

## **The grid-work texture of authigenic microcrystalline quartz in siliceous crust-type (SCT) mineralized horizons**

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### **ABSTRACT**

Siliceous crust-type (SCT) formations are pervasive silicified horizons associated with fluorite-barite-polymetallic sulfide mineralization in carbonate rocks. They almost invariably show a peculiar grid-work texture formed by microcrystalline quartz. The mineralogical and textural features of several SCT samples from Italy, Spain, France, China, and Brazil were investigated by optical and electron microscopy and X-ray and neutron powder diffraction. The resulting {001} pole figures exhibit two main components of orientation of the crystallographic *c* axis with respect to the normal to the sample surface, one located at about 35° and the other in the range 60–85°. The observed textural features are seen in all samples and they appear to be independent of the age and geographical location of the SCT formation. The observed grid-work texture is tentatively interpreted as forming by nucleation of quartz seeds on specific faces of surrounding crystals. The observed morphology and the regularly oriented populations of crystals are consistent with simultaneous growth of quartz crystals having well-defined reciprocal orientations. The grid-work texture of quartz in SCT horizons is similar to the type reported for Magadi-type cherts, which are commonly interpreted as formed by magadiite-mediated silica precipitation processes. Since the genesis of SCT deposits is totally unrelated to alkaline-lake genetic processes, it is concluded that cherts showing strongly textured patterns of microcrystalline quartz may have a different origin than Magadi-type deposits.