

Forming condition of Archean barite deposits, North Pole area, Western Australia

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The chert-barite deposits are distributed at the North Pole area, Western Australia. The geology of the North Pole area consists of basaltic lava and chert-barite unit which overlays conformably on basalt. So called T-chert, a large scale (~500m length and ~2m width) quartz vein, cuts basalt layers at several localities.

Barite, principal mineral both in the T-chert and the chert-barite unit, usually contains fluid inclusions. Salinity estimated by the ice melting temperature of fluid inclusions is as ~25wt% NaCl equivalent. The PVT relation of brine solution suggests that minimum water depth was 65m when barite precipitated. The relatively shallow water depth and the presence of highly saline solution suggests that the chert-barite deposits were formed at an evaporitic basin.