

## APPENDIX B

EXAMINATION OF FLUORITE CONCENTRATES FROM MOINA ORE

Two fluorite concentrates were received from the ME Section. One, the fifth cleaner concentrate Test 8, derived from flotation testwork carried out on a composite from Comalco's Moina mineralisation. The second sample, sixth cleaner concentrate Test 9, was similar to the first, but was obtained from flotation carried out with the addition of a suppressant for calcite.

Each sample was examined in temporary grain mounts and the first sample was also examined in reflected light (PS 25175) and by X-ray diffractometry.

Fifth Cleaner Concentrate (Test 8)

This sample contains approximately 88% of fluorite (by assay). The principal diluent minerals are calcite and magnetite; amphibole and scheelite crystals were also identified.

Magnetite appears mainly to be locked with fluorite and much occurs as small crystals enclosed in grains consisting essentially of fluorite. Most of the fluorite forms particles less than 15  $\mu\text{m}$  in size and locked magnetite crystals are very small indeed.

The other diluent minerals form liberated, discrete grains similar in size to those of fluorite.

Sixth Cleaner Concentrate (Test 9)

This fluorite concentrate was prepared using a calcite depressant. As far as can be determined calcite is present in this concentrate at about the same concentration level as magnetite, scheelite and amphibole and each may comprise (very approximately) 1 to 3% of the concentrate. Liberated calcite amphibole and scheelite were identified. Magnetite is also present but generally in binary grains in fluorite.

In summary, therefore, some suppression of calcite has been achieved but the concentrate grade is still probably 92 to 95%  $\text{CaF}_2$  and most of the material has been ground to particle sizes of 5 to 15  $\mu\text{m}$ . Apart from calcite, magnetite, scheelite and amphibole have been specifically identified; very small amount of other gangue minerals may be present but are unlikely to contribute, together, more than 1 to 2% of these concentrates.

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