

Title: Palygorskite from Tertiary Formations of Eastern Saudi Arabia.

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Abstract:

The occurrence of palygorskite in some Tertiary sediments in eastern Saudi Arabia was studied. Mineralogical analyses were made of samples from two sections several meters thick from the Umm er Radhuma and Dammam Formations of Paleocene and Eocene periods, respectively. Layers of shales were observed within the sections of the dolomitic-calcitic limestone of the Umm er Radhuma Formation and of the dolomitic limestone of the Dammam Formation. After treatment for carbonate removal the shales consisted of more than 95% clay-size particles, most of which were $<0.2 \mu\text{m}$ in size. Palygorskite was the main constituent of some of the shales, with minor amounts of gypsum, soluble salts, and carbonates. The association of gypsum and other salts with palygorskite in the shale suggests that palygorskite formed in closed basin environments. The presence of palygorskite and the absence of other minerals in the clay fraction of the limestones also suggests that the palygorskite formed under marine conditions.