

Self-assembled BaSO₄ crystals

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Barite was precipitated in the presence of a copolymer and the morphology of barium sulfate crystals was strongly modified compare with the normal pillow shape of barite expected for this barium and sulphate concentrations (Jones et al., 2002). The new morphologies of barium sulphate were obtained at ambient temperature and pressure with equals amounts of barium and sulphate and with different concentrations of a copolymer used in oil recovery to inhibit scale formation. The morphologies obtained from our experiments could easily be confused with biogenic structures and this yields to the important issue that shape is not the only factor that tell us from the biogenicity of organism found in fossils (García Ruiz et al., 2006).

From another point of view, biominerals have been widely studied due to their unique properties that cannot be reproduced in synthetic crystals. Complex morphologies are the result from organization on several hierarchical levels which formation mechanism cannot be fully explained. The interest in synthetic materials with similar hierarchical organization has increased last decades due to the properties induced by such complex levels of organization. These bio-inspired materials are really attractive for material science due to an easy synthesis (room temperature and pressure and in aqueous solution), which allow tuning morphologies and mechanism characteristics of the crystal obtained (Wang et al., 2006).

References

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