

# **VOLCANIC ASH ALTERATION: BENTONITES AND TONSTEINS FROM SOUTHERN SOUTH AMERICA**

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Bentonite and tonstein beds, derived from the alteration of volcanic ash, may be used as important stratigraphic markers in either a local or a regional scale as they occur in several areas in southern South America.

This work highlights some findings in Permian rocks from the Paraná Basin, such as the bentonite beds of Aceguá (Brazil) and Mello (Uruguay), and those from the Sierra de La Ventana (Argentina). Cretaceous bentonites from the Campos Basin ("3-Dedos" marker) and Permian tonsteins from the Candiota Coal Mine (Brazil) are also discussed in this paper.

The Mello bentonite is represented by a single bed (1,5 to 3 m thick) with upper and lower transitional boundaries; the Aceguá finding is composed of at least two successive beds (around 0,3 m thick) displaying abrupt and/or transitional contacts; the Sierra de La Ventana occurrence presents five beds (less than 1 m thick) displaying abrupt upper and lower boundaries; and the "3-dedos" marker includes three beds (about 1 m thick) presenting abrupt lower contacts.

The tonstein beds in the Candiota area occur as three beds less than 0,1 meter thick.

Bentonites are mostly composed of montmorillonite whereas tonsteins are exclusively made of kaolinite. Both types present chemical and mineralogical compositional differences relative to the relict minerals, as sanidine,  $\beta$  quartz and zircon.

This study aims to evaluate the potential use of these occurrences as local or regional stratigraphic markers.