

Contributions to the mineralogy of the syenite pegmatites in the Larvik Plutonic Complex

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The book covering the mineralogy on the syenite pegmatites of the Larvik Plutonic Complex was published three years ago (Larsen 2010). Since then, several species new to the district or new to science have been found and verified. This paper briefly describes these new species. The number of documented species found in the syenite pegmatites in the Larvik Plutonic Complex is now close to 210.

Pyrrhotite

Because of an inadvertence, the description of the mineral pyrrhotite was unfortunately omitted in the book "The Langesundsford" (Larsen 2010). Here is the text as it should have been published.

Pyrrhotite

Fe_{1-x}S ($x = 0 - 0.2$)

Crystallography: Pyrrhotite occurs as several polytypes. The two most common polytypes are:

- 1) Monoclinic (prismatic), $C2/c$, $a = 11.90$, $b = 6.87$, $c = 22.88 \text{ \AA}$, $\beta = 90.3^\circ$
- 2) Hexagonal (dipyramidal), $P6_3/mmc$, $a = 3.44$, $c = 5.75 \text{ \AA}$

XRD patterns of pyrrhotite from Håkestad and Melau show pure monoclinic polytype, while pyrrhotite from Thorstein is a mixture of monoclinic and hexagonal polytypes.

Colour: Bronze-yellow

Streak: Dark greyish black

Lustre: Metallic on fresh surfaces, but tarnishes quickly.

Tenacity: Brittle

Cleavage: Good parting on $\{0001\}$

Fracture: Uneven to subconchoidal

Hardness: 4

Density: 4.7 g/cm^3

Remark: Weakly magnetic

Pyrrhotite was probably first observed in the syenite pegmatites in the Larvik Plutonic Complex around 1975. The mineral crystallized during the hydrothermal stage of the pegmatite formation, and occurs associated with zeolites and other sulfides.

Pyrrhotite is a relatively rare mineral in the syenite pegmatites in the Larvik Plutonic Complex. In certain pegmatites in the Thorstein and the Melau quarries in Brunlanes, however, massive pyrrhotite occurs quite abundant together with pyrite and minor amounts of chalcopyrite and molybdenite. Sulfides fill several cm wide fissures, cracks and spaces between the earlier crystallized minerals. Pyrrhotite has been found in as masses up to 1- 2 cm in the Håkestad quarry in Tjølling. Small amounts of pyrrhotite have been observed in an E-18 roadcut at Rønningen in Eidanger. Pyrrhotite has been found in the Saga I quarry, Mørje and the Tuften quarry, Tvedalen area in very scarce amount as tabular hexagonal crystals up to 1 mm across. Subhedral crystals of pyrrhotite up to 2 mm across have been found in a hydrothermally altered pegmatite in the Østskogen quarry in Tvedalen. The mineral was associated with minor amounts of chalcopyrite, and embedded in chlorite and finely scaly muscovite. Small pyrrhotite crystals have been observed in the Saga Pearl quarry in Tvedalen. Pyrrhotite has also been found at Bratthagen in Lågendalen.