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**amdel**

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9 December 1975

The General Manager,  
Comalco Limited,  
GPO Box 2773 Y,  
MELBOURNE. Vic. 3001

Attention: Mr A.H. Bartlett

Dear Sir,

Chemical Treatment of Fluorite Ore

Following his visit to Comalco on 28 October 1975 Dr Keith Henley advised us of your enquiry regarding chemical extraction of fluoride from low grade fluorite ores which are difficult to treat by flotation.

For some time, we have been interested in possible chemical methods for treating lower-grade fluorite ores and concentrates, to produce hydrogen fluoride or other fluorine chemicals, and have been doing preliminary experimental work at our own expense to examine some possible treatment methods.

One process in particular has given promising results. This comprises roasting with a reagent at about 400°C to permit extraction of fluoride in a form that can be converted to aluminium fluoride by known technology. Fluoride extraction of 83 to 89% was achieved in five laboratory experiments, from an ore that has not given acceptable flotation results at Amdel or elsewhere.

The process has several advantages:

- (a) the reaction temperature is relatively low,
- (b) the reagent is fairly cheap,
- (c) the fluoride is readily recoverable,
- (d) the technology for conversion to aluminium fluoride is already established at industrial scale.

We see our preliminary test results as promising and would be glad to continue development of the roasting step for a company with a suitable fluorite ore. We are therefore taking the liberty of submitting to you a proposal for examining experimentally the behaviour of your Moins and Mt Garnet fluorites in this process.