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The tin rougher concentrate shows a highly variable mineralogy through the size range, with the coarser size fractions having high cassiterite contents and the finer size fractions having low cassiterite contents. The proportion of non-opaque gangue increases markedly with decreasing grain size. The iron oxide content (mainly goethite) remains moderately constant at about 25% except for the finest size fraction which has a much lower iron oxide content. This product also contains metal fragments of iron or steel (listed as iron in Table D2) which are concentrated in the C2-C4 fractions. The non-opaque gangue in these products consists mainly of topaz, quartz and possibly some feldspar. Traces of zircon were observed in the coarser size fractions.

D4. TIN MINERAL LIBERATION

The liberation characteristics of the tin minerals in the sulphide rougher concentrate and tin rougher concentrate are given in Tables D3 and D4 respectively, which show that the tin minerals are well liberated throughout the size range. The sulphide rougher concentrate contains a relatively small proportion of cassiterite (by volume per cent) so the unliberated cassiterite grains were not further classified as to what mineral they were locked with. Most of unliberated cassiterite in the sulphide rougher concentrate is locked with non-opaque gangue, with only trace amounts locked with iron oxides. Virtually none of the cassiterite is locked with pyrite or other sulphides.

D5. MINERALOGICAL DISTRIBUTION OF TIN

The mineralogical distribution of tin in the test products is summarised in Table D5.

Even though the sulphide rougher concentrate has a relatively low cassiterite content, slightly more than half of the tin occurs in cassiterite. The proportion of tin in cassiterite increases with finer grain size.