Colorado School of Mines Research Institute

P.O. BOX 112 • GOLDEN, COLORADO 80401
PHONE (303) 279-2581

CSMRI

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CSMRI Project C10704

Mr. W. H. Ashton
Johnson & Johnson
Baby Products Company Research
U. S. Route No. 202
Raritan NJ 08869

Dear Bill:

The purpose of this letter is to report the results of our examination to determine the presence of nickel, cobalt, and chromium in the talc crystal structure of Sample 228P.

NICKEL AND COBALT

Electron microprobe examination of talc grains of 228P was able to detect nickel but unable to detect cobalt in every grain examined. The detection limit of the electron microprobe for a transition group element is approximately 0.1%, and good quantification of the amount of nickel being observed was not possible.

A chemical method of selective dissolution and analysis was therefore devised to obtain good quantitative data on the amounts of nickel and cobalt occurring in the talc lattice. Digestion of a sample in hot 50% nitric acid was followed by digestion in hydrofluoric acid. X-ray diffraction examination of the nitric acid insoluble product before and after acid treatment showed it to be unchanged, e.g., talc plus chlorite. Atomic absorption analysis of the two acid fractions (1. nitric acid soluble, 2. nitric acid insoluble-hydrofluoric acid soluble) gave the following results for nickel and cobalt:

Acid Solution	Wt. % of Sample Dissolved	Ni (ppm)	Co (ppm)
1. HNO_3 Soluble	2.4	30	4
2. HNO_3 Insoluble-HF Soluble	97.6	2050	66

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These data indicate that the majority of the nickel and cobalt occurs in the talc crystal structure and cannot be extracted without destroying the talc crystal lattice.

CHROMIUM

The chromium content of 228P talc has been quantified by dissolving the talc in cold hydrofluoric acid. This method of analysis showed that 100 ppm Cr is present in the talc crystal structure and is not available unless the talc crystal lattice is destroyed.

Please contact me if you have any questions concerning this work.

Very truly yours,

Jerry Krause

Jerry Krause
Senior Scientist
Mining Division

/cjm