

Caprock and Stratabound Bioepigenic Sulphur in Nova Scotia

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Worldwide, all commercially important deposits of native sulphur originated as bioepigenic replacements of gypsum or anhydrite. Native sulphur deposits occur in two distinct geological settings: (1) caprock deposits overlying salt diapirs and (2) stratabound deposits within evaporite sequences.

Two occurrences of native sulphur have been documented from mainland Nova Scotia: (1) from the underground workings of the Canadian Salt Company at Pugwash, Cumberland County, and (2) from exploration drilling near Hilden, Colchester County. The Pugwash occurrence has characteristics in common with salt

dome, caprock deposits in southeast Texas and Louisiana. The Hilden occurrence is similar to the stratabound deposits of western Texas and northern Iraq. Bioepigenic sulphur deposits are associated with dominantly marine evaporite sequences in sedimentary basins where structural controls have supplied extensive plumbing to allow for long-term mixing and flushing of artesian meteoric water through hydrocarbon-bearing strata and the evaporite deposit. Flushing promotes the growth of sulphate-reducing bacteria, which obtain energy through the oxidation of hydrocarbons.

These occurrences indicate that, at least on a limited scale, conditions necessary for the formation of biogenic native sulphur existed within the Windsor Group evaporite sequence of

Nova Scotia. Detailed exploration and evaluation will determine the resource potential.