

In-situ petrographic description of banded iron formation and skarn-hosted Fe ore on Utö, Bergslagen

Mattias Barkelius^a, Iain Pitcairn^a, Robert Dunst^a and Alasdair Skelton^a

^aDepartment of geological sciences, Stockholm University, Stockholm, Sweden, mattias_barkelius@hotmail.com

The island of Utö, situated east of Nynäshamn in the Bergslagen Lithotectonic Unit (BLU), has long been studied by geologists for its remarkable representation of Bergslagen's geology (Talbot 2008). It is home for multiple ore types commonly seen in the BLU – Banded Iron Formations (BIF) and skarn-hosted Fe-oxide and base metal sulphide ores (Allen et al. 1996). Utö is the type locality for multiple minerals, including petalite, holmquistite, spodumene and Mn-tantalite, the first three of which are Li-bearing. The Li-minerals were found in Li-pegmatite- and aplite dykes that crosscut the mines, and from petalite, the element lithium was first isolated and discovered by Arfwedson in 1817. Modern studies of the island's ore deposits are lacking and much of the studied material has little textural context as the samples come from mine waste.

We present petrographic descriptions of a series of drill cores sampling the Utö ore bodies from the SGU archive. 60 polished thin sections were prepared from three drill cores, with special focus on borehole U1737 that intersects the BIF. The thin sections were studied using the petrographic and scanning electron microscopes in order to identify mineral assemblages, textural relationships, establish the timing of growth of different minerals and characterize the stratigraphy. Of particular interest is the Li-amphibole holmquistite, that is found in banded Fe-oxides (Fig. 1) and volcanic ash siltstones, similar to that described by Pilava-Podgurski (1955).

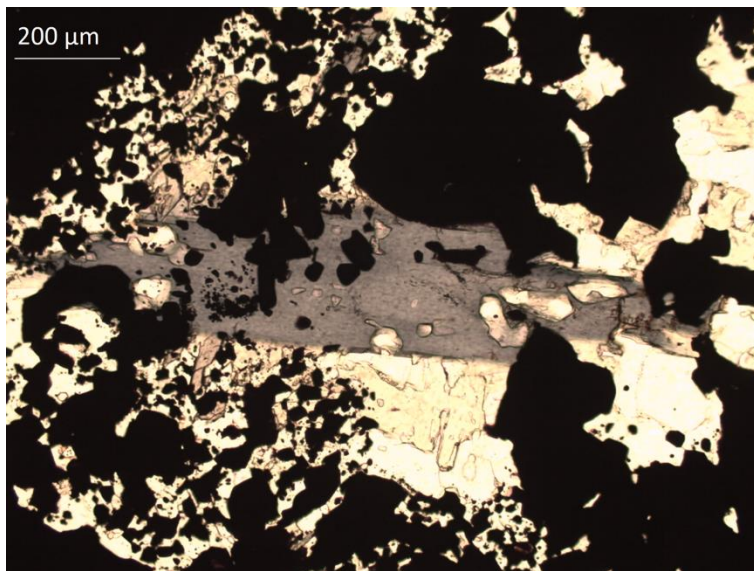


Figure 1. Holmquistite in skarn-altered BIF from drill core U1737.

References

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