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Subjects: Industrial Minerals, Talc, Feldspar, Fluorspar and Cement Raw Materials, Evaluation
Non-Metallic Minerals, Talc, Feldspar, Fluorspar and Cement Raw Materials, Evaluation
Talc Deposits, Evaluation
Feldspar Deposits, Evaluation
Cement Raw Materials, Evaluation
Fluorspar Deposits, Evaluation

Selected References:

1. Olson, Richard H., 1970, Some Factors to Consider in Evaluating Talc Deposits, Society of Mining Engineers (SME), Preprint 70-S-59, AIME, New York. Abstract follows:

Talc, the name for a valid mineral species, means something else to talc miners and processors; i.e. any talc-like rock which can be used to manufacture acceptable products. Talc's many uses may essentially be grouped into two main categories: ceramic or filler-extender. In evaluating talc deposits, the physical characteristics often are more significant than chemical analyses. Steatite, the most valuable of talc ores because of its uses for insulators, fillers, and pigment extenders, is known as large minable ore bodies only in Southwestern Montana. The other four major districts produce relatively minor amounts of steatite and are essentially active only for production of ceramic grades and cheaper fillers. Talc ore bodies commonly occur in terranes of complex structure, necessitating careful mapping and wise drilling. Despite the epigenetic origin of the talc, certain stratigraphic zones may be highly selective hosts; therefore, stratigraphic knowledge must be coupled with the careful field mapping. The characteristic habit of talc ores not to form outcrops is annoying, but experience teaches one how to use float chips and regolith studies to trace possible sources. As with virtually all industrial mineral deposits, non-geologic factors are often more important in evaluating talc deposits than geologic factors. Any steatite deposit in the United States probably could be mined regardless of geographical location and might compete nationwide. Ceramic ore bodies, being much commoner, have relatively restricted market areas.

2. Teague, Kefton H., 1970, Evaluation of Feldspar Deposits, SME Preprint 70-S-14, AIME, New York. Abstract follows:

Commercial feldspar is produced from several source materials: 1) zoned pegmatites; 2) fine-grained, unzoned pegmatites; 3) granites and 4) beach, dune and river sands. All of the different types of deposits should be mapped - both topographically and geologically. In conjunction with mapping, representative samples of all rock types should be collected, studied petrographically, and bulk chemical analysis determined. For zoned pegmatites, from which most potash feldspar is obtained, the size of the core zone, purity of the feldspar, and variety of and abundance of contaminating minerals is most important. Rarely can one zoned pegmatite support a feldspar grinding plant indefinitely. Therefore, it is essential that all of the pegmatites, from which mill feed can be drawn, be studied in a general way to determine the economics of constructing a grinding facility. In geologically evaluating fine-grained pegmatites, granites, beach sands, dune sands, and river sand as a feldspar source, important features to be considered include size of deposit, uniformity of deposit, mineralogy and chemistry of the deposit, as well as geography. Feldspar generally commands a low selling price. Therefore, its location in respect to market, utilities, low cost transportation, water at plant site, and competitor's facilities must be considered. Market trends, competitors' strength, competitors' source material and location of same are all factors which must be considered in evaluating a deposit.

3. Towse, Donald, 1970, Evaluation of Cement Raw Materials, SME Preprint 70-S-30, AIME, New York. Abstract follows:

Cement is a low unit-value bulk product basic to the economics of both developing and advanced countries. The competitive value of a cement raw material deposit depends basically on its location, the transportation to the cement plant, and the cement plant's relation to the market. Because the raw materials costs are a small fraction of total cost to the consumer, other economic factors are of over-riding importance, and the geologist's task is to determine the possibility of technical utilization of a given raw material. Undesirable chemical and mining factors must often be accepted to put together an economically attractive package. In an area feasibility study, knowledge of the habits of rock types liable to be cement raw materials can be used to point out the most probable areas and to predict technical problems.

4. McAnulty, William N., 1970, Evaluation of Fluorspar Deposits, SME Preprint 70-S-63, AIME, New York. Abstract follows:

Few, if any, industrial minerals occur in so many different geological environments as fluorite, CaF_2. Fluorspar, an aggregate of rock and mineral material containing enough fluorite to make a commercial deposit (ore), is somewhat more limited in its modes of occurrence, but it, too, is found in a variety of environments. Fluorite forms under a wide range of temperature and pressure conditions and in a variety of country rocks. The geologist concerned with evaluation of fluorspar deposits needs all the academic training and experience, both geologic and economic, commonly deemed essential for evaluation of metallic ore deposits. In addition, he must have knowledge of metallurgical processes and problems peculiar to fluorspar, the uses and marketable grades of fluorspar, objectionable impurities, and of valuable co-products. Consideration must be given to many geologic and economic factors.