

For SC2, similar trends of grade and recovery of table/superpanner concentrates to those of SC1 was observed throughout the size range. In general, the table/superpanner concentrates were higher in recovery but lower in grade than for the superpanner concentrates. The major contaminants of the concentrates were also pyrrhotite and non-opaque gangue but with minor pyrite. Liberation of cassiterite in the coarse sized fractions was considerably better than for SC1 and it ranged from 64 to 88% for +250 to -53 μm sized fractions respectively. The cassiterite was mainly locked with non-opaque gangue and with sulphides to a much lesser extent.

Scheelite was detected as one of the tungsten minerals present in some of the table/superpanner concentrates for all four composite samples. Attempts were not made to identify other tungsten minerals which may be present.

7.4 Production of High Grade Tin Concentrates

7.4.1 Test Procedure and Results

Sub-samples of each set of size fractions of table/superpanner concentrates obtained in Section 7.3.1 testwork were riffled out and combined in proportions by weight. Attempts were made to produce a high grade tin concentrate from each set of these combined size fractions of table/superpanner concentrates for each of the four composite samples. Sulphide flotation followed by superpanning treatment of the flotation tailing products were used to carry out the up-grading testwork. Test products were submitted for analysis of total Sn and also total S for computation of a full tin and sulphur balance. The high grade tin concentrates produced were also chemically analysed for other elements of interest. Testwork and results are presented in Appendix K.

7.4.2 Discussion

The up-grading procedure which consisted of stage grinding to 100% -150 μm , flotation to remove sulphides followed by superpanning of the flotation tail product was successful in treating the combined table/superpanner concentrates from all composite samples.

High grade tin concentrates of >45% Sn were produced in all cases except for SC1 which gave a concentrate grade of 37.2% Sn. The highest grade of 66.6% Sn was obtained in SC2. The significant difference in tin mineralisation (nature and mode of occurrence) between SC1 and SC2 was highlighted in the results obtained in these up-grading tests.