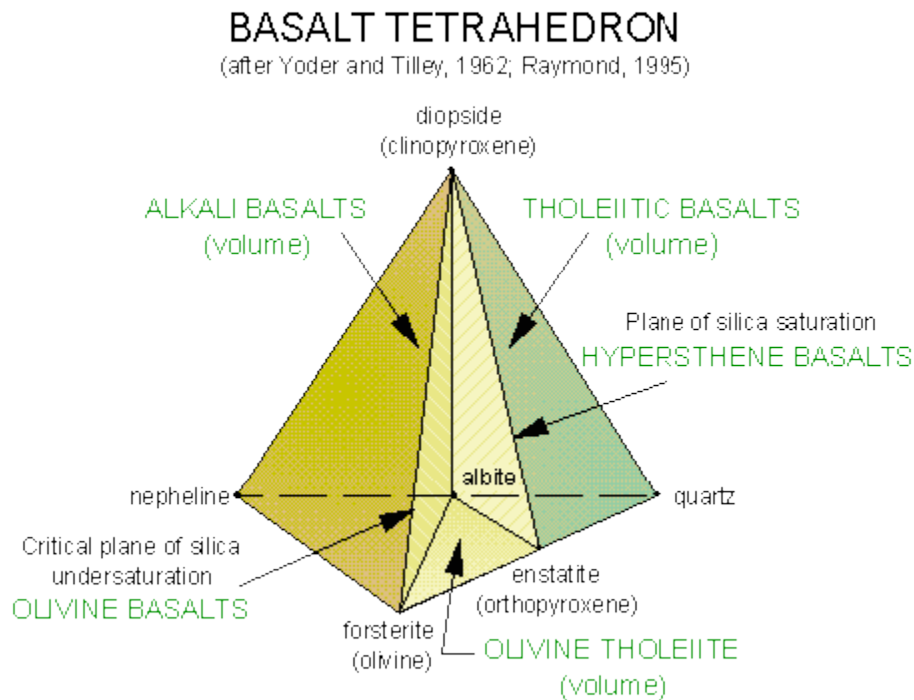


BASALTIC ROCKS CLASSIFICATION

The primary classification of igneous rocks is based on silica content. Mafic igneous rocks contain between 52 – 45% SiO₂. Extrusive rocks which fall in this category are called basalts. Basalts are commonly divided into (Raymond, 1995):

- alkali olivine basalts (alkaline basalts) - enriched in olivine and calcium pyroxene (augite);
- tholeiitic basalts (subalkaline basalts) - low olivine and enriched in calcium-poor pyroxene (hypersthene, pigeonite)



Basalts form in three basic settings: rift zones, subduction-compression related settings (not as common), and intraplate (hot spot) settings (Raymond, 1995). The mineralogy and chemistry of these settings differ, and these parameters can be used to interpret the tectonic setting of ancient rock assemblages, which in turn allows us to reconstruct the geological history of an area. Most rift-related rocks tend to be tholeiitic, whereas intraplate volcanism and compression related settings produce more diverse basalts. Trace element chemistry is quite also useful in interpreting the magma source and geological setting of basalts.