

**Petrography and Mineral Chemistry of the Perhentian Kecil Syenite,  
Perhentian Kecil, Besut, Terengganu**

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The Perhentian Kecil syenite consists of a variety of igneous rocks ranging in composition from syenitic to monzonitic to gabbroic rocks. The essential minerals in Perhentian Kecil syenite are K-feldspar, plagioclase,

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hornblende, pyroxene, quartz, biotite, sphene, epidote, apatite, zircon and magnetite. Composition of K-feldspar in the Perhentian Kecil syenite is near to pure orthoclase with An percentage less than 1%. Plagioclase compositions range from oligoclase-andesine ( $An_{27.2-37.3}$ ). Magnesio-hornblende is the main amphibole type and the crystals show an increase of  $TiO_2$  and  $Al^{iv}$  and decrease in CaO from core to rim. The deduced magmatic crystallisation interval for the hornblende in the Perhentian Kecil syenite range from 660 to 780°C ( $\pm 70^\circ C$ ). Composition of the sphene plot in the igneous sphene field are similar to those from the Victoria Range granitic rocks, south island New Zealand. Apatite can be divided into clear and clouded parts. Chemical analysis of the clouded part has higher  $SiO_2$ ,  $K_2O$ ,  $Fe^{tot}$  and BaO, and both CaO and  $P_2O_5$  have wider range in the clouded part compared to the clear part.