

SC1 responded well to similar flotation treatment used for PC1 and PC2 using a flotation feed of grind size 100% -75 μm . In Tests SC1/F1 and F2 the initial stage of tin rougher flotation produced a concentrate with close to a ten-fold increase in concentration with good recovery. In general, both tin rougher concentrate recovery and grade decreased rather rapidly with flotation time in all tests conducted. Some of these features can be seen in the plots of recovery and grade versus flotation time for Tests SC1/F1 to F5 as shown in Fig. 5. The same plots also showed that there was very little beneficial effect in using the deslimed flotation feed (-7 μm slime contained an average of about 1.2% tin). For the three collectors tested PTAA and SPA gave similar performance while S-3903 gave lower concentrate grades of similar recoveries. Flotation selectivity in using collector S-3903 may be improved when a suitable depressant is used in conjunction with it at the same time. Further testwork would be necessary to evaluate this collector under the optimum conditions of application.

Test SC1/F6 showed that it was also feasible to up-grade the classified tin flotation rougher concentrate produced from SC1 by superpanning. This test gave a -75 +38 μm tin flotation rougher concentrate of 6.92% Sn at 19.9% recovery and was up-graded by superpanning to 60.9% Sn at 13.6% (or 68.6% absolute) recovery. The same test gave a -38 μm tin flotation rougher concentrate of 5.27% Sn at 50.4% recovery and was up-graded to 65.0% Sn at 29.5% (or 58.6% absolute) recovery. These results indicate that high grade tin concentrates can be extracted from the +38 and -38 μm materials in the tin flotation rougher concentrates of SC1 by making use of the appropriate gravity treatment method.

6.2.4 Composite SC2

Tin losses in the talc rougher concentrate which assayed about 0.9% Sn averaged 11.6% in the series of four tests. Flotation cleaning may reduce some of these losses which were probably caused by mechanical entrainment. The talc depression method would probably not be suitable in this case because it could be detrimental to the subsequent sulphide and tin flotation stages.

Tin losses in the sulphide rougher concentrate, which assayed about 0.3% Sn, averaged 6.3% in a series of four tests and this was the lowest figure obtained among the four composite samples tested.