

# Limestone and Gypsum in New Brunswick



## Contact information:

Tim Webb, Industrial  
Minerals Geologist

Department of Natural  
Resources and Energy

P. O. Box 6000,  
Fredericton, N. B.  
CANADA, E3B 5H1

Tel. (506) 453-2206  
tim.webb@gnb.ca

Next time you brush your teeth or touch cement, realize that you are handling two of the most versatile mineral commodities: gypsum and limestone. Directly or indirectly, nearly everything you use in your daily life relies on one or both of these commodities.

Limestone and gypsum both contain the element calcium. Gypsum is a calcium sulphate combined with some water, and limestone is a calcium carbonate.

The term 'limestone' refers to true limestone, but also is used to describe three related substances: dolomite (a calcium-magnesium carbonate), marl (a carbonate-rich mud) and quicklime (an artificial substance made by burning calcium carbonate at high temperatures to produce calcium oxide).

## How Were They Formed?

New Brunswick's gypsum deposits are found within sedimentary rocks of Mississippian age. They were deposited about 325 million years ago, crystallizing from large, slowly evaporating bodies of seawater. More than two dozen gypsum quarries have been worked around Hillsborough in southeast New Brunswick, and near Plaster Rock in the northwest.

Limestone occurs over a much wider span of geological time, and in many areas of the province. Economically important deposits appear in rocks of Carboniferous, Silurian-Ordovician and Precambrian age. The much younger marl deposits are Quaternary in age, and can be found in the west and northwest.

## Producers and Products

New Brunswick's limestone industry manufactures a range of chemical and pulverized products. The limestone is processed in three basic ways. (1) It is pulverized into powder or granules for agricultural purposes, including fertilizer and poultry grit. (2) It is crushed to

variable sizes for aggregate, concrete and other construction end uses, for chemical process stone and flue gas desulphurization. (3) It is burned to produce quicklime, mostly for use by pulp and paper mills. Production has averaged about 600,000 to 700,000 tonnes annually for the last decade.

The province currently has five active limestone quarries, each with its own processing facilities. They are located in Saint John (Brookville Manufacturing Company), Havelock near Moncton (Graymont (NB) Inc. and Lafarge North America Inc.), near Bathurst (Elmtree Resources Ltd.) and near Hampton (Kingsway Materials Ltd.). A fifth company (Upper Kent Lime Works Ltd.) removes marl from a lake bottom northwest of Bath.

Recently there has been renewed interest in re-establishing gypsum production in the province by Plaster Rock Gypsum and Manufacturing Ltd. in northwest New Brunswick and Mactaquac Mining near Albert Mines in south-eastern New Brunswick.

## Interesting Facts

- *Graymont (formerly Havelock Lime) is the only producer of quicklime and hydrated lime in Atlantic Canada.*
- *Elmtree Resources sells some limestone to the Belledune lead smelter to use as a flux for removing silica and other impurities. Elmtree limestone also is used at Belledune and Dalhousie to limit the amount of sulphur emitted from coal-fired, electric power generators.*
- *Gypsum becomes Plaster of Paris when it is heated under the correct conditions. Plaster of Paris can be spread when wet, and then hardens to a rock-like consistency. Wallboard or 'gyproc' is essentially a gypsum sandwich: pieces of heavy cardboard enclosing a thin plaster sheet.*