

Mineralogical and sedimentological study of gypsiferous sands from the Saharian Desert

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A mineralogical and sedimentological study was carried out in Quaternary aeolian sands from the Sahara Desert (Tunisia and Libya).

Gypsum resulted to be the dominant mineral (65%), whereas quartz resulted to be in significant amount (25%) in all samples. Aragonite and calcite, related to marine organisms, was found especially in the Libyan sands.

Gypsum grains appear in euhedral crystals or as polycrystalline twinned crystals. Crystal habitus is pseudo-octahedric or tabular. Due to the euhedral habitus, the forms of the grains is discoid or bladed but with a low roundness.

Quartz grains are mostly ialin or orange as the grain surfaces are coated with thin hematite films. Quartz grains dominantly appear as subhedral crystals. Habitus is prismatic or hexagonal. Due to the subhedral habitus, quartz grain forms can be classified as bladed with a low roundness. A minor amount of quartz grains is formed by well rounded and spherical grains showing frosted and pitted surfaces.

The particle size analysis indicated that the studied sediments consist of well sorted very fine sands.

The studied Quaternary aeolian sands can be classified as gypsiferous sands. Notwithstanding sands are well sorted, they are immature under a mineralogical and textural point of view. Particularly, gypsum formed in present or past sabkha and the amount of marine bioclasts should suggest that the source area of the Lybian gypsum grains could be a sabkha near the sea.