Classification of phosphatic sedimentary rocks of the Jeirud Formation in the Garmabdar section, Central Alborz

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Abstract

The Upper Devonian Jeirud Formation (Farasenin-Faminin) in the Garmabdar section of north Tehran (~270 m thick), contains seven distinct phosphorite horizons. These sedimentary phosphorites are found within siliciclastic and carbonate host rocks. Marine Phosphorites in the Jeirud Formation are pristine and condensed, including structureless peloids, phosphatized carbonate skeletal grains, coated grains, phosphatic intraclasts, and primary phosphatic bioclasts. These phoshphorites are mostly granular and in some cases contain evidence of winnowing and reworking by mechanical or biological processes. In general, the association of these phosphorites containing glauconite and pyrite with black shale facies indicates low oxygen depositional conditions, seawater upwelling model, warm paleoclimate and passive tectonic conditions during deposition of these sediments. The black shales observed along with these phosphates may indicate their coincidence with the Kellwasser and Hangenberg global events.

Keywords*: Phosphorite, Black shale, Pristine, Condensed, Jeirud Formation, Garmabdar*