

Barite and associated massive sulphide and Fe-Mn mineralization in the Central Belt of Peninsular Malaysia

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The major barite occurrences of Peninsular Malaysia lies within the Central Belt in volcano-sedimentary Permo-Triassic rocks of Kelantan, Terengganu and Pahang.

The areas which have yielded (and in some cases still producing) economic outputs of primary barite include:

- Sungai Trengganu area, Terengganu
- Tasik Cini area, Pahang
- Sungai Pedah area, Kelantan
- Bukit Pencuri, Kelantan
- Jenderak, Pahang

The primary barite mineralizations in Peninsular Malaysia can be classified by their mode of occurrence into two main types, namely, stratiform and vein type.

The **Sungai Trengganu** barite mineralization is synsedimentary stratiform, probably of volcanic-exhalative origin. The sedimentary barite beds lie within a succession of siltstones and shales overlain by quartzitic or arenaceous formations. The argillaceous sedimentary sequence with barite have been assigned the Lebir Formation (Rajah, 1975) of Permian age. Plutonic igneous rocks (adamellite, granite and granodiorite) outcrop to the east and west of the area.

The sediments hosting the barite are folded, striking in a NW-NNW direction with dips varying from 50-90° mainly to the east and are intimately associated or interbedded and conformable with cherty and graphitic shales.

The individual barite horizons vary in thickness up to 3 m and occur as shaley, pisolitic, nodular or massive beds with bedding and sedimentary structures. Acid intrusives cross-cut the barite in various places.

With the completion of the Kenyir Dam, the majority of the outcrops have been submerged leaving those above the 400 ft contour forming individual islands.

The **Tasik Cini** barite mineralization is hosted by stratiform meta volcano-sedimentary sequences of phyllite, slate, phyllitic metatuff and metasandstone of the Mersing Group of Permian age (Fauzi, 1989).

The mineralizations at **Bukit Botol** and **Bukit Ketaya** show classic vertical and lateral facies change so typical of massive sulphide deposits. Iron and manganese oxides form the outer facies followed by barite and massive sulphides at the basin bottom which sits on and is intruded by acid intrusives. The massive sulphides have high gold and silver values (Teh, *et al.*, 1992).

The barite deposit at **Puchong Emas**, adjacent to Bukit Ketaya, is also of stratiform volcano-sedimentary type with bedded barite occupying a small, narrow basin.

The barite outcrop at the **Sungai Mentiga** locality in the Cini area is of vein type and hosted by bedded quartzites. The outcrops of barite are associated with the plexus of hydrothermal quartz veins.

The **Sungai Pedah** occurrence is also a vein type barite deposit. The deposit is in the form of a vein (or dyke) of up to 5 m thick cutting the pink porphyritic biotite granite of Triassic age. There is extensive hydrothermal wallrock alteration of the adjacent host rock by the barite mineralization.

The **Bukit Pencuri** barite deposit is also of the vein type and hosted in clastic sediments of the arenaceous series of strata of Carboniferous to Triassic age (MacDonald, 1976). The barite veins are thin, average not exceeding 1 m, discontinuous and occur in iron-oxide stained sandstone, siltstone and breccia. The sandstone is cut by porphyry dykes.

The barite deposit at **Jenderak** is of the stratiform volcano-sedimentary type in rocks of the Kerdau Formation of Triassic age (Burton, 1973). The bedded barite mineralization is found interbedded with carbonaceous mudstones, sandstone and tuff. The barite horizon has a maximum thickness of about 5 m and is offset by at least 3 prominent strike-slip faults (Michael Lau, pers. comm.).
