

TR8-194-196

R. 424

27. TAILINGS SAMPLE FROM A PROSPECT NEAR GIPPS CREEK**Sample**

Nine samples, each of approximately 2 lbs. weight, were received from Mr. G. Hayes on the 7th January, 1963. The sample material appeared to consist of partly decomposed granite, and cassiterite was readily observed by panning.

The samples were stated to be from the tailings dump produced by current operations. Following discussions with Mr. Hayes at Storeys Creek on January 4th, 1963, it was decided to undertake a preliminary examination of the samples and to determine the extent of the recoverable tin in the samples. For the purpose of this investigation, the nine samples were bulked. It was arranged to check milling operations at a later date.

The limitations of the present investigation must be stressed. The sample taken is not necessarily truly representative of the dump; nor is the dump material necessarily representative of current practice as rain and treatment water may have pre-concentrated the dump material.

Summary

The sample tested contained 2.13 per cent tin, of which some 83 per cent was recoverable by tabling after a simple preliminary sizing. The cassiterite is mostly finer than 100 mesh. The coarse fractions of the tailings contain 0.52 to 0.56 per cent tin, part of which is almost certainly recoverable after finer grinding. At current prices of tin, the tailings, as received, contained about £20's worth of tin per ton and warrant retreatment. It is unlikely that the comparatively primitive plant installed is capable of making a satisfactory recovery of the cassiterite.

Procedure

The nine samples were bulked and wet screened on a 100 mesh screen. The two sized products were then tabled on the laboratory Deister table to produce a concentrate and tailing. An intermediate middling was made and retabled.

Results of Table Concentration

Product	Per Cent		
	Weight	Sn	Distribution of Sn
+ 100 mesh concentrate	1.75	25.2	20.7
- 100 mesh concentrate	2.23	60.0	62.8
Total concentrates	3.98	44.7	83.5
+ 100 mesh tailing	71.36	0.37	12.4
- 100 mesh tailing	24.66	0.35	4.1
Calculated head	100.00	2.13	100.0

Thus sample tabling will recover some 83 per cent of the tin in a reasonable grade concentrate. The comparatively low grade concentrate produced from the plus 100 mesh fraction is due basically to the wide range of sizes in this fraction.

A sample of the combined tailings was sized and the products assayed to indicate the nature of the contained tin:—

Size Fraction	Per Cent		
	Weight	Sn	Distribution of Sn
+ 10 mesh	2.0	16.3	0.56
+ 22 mesh	14.3		
+ 30 mesh	9.0	20.6	0.52
+ 44 mesh	11.6		
+ 60 mesh	7.0	17.5	0.39
+ 85 mesh	7.0		
+ 100 mesh	3.1	20.6	0.19
+ 120 mesh	7.6		
+ 150 mesh	4.4	12.0	0.14
+ 200 mesh	7.2		
- 200 mesh	16.3	0.64	26.3
Calculated head	100.0	0.40	100.0

Fifty per cent of the tin is contained in fractions coarser than 44 mesh, and is probably present as composites. Finer grinding of these fractions should release a substantial quantity of this tin.

The minus 200 mesh fraction assays 0.64 per cent tin. The nature of this tin was not determined.

A sizing on a sample of the combined concentrates gave—

Size Fraction	Per Cent Weight
+ 60 mesh	3.6
+ 85 mesh	9.0
+ 100 mesh	5.0
+ 120 mesh	12.0
+ 150 mesh	8.5
+ 200 mesh	11.7
— 200 mesh	50.2
	<hr/>
	100.0

The comparatively fine nature of the cassiterite is obvious from the sizing.