Dry spray lubricant is just one of the many products made from graphite.
Photo by Ellsworth Dickson

BC Mine Planning Early Production

by Kristina Walcott

The Frenier perlite property near Clinton, southern British Columbia. Photo courtesy BBF Resources Inc.

With the exception of the Basin Coal Mine near Princeton, it has been a long time since the residents of British Columbia have witnessed a mine opening, but the new Frenier Perlite Mine may just indicate that mining is on its way back in Canada's western province. The BC government approved bulk sampling and hauling operations for a late 2002 work program conducted by BBF Resources Inc. [BBF-TSXV].

Applications for the 2003 bulk sampling and pilot plant processing operations are underway with early production expected by the end of 2003. The mine will be the only Canadian source of unexpanded perlite available to perlite expanders supplying the horticultural industry in Western Canada. Canadian perlite expanders are currently dependent upon supplies from the United States and Greece, importing 100% of their required usage. Other perlite producers include China, Japan, Hungary, Armenia, Italy, Mexico, the Philippines and Turkey.

Canadian perlite consumption is estimated at 60,000 tonnes per year, and worldwide demand is currently hovering at approximately 2.2 million tonnes, and is expected to increase to 2.5 million tonnes in 2004. *(source: Roskill)*

Perlite is a hydrated, rhyolitic volcanic glass rock. Its most unique feature is its tremendous expansion properties; its average expansion is 20-fold in relation to its volume. Perlite has numerous applications in the construction and horticultural industries. When heated to 1,600° F (871° C), the raw perlite crystals "pop" like popcorn as the encased water vaporizes and creates countless tiny bubbles. These bubbles account for perlite's lightweight. Because perlite is a type of naturally occurring glass, it is chemically inert and has a pH of about 7.

In the construction industries, perlite is used in masonry construction. Besides providing thermal insulation, perlite improves fire ratings, reduces noise transmission and is resistant to termites, vermin and rot. When utilized as an aggregate in concrete, the addition of perlite produces a lightweight, fire resistant, insulating concrete good for roof decks and other applications. It can also be used for under-floor insulation, paint texturing, gypsum boards and chimney linings. Other uses for perlite include ceiling tiles, and the liner for fire doors. The liner itself is comprised of more than 75% perlite and provides a flame resistant and heat resistant barrier.

In addition, perlite can be used as fillers in plastics and cements for petroleum, water and geothermal wells. Perlite can also be utilized as a filter media for pharmaceuticals, food products, chemicals and water for municipal systems and swimming pools as well as an abrasive in soaps, cleaners and polishes.

Perlite is a component of soil mixes that provides for aeration and moisture retention, resulting in superior plant growth as demonstrated by studies conducted at the Soil and Plant Laboratory, Inc. in Santa Ana, California, when compared to pots containing polystyrene beads. Perlite retains approximately 60% of its volume in water. It has also proven to be extremely

effective in hydroponic systems. It may also be used as a carrier for herbicides, fertilizers and pesticides.

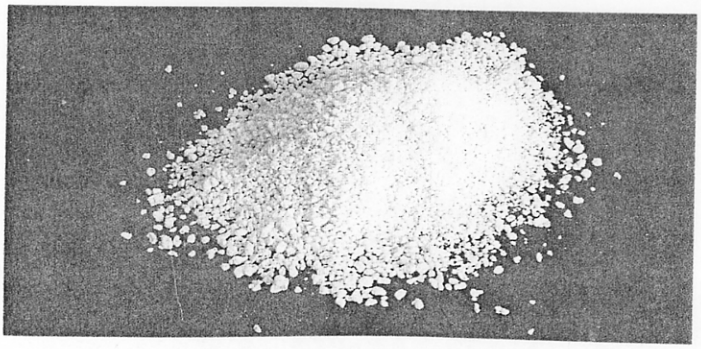
The Frenier perlite deposit is situated approximately 140 km by road northwest of Clinton, southern BC. The property occupies 182 hectares. Calgary-based BBF Resources owns a 100% equity interest in the deposit, subject to share issuances, and future production royalty payments.

Perlite was first discovered on the property in 1949. The property underwent extensive exploration in the 1980s when Aurun Mines undertook an exploration program comprising geological mapping, trenching, and diamond drilling. In addition, Aurun tested a 1,000-tonne bulk sample, the results of which were sufficiently encouraging that a production decision was made in 1984. Between 1984 and 1987 some 5,500 tonnes of perlite ore was processed before the company ceased production. It should be noted that the production shutdown was unrelated to the quality of perlite. In 1991, Mr. W. Kure, a former director of BBF Resources, acquired the property and sold the property to BBF in 2002.

Frenier has two known deposits, the K and the J Zones, both located in rhyolite of Tertiary age. The perlite from both of these zones is of high quality and readily extractible by low-cost, open pit mining methods. Estimated Mineral Resources were indicated by Schindler in 2002 at 330,000 tonnes with an 18.7 expansion factor and 45,000 tonnes in the Indicated Resources category with a 15.0 expansion factor. BBF Resources has staked additional claims in the area surrounding the existing permits to allow for expansion of the project.

Test results from a major US processor of perlite ore confirmed the high grade and commercial quality of the perlite. With the receipt of permits, BBF Resources will proceed with the extraction of a bulk sample that will be processed in a pilot plant with a view to determining the processing characteristics of the raw Frenier perlite. The market acceptance of the perlite products will also be evaluated. The Frenier production will be processed to meet the specifications of expanders servicing horticultural markets as these markets represent a high valued use. Other sized perlite products will be shipped to non-Western Canadian markets for further processing where economic.

BBF Resources is hauling the perlite ore from the mine site to nearby Ashcroft, BC to conduct commercial-scale test runs at an existing industrial minerals processing plant. The ore will be crushed, dried and screened to produce commercial-size product samples for horticultural customers in Canada. If the test runs are successful, the company plans to enter into a long term processing arrangement with the owners of the existing plant or build a similar plant in the area. Pending favourable test results, BBF will conduct a feasibility study leading to commercial production for the Frenier perlite deposit.



Due to its unique characteristics, perlite has numerous applications in the horticultural and construction industries. *Photo by Ellsworth Dickson*