsic rocks (plagiogranites) into this network, suggest a marginal basin setting, as has also proposed for other ophiolitic rocks from the Circum-Rhodope zone.

STUDY OF INTERSTRATIFIED CLAY PHASES OF PALEOGENE SEDIMENTS FROM EVROS DELTA

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The extensive occurrence of interstratified clay minerals in Paleogene sediments of Evros Delta is examined. In all horizons the existing non-clay minerals are quartz, feldspars (mainly plagioclases) and micas. At depths less than 1500m among the clay minerals the mixed phase illite/smectite with random interstratification predominates. The presence of discrete illite and chlorite is limited. At depths 1500-2500 m the predominant phases are vermiculite, expanded chlorite and interstratifications between

them. At depths greater than 2500 m the interstratified minerals are completely absent and the discrete illite and chlorite prevail because of their more stable structure. This mineralogical paragenesis is due to intermediate grade diagenesis. The vermiculite occurrence is due to the alteration of micas and chlorite. The absence of discrete smectite and kaolinite is due to unfavorable physicochemical conditions for their formation or to rapid deposition of the weathering materials.

STUDY OF CHEMICAL, PHYSICAL AND MECHANICAL PROPERTIES OF THE LIMESTONES IN THE ISLAND OF CHIOS AND OF THE IGNEOUS ROCKS IN THE ISLANDS OF PSARA AND ANTIPSARA

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The chemical, physical and as well as the engineering properties of the limestone beds of the island Chios were investigated and the acidic igneous formations of the islands Psara and Antipsara. From this study it was concluded that the above formations could successfully be utilized as construction material for any type of structures as well as for any case of "marble". Samples were collected from the following areas; Langaras, Kardamila, Agios Georgios, Sycousis, Elata, Korakari, Thymiana and Amades, Psara and Antipsara.

The stone of Thymiana and the acidic igneous formations, besides the above mentioned applications, may also be used, due to their physical properties at various structures as a substitute of bricks.

ON THE RELATIONSHIP BETWEEN ACTIVE TECTONICS AND FLUID CIRCULATION IN THE GEOTHERMAL SYSTEM OF NISYROS CALDERA

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In the geothermal field of Nisyros Caldera, fluid circulation is controlled by active tectonism. The present landscape has been formed through a series of processes that built and destroyed the volcanic edifice and during which a principal influence was exerted by the major, superimposed, recurrent systems of faults, that appeared in different ages. Conventionally it is believed that the circulation of geothermal fluids is