



INDUSTRIAL ROCKS AND MINERALS

Then

People in Canada began using industrial rocks and minerals thousands of years ago for tools, weapons, and decorative objects. Chert was used for spear points, arrowheads, and scrapers, soapstone for small carvings and oil lamps, and clay for pottery. Pigments were made from minerals such as copper and ochre. Many of these materials were traded by the aboriginal peoples and ended up far from their original source.

Much later, European settlers also used rocks and minerals in their daily lives – mainly building stone, brick clay, sand, gravel, and limestone. For example, in the late 1600s, limestone deposits were quarried to build forts and buildings in New Brunswick, and in the late 1700s, gypsum was mined in Nova Scotia for use as a soil conditioner. Salt, an excellent food preservative, has been mined in Canada since the 1800s.

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End scraper (top) and knife from the Arctic Small Tool tradition, Arctic Islands



Fort Beauséjour, New Brunswick

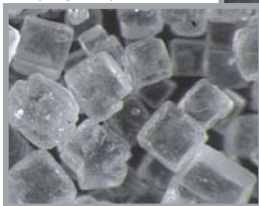
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Load of gypsum, Milford Station, Nova Scotia



EMR-3782

Salt (magnified)



S. McCracken, NRCan

Salt



E. Macey, NRCan



EMR-4899

Salt mine, Goderich, Ontario

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Industrial rocks and minerals are those that have value, but are not used as a source of energy, metals, or gems. So aggregate (sand and gravel) for road construction, limestone for cement, dimension stone (granite, labradorite, or Tyndall Stone) for building material, or ornamental stone (soapstone, argillite, jade) for carving are all well known examples of industrial minerals. But did you know that laundry detergent contains zeolite, soda ash, borax, and other ingredients made from industrial minerals, or that vitamin pills can contain calcium carbonate, magnesium, iron, and zinc, which come from industrial minerals? Limestone is quarried across Canada for building material, but it is also used in paint, paper, rubber, cosmetics, and steel. Gypsum, mined in Canada, is used to make wallboard, cement, fertilizer, and dental moulds. Gypsum can even be found in bread, as a source of calcium!



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A Double Life?



E. Macey, NRCan

Gem and sandpaper (garnet)

The definition of industrial minerals is not as clear-cut as you might think. Many minerals lead a double life. You can find the same mineral doing duty as a sparkling gemstone or as the abrasive agent in sandpaper (garnet); in a metal jet engine or in correction fluid (titanium).



E. Macey, NRCan

Jets and correction fluid (titanium)

Silica sand is used to make glass, cement, and ceramics, but is also used to produce silicon, the backbone of the computer chip industry. Sphalerite is an important ore of zinc, which has industrial applications such as in sun-protection creams and for making rubber and paint.



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Decorative glass (silica sand)

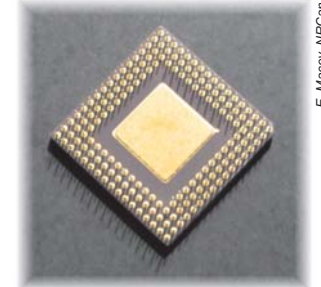


S. Leong, NRCan

In the past, peat was mostly used as fuel, but today it is has many agricultural and environmental uses, from garden-plant mix to water filtration and purification. It is even found in some cosmetics.

Minerals such as diamond, corundum, and beryl may be either gemstones or industrial minerals. Diamonds that are not gem quality are used in cutting tools and drill bits; sapphire and ruby are the gem varieties of the mineral corundum, commonly used as an abrasive; and emerald is the gem variety of the mineral beryl, which is also a source of beryllium used in the nuclear, electronic, and ceramic industries.

Silicon and gold-plated computer chip (silica sand)



E. Macey, NRCan



S. McCracken, NRCan

Mid-1800's millstone (sandstone), Inglis Falls Conservation Area, Ontario



E. Macey, NRCan

There are lots of minerals in toothpaste



Light bulb filament (tungsten)

S. Leong, NRCan

DID YOU KNOW?

Peat moss harvested in Newfoundland is used throughout the world to clean up oil and chemical spills
Sifto Canada Inc.'s mine at Goderich, Ontario is the largest underground salt mine in the world and can produce 6.5 million tons of salt annually

Toothpaste is full of industrial minerals - bauxite, silica, calcium carbonate, trona, fluorite, ilmenite or rutile, mica, cassiterite, various phosphate minerals, and petrochemicals (from oil and gas)