

CHEMICAL DATA ON SOME ROCK-FORMING MINERALS FROM HIGH-GRADE GNEISSES, AMPHIBOLITES AND ANORTHOSITES FROM THE FISKENÆSSET AREA

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The area mapped by the writer is situated to the west of Fiskenæsset and lies in the boundary zone between granulite and amphibolite facies rocks (see Kalsbeek, this report). In the north a creamy- to pink-weathering gneiss, commonly containing hypersthene and biotite is the chief rock type. In the south small-folded, pale-grey-weathering biotite-hornblende gneisses are predominant. Amphibolite is of common occurrence in layers, pods and agmatite. The areal extent of the anorthosite-pyribole complex as previously outlined by reconnaissance mapping (Ghisler & Windley, 1967) was confirmed in general but modified in detail. Additional occurrences of rocks belonging to the complex were found.

As chemical data on rock-forming minerals from West Greenland are extremely scanty some results of electron microprobe analyses of selected minerals hand-picked from samples collected in the field are presented below.

Garnet. As might be expected in a terrain largely of granulite facies grade, the garnet is typically a magnesian almandine, with up to 36 per cent of the pyrope molecule. Also notable are a spessartine-rich magnesian almandine from a granitic layer in garnet pyribole and a grossularite from a clinopyroxene-garnet vein in anorthosite (these late veins are common in anorthosite bodies throughout the Fiskenæsset area). Analyses were made for Si, Ti, Al, Fe, Mn, Mg and Ca (Cr was sought but not detected) and end-member compositions have been calculated assuming that all the iron is divalent and that all the titanium is present as the titanium andradite molecule.

Garnet 1	Alm ₆₀ Gross ₁₇ Py ₂₁ Spess ₂	– from hypersthene gneiss
2	Alm ₆₅ Gross ₄ Py ₂₆ Spess ₅	– from pegmatite in hypersthene gneiss
3	Alm ₅₅ Gross ₁₉ Py ₂₄ Spess ₂	– from pyribole (not associated with anorthosite)
4	Alm ₅₈ Gross ₂₉ Py ₈ Spess ₅	– as above
5	Alm ₆₁ Gross ₃ Py ₂₇ Spess ₉	– from granitic layer in garnetiferous pyribole (not associated with anorthosite)
6	Alm ₄₉ Ti-Andr ₁ Gross ₁₂ Py ₃₆ Spess ₂	– from layered chromite-bearing anorthosite
7	Alm ₁₄ Ti-Andr ₁ Gross ₈₃ Py ₁ Spess ₁	– from pyroxene-garnet vein in anorthosite

Pyroxene. The two *clinopyroxenes* analysed – one from a pyroxene-garnet vein in anorthosite (coexisting with garnet no. 7 above), the other from pyribolite (cf. coexisting garnet no. 3) – are salites of similar compositions, $\text{Ca}_{49}\text{Mg}_{31}\text{Fe}_{20}$ and $\text{Ca}_{46}\text{Mg}_{34}\text{Fe}_{20}$, respectively. *Orthopyroxene* from hypersthene gneiss of the Hellefiske Øer is a hypersthene of composition $\text{Ca}_1\text{Mg}_{52}\text{Fe}_{47}$, Al_2O_3 1.8%.

Amphiboles from two specimens of anorthosites – one gabbroic, the other layered – were analysed. Both are magnesio-hornblendes (classification of Leake, 1968) and have the formula $(\text{Ca}_{1.7-1.8}\text{Na}_{0.3}\text{K}_{0.1-0.04})(\text{Fe}_{1.6}\text{Ti}_{0.1}\text{Mg}_{2.9-3.1})(\text{Si}_{6.6-6.8}\text{Al}_{1.4-1.2})\text{O}_{23}$. (Chromium was sought but not found).

Plagioclase coexisting with the amphiboles is An_{79-82} . (Iron and chromium were sought but not detected).

References

- Ghisler, M. & Windley, B. F. 1967: The chromite deposits of the Fiskeneset region, West Greenland. *Rapp. Grønlands geol. Unders.* **12**, 38 pp.
- Leake, B. E. 1968: A catalog of analyzed calciferous and subcalciferous amphiboles together with their nomenclature and associated minerals. *Spec. Pap. geol. Soc. Am.* **98**.

FIELD INVESTIGATIONS IN THE JULIANEHÅB GRANITE ON THE NUNATAKS NORTH-WEST, NORTH AND EAST OF NARSSARSSUAQ, SOUTH GREENLAND

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Pre-Gardar basement

Before the compilation of the Narssarssuaq sheet (1:100 000) could be finished, about 900 km² of high mountainous terrain in the north-western, northern and eastern parts of the sheet area had to be mapped.

Important occurrences of supracrustal rocks have been found in three different places. One, north-west of Narssarssuaq, consists of interbanded amphibolite, semipelitic gneiss and aplitic gneiss. The two other occurrences, both in the north, consist of acid and also some intermediate porphyritic metavolcanics alternating with layers of pyroclastic rocks and aplitic gneiss.

An area exclusively consisting of aplitic gneiss has also been mapped north-west of Narssarssuaq. The original supracrustal characteristics of this gneiss are not evident, but the close similarity to the aplitic gneiss associated with the acid meta-