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in the sphalerite mostly as small (< 20 μm) anhedral blebs. As vesuvianite is known to be able to take up to a few percent of zinc into its lattice, a qualitative examination of this phase was made with the electron probe microanalyser. In the sample studied, the vesuvianite contains less than 0.3 % (m/m) zinc (i.e. the lower level of detection of the EDS).

The grossularite is also poor in zinc. Except for a trace of manganese the only element significantly contaminating the sphalerite is iron. The colour of the sphalerite in this section and the EDS analysis suggest an iron content of around 10 %.

3. BENEFICIATION

If the samples are reasonably representative of the whole zinc bearing body at Moina, we may conclude that:

- (a) Sphalerite is the only significant zinc bearing phase.
- (b) The iron content of the sphalerite is such that a flotation concentrate will not contain more than about 55 % zinc.
- (c) A high degree of liberation will be obtained at relatively coarse grinds.
- (d) Although the silicates themselves are hard minerals, they (particularly garnet) will probably tend to fracture readily along grain boundaries, cf. the garnet sandstones at Broken Hill.
- (e) No obvious trace element impurities were detected that may make concentrates of the Moina sphalerite unsaleable. If work progresses to bench-scale flotation tests, then a full spectrographic analysis of a concentrate should be made at an early stage.

4. CONCLUSIONS

If the two samples submitted are representative there appears to be no sound reason why a simple 'grind and float' beneficiation circuit should not produce a saleable (if rather iron rich) zinc concentrate from Moina 'sphalerite-skarn' with a very high recovery.