

THE LATE DEVONIAN OOIDAL IRONSTONES FROM THE PONTA GROSSA FORMATION, OF PARANÁ BASIN, MATO GROSSO, BRAZIL

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RESUMO: The ooidal ironstones origin preserved in the sedimentary record has been subject of many discussions in the last decades. These deposits form prominent units in the Paleozoic record, and an assessment of their sedimentological and stratigraphic significance is essential for the interpretation of sedimentary successions. The ooidal ironstones from the Ponta Grossa Formation are associated with a major sequence boundary and subsequent transgressive surface. These ooidal ironstones were described in a borehole located in the north part of Paraná Basin. They were interpreted as they had been deposited under conditions of low net sediment accumulation in well-oxygenated bottom-water conditions, with episodic storm events reworking the sediments in a shallow-marine environment. Through petrographic studies, X-ray, and SEM analyses made possible the depiction of the ooidal ironstones diagenetic evolution. Such analyses indicate that the ooidal ironstone mineralogy was formed during eodiagenesis. The ironstones are dominated by berthierine ooids and grain-rimming and pore-filling siderite, with later ferroan calcite. The ooidal interval observed in the borehole presented wave cross lamination. This facilogic aspect reinforces the idea that the conditions required for the development of the ironstones deposits were intense sediment reworking and slow net sediment accumulation rates, as observed from the petrographic analyses. Thus, this research proposes that these conditions arose as a result of marine transgression during the initial relative sea-level rise following the previous development of an extensive sequence boundary. The ooidal ironstone formation ceased when sedimentation rates increased and transgression deepened water depths considerably. These results illustrate the association between ooidal ironstones and major stratal surfaces in sedimentary successions, and demonstrate the applicability of regressions forced model for the development of extensive sequence boundary in which the ooidal ironstones are associated.

PALAVRAS-CHAVE: IRONSTONE; DIAGENESIS; SEQUENCE STRATIGRAPHY.