

APPENDIX A

ORE-DRESSING MINERALOGY OF MOINA FLUORITE
COMPOSITE ORE SAMPLE

SUMMARY

A composite head sample of Moina ore has been studied in detail mineralogically to provide basic information relevant to the metallurgical treatment of the ore.

The head sample has the following chemical composition:

	<u>%</u>		<u>ppm</u>
F	8.05 (equivalent to 16.5% fluorite)	Bi	450
Acid-soluble Fe	16.7 (equivalent to 23.1% magnetite)	Mo	45
SiO ₂	30.6	U	4
S	0.33	Au	0.12
P ₂ O ₅	0.06		
Sn	0.13		
W	0.085		

The approximate bulk mineralogy of the head sample is as follows:

<u>Mineral</u>	<u>Wt %</u>
Garnet	25
Magnetite	25
Quartz	20
Fluorite	16
Amphibole	10
Others	4

'Others' includes biotite, chlorite, calcite, feldspar, vesuvianite, pyrite, chalcopyrite, pyrrhotite, arsenopyrite, hematite, goethite, cassiterite and scheelite.

Fluorine is present overwhelmingly as fluorite (traces may be present in micas but no cuspidine was observed), which is less than 50% liberated at particle sizes greater than 33 μm and about 80% liberated in the particle size range minus 17 plus 9 μm. The unliberated fluorite is approximately equally locked with magnetite and with silicates.

Tin is present in both cassiterite and in solid solution in garnet. The tin in garnet is present at low levels, ranging from 0.0 up to 1.3% Sn with an average of 0.26% Sn. Approximately 45% of the tin in the sample is in garnet and, of the 55% in cassiterite, only a very small amount (<5%) is liberated at particle sizes coarser than 9 μm. There is thus little if