

Silica

MANITOBA CRITICAL MINERALS

Silica sand, also known as silicon dioxide, is one of the most common minerals in the earth's crust. Silica is used to make glass and as an additive in many other applications, such as Portland cement and brick making. High grade silica is required to produce silicon for use in solar glass panels and computer chips.

The **Manitoba Geological Survey** conducts province-wide geoscience studies and mapping at the deposit and basin scale to improve the understanding of high-grade silica sand occurrence and distribution in the province's nickel discoveries.

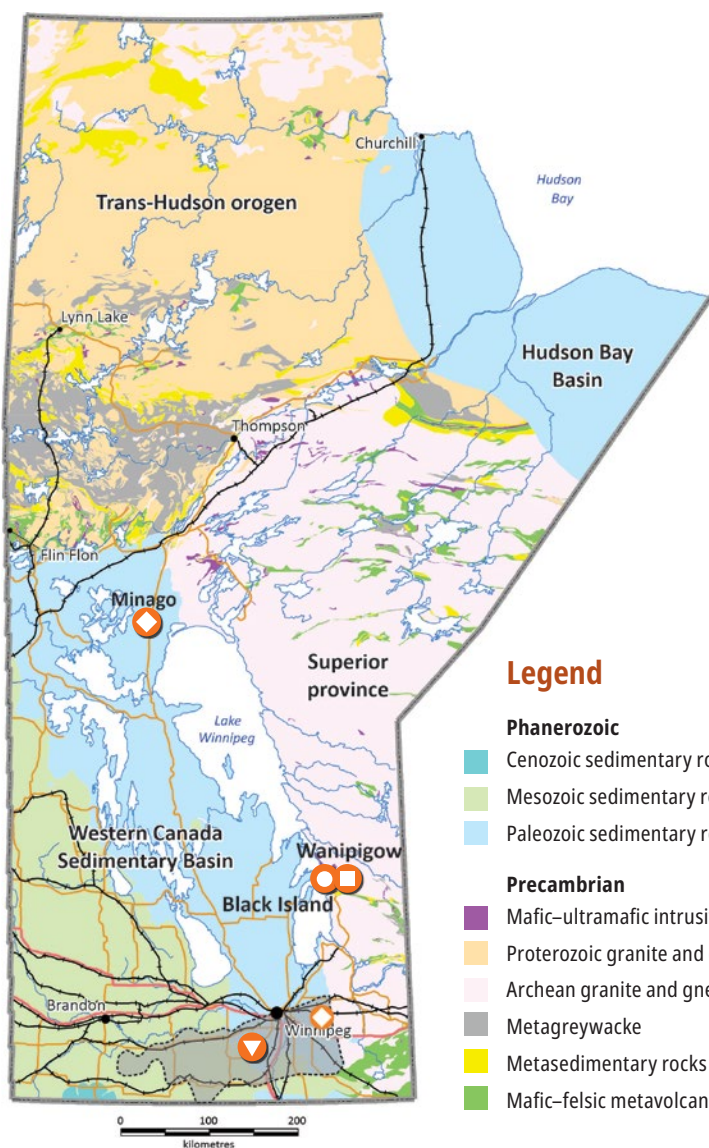


Figure 1: Geological map of Manitoba showing locations of high quality silica sand deposits and occurrences.

Figure 2: Silica sand from the Carman Sand, Winnipeg Formation, southern Manitoba.



Figure 3: Silica sand cliffs on Black Island, Lake Manitoba.

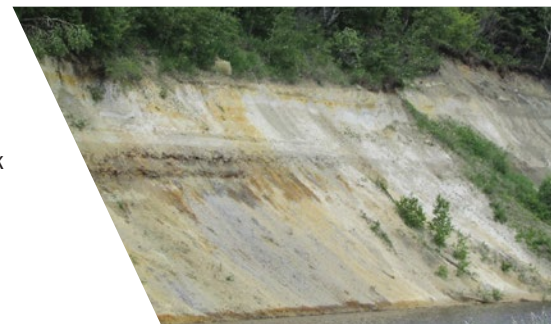




Figure 4:
Silica sand cliffs on Black Island, Lake Manitoba

Southern Manitoba is home to the largest and purest silica sand deposits in North America, with silica values exceeding 99.5%. The Ordovician-aged Winnipeg Formation of the Williston Basin consists of two distinct silica sand units, the basal sandstone unit and the Carman Sand.

Known and explored high quality silica sand deposits:

- Black Island, Lake Winnipeg
- Wanipigow
- Carman Sand
- Minago

Black Island-Wanipigow

Exploration of the Winnipeg Formation along the eastern side of Lake Winnipeg started in 1900 with the first claims staked in 1910 on Black Island. Mining of silica sand on Black Island started in 1929 and continued until the 1990's. The last operators of the quarry was Steel Brother Limited, where they extracted up to 100,000 tonnes of silica sand per year. Glass containers were produced from this sand, including a varieties of green, amber and colourless glass. The sand that occurs on Black Island extends to the east of Lake Winnipeg and is known as the Wanipigow deposit. These deposits are part of the basal sandstone unit in the lower unit of the Winnipeg Formation.

Carman Sand

The Carman Sand is a single, continuous and uniform sand body with an area of approximately 16,000 km², which is largely unexplored; this sand body occurs in the upper unit of the Winnipeg Formation. This high quality silica sand deposit meets or exceed the specification for high purity glass making and silicon production.

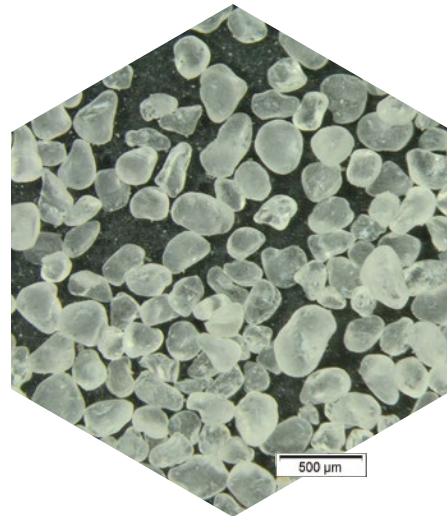
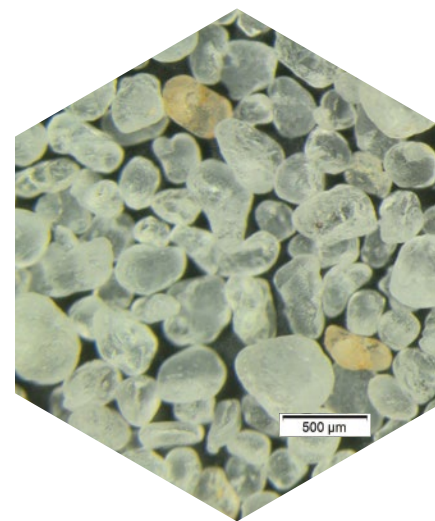


Figure 5:
Close up of silica sand as seen under a microscope from the Carman Sand, Winnipeg Formation, east of the city of Winnipeg.

Figure 6:
Close up of silica sand as seen under a microscope from the lower sandstone unit, Winnipeg Formation from Black Island.



Manitoba is home to world-class deposits and high mineral potential in extensive underexplored terrains.

Learn more at manitoba.ca/minerals

Contact Information

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