

# Nesodden quartz

**N**ordic Mining ASA plans to produce high purity quartz at its hydrothermal quartz Nesodden deposit near the city of Kvinnherad, Hordaland County, in Western Norway.

The Norwegian company is planning detailed mapping of the deposit, which has estimated resources of 2.7m. tonnes quartz on a 12.6km long quartz vein reaching 150 metres depth.

"Since we are at a very early stage possible production is still some time to come, but we would like to put effort into moving the project forward," Nordic Mining's project manager Mona Schanche told IM, adding that the company "will be looking at a smaller scale type mining for this type of deposit" in terms of tonnage.

The deposit being owned by local landowners by law (this goes for all non-metallic deposits), Nordic Mining has entered into agreements with them for investigating and developing the deposit. Nordic Mining has therefore agreed on investigation terms with the landowners and also on having the first right for developing the resource, a standard proceeding for deposits that are not state owned.

## Geology & mineralogy

The Nesodden hydrothermal quartz vein is situated in Proterozoic basement rocks in the south of the Hardanger Fault Zone (HFZ). The HFZ is a 600-km long Caledonian ductile shear zone.

The deposit appears along a 5-km long and 20-50-metre wide fault in a hillside, between 210 and 320 metre above sea level. The fault runs parallel with the fjord in northeast-southwest direction.

The quartz zone is a hydrothermal vein – a crack in rock filled with minerals precipitated through the action of circulating high-temperature fluids – about

600 metres long and on average 12 metre wide with a dip of 80-85 degrees to the northwest. A cross cutting of the deposit in the hillside shows that the deposit is at least 150 metres deep. The surrounding bed rock is granitic gneiss.

There are inclusions of granitic gneiss along the contact with the side rock at some locations. The quartz zone has been sampled and analysis show a quartz with high purity. Preliminary resource estimates show 2.7m. tonnes of hydrothermal quartz.

## High purity quartz

The quartz has a low content of contaminants – such as titanium, alumina, potassium, germanium, sodium, iron, lithium and boron – and therefore "can be regarded as high-purity type quartz", according to preliminary studies from the Geological Survey of Norway (NGU) and the Norwegian University of Science and Technology (NTNU).

"Our analysis of the deposit shows that the quartz appears to be of a very pure type. This supports our hypothesis of the potential for high-grade quartz deposits of commercial significance in Norway," Rune B. Larsen, professor in ore geology at NTNU, said.

"High-grade quartz is a strategic mineral with increasing demand, especially for applications in electronics and renewable energy. We intend to increase significantly our knowledge of the market potential for the deposit during 2011," Nordic Mining's CEO Ivar S. Fossum added.

High-purity quartz is used in high-value products such as in the electronics and solar cell industries.

This will come as good news for consumers as there is substantial demand for high purity quartz owing to solid market demand and a limited



number of producers in the world, mainly in the USA, Norway, Russia, and Brazil.

## Opportunities

"The opportunity is to bring into production a new source for high purity quartz as a strategic commodity for high technology products", Schanche explained.

However, the company still has "to get a better understanding of the deposit, how to mine it and how to process a high grade product."

Nordic Mining plans to target the solar cell industry and other value added products such as electronics which are interesting in high purity quartz.

At present, the company does not plan to make any joint venture to develop the deposit although "this could be a way to move forward with the project".

In Norway, Norwegian Crystallites AS has been producing high quartz for high-tech end uses since 1996 at its Drag plant in the mountainous Tysfjord area in the county of Nordland above the polar circle in Northern Norway.

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Professor Rune B. Larsen from NTNU at Nesodden quartz deposit: "The quartz appears to be a very pure type"