

## SAMPLE REPORT (Mineralogy, Petrology, Ore Microscopy)

Job No. CMS 76/11/25 Date Received: 18.11.76

Reference PA/TAS/MOINA

Sample No. ML3A, 388 ft.

Nature of Sample: D.D. Core

DESCRIPTION SECTION No. 20234

## a. Hand Specimen:

Black, fine-grained rock with sulphides. Weakly magnetic.

## Microscopic:

Essentially this is a chlorite-magnetite rock, with subordinate fluorite, pyrite and ?cassiterite. Its fabric is reminiscent of a fine sediment, and it may well be a metasomatised argillite. It is not known to what extent the features outlined or accentuated by fine magnetite (folding, bedding/lamination) are primary and depositional, but seems logical to assume that they are.

The rock consists mainly (85-90%) of fine, pale green, matted chlorite flakes with random orientation. The chlorite may represent recrystallised chemically deposited material or may replace primary clay. Magnetite occurs as very small single crystals (mostly  $< 10\mu$ ) and small clusters, as lenses and thin, folded laminae (or laminae outlining pre-existing folds?). Small, very irregular patches of purplish fluorite are scattered through the rock; individual patches, which have an almost fibrous habit, seldom exceed  $100\mu$  in size, and may be pseudomorphous. Fine carbonate is generally associated with the fluorite, as well as microgranular crystals of cassiterite ( $3\mu$ - $30\mu$ ) singly and in small (up to  $30\mu$ ) clusters. At these grainsizes, cassiterite is not definitely distinguishable from sphene, and thus an Sn assay is essential. Cassiterite is quite plentiful in places, but the total cassiterite content of the rock is not high (? $<1\%$ ) because of its fine grainsize.

There is a close genetic association between the fluorite and the cassiterite, and in fact the whole phase of metasomatism of the rock.

Small patches of semi-opaque leucoxene occur and cause slight pleochroic haloes in the chlorite.

Opaque minerals include magnetite with thin hematite rims, shapeless patches of pyrite, subhedral to euhedral arsenopyrite crystals (the most abundant sulphide), traces of fine chalcopyrite, traces of bismuthinite, and small flakes (up to  $10 \times 50\mu$ ) of molybdenite flanking coarser chlorite veins. Some of the coarser magnetite shows atoll textures.

H.W. Fander, M.Sc.

The photomicrograph (x300) shows granular cassiterite, minor magnetite (black euhedra), poorly defined fluorite (low relief) and a chlorite matrix.

## IDENTIFICATION

ML3A 388

MINERALISED CHLORITE-  
MAGNETITE ROCK (WITH  
CASSITERITE)