

# Ruby, Pink Sapphire and Rare Mineral Localities in West Greenland

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## Summary

Numerous localities of rare aluminous and magnesian minerals have been known throughout the Archean of southwest Greenland since regional mapping in the 1970's. They consist of varying amounts of sapphirine, spinel, corundum, kornerupine, cordierite, plagioclase, sillimanite, kyanite, orthopyroxene, forsteritic olivine, magnesian-aluminous clino- and orthoamphiboles, phlogopite, chlorite, and sometimes diopside and clintonite, högbomite, tourmaline and garnet with numerous auxiliary and accessory phases. Their number and extent has increased since mining exploration returned to the area in 2004. The highest concentration of rare mineral pods and zones, ranging from less than 1 metre down to microscopic, and up to kilometres in length, is in the Fiskensæset region, defining a 50 km by 100 km terrane of amphibolite- to granulite- grade rocks within which folded and thrust horizons of layered and chromite-bearing gabbro-anorthosite intrusions occur. Mafic-ultramafic pods and layers, and magnesian/calcic/aluminous sedimentary protoliths have interacted with chromiferous magmatic fluids along the upper anorthositic margins of the intrusions, and with late granodioritic regional pegmatites and their fluids, to form the rare assemblages (Schumacher et al. 2009).

Over 100 localities including several extensive zones have been discovered of which most contain potential gemstones such as ruby, pink sapphire, sapphirine, spinel, kornerupine, kyanite or cordierite. A few contain abundant dark red ruby mainly in chromian clinoamphibole-plagioclase-sapphirine rocks, and rich concentrations of pink sapphire in assemblages dominated by gedrite, cordierite, sapphirine, kyanite and sillimanite, all with phlogopite.

Exploration has defined a number of localities that may be suitable for mining the rubies and pink sapphires, and markets for these are being tested. Interest in all the gemstones from the area is likely to increase. An outstanding question is where the extension of the Fiskensæset region may be found in Canada. Exploration for diamonds in Canada has yielded ruby corundum in heavy mineral concentrates.

## References

Schumacher, John C., Probst, Anna C., Keulen, N.T., Van Hinsberg, V.J., Windley, Brian, and Herd, R.K. , 2009, Origin of ruby-bearing and related aluminous assemblages in southwest Greenland: Geological Society of America Abstracts with Programs, 41 (7), p. 358 .