Geological characteristics and genesis discovery of native copper in East Tian Mountain, Xinjiang, P.R. China

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The Dongtianshan copper is a type of mineralization belt newly found by work in recent years. The copper from Shilipo, Dongtianshan is found in maroon basaltic tuff. Through analysis of the geochemical characteristics show the formation of Dongtianshan copper relates to the mineralization of the mantle plumes.

The main elements of two mineral occurrences are of the similar content characteristics. The K_2O and Na_2O content in Shilipo is apparently lower than that of Heilongfeng, but is similar to that of Bingdao volcanic rocks. Compared the copper-bearing basalt with Bingdao basalt, the MgO content of Dongtianshan basalt is relatively low, in the range of 3.06%-3.61% while the MgO content of Bingdao basalt is 7.53%-12.24%. To the alkali content, the Bingdao basalt has high Na_2O, but no high K_2O

The copper-bearing basalt from Dongttanshan shows the LR/ HR of 11.29×10^{-6} and 11.58×10^{-6},a little higher than the values of Bingdao basalt. However, the content values of the MREE and HREE have not much difference between Dongtianshan basalt and Bingdao basalt and show the relatively strong comparability. The Emeishan basalt with the LR/HR of 41.21×10^{-6}. In the curve ofn, Emeishan basalt presents the right-inclined shape of LREE slight concentration. The REE partition pattern of Cu-bearing basalt from Dongtianshan has the fairly strong comparability with the REE partition curve of the Bingdao basalt related to mantle plumes, reflecting the characteristics of the mantle magma.

It is considered that the copper-bearing basalt of Dongtianshan is from mantle sources and possesses the similar characteristics to the mantle plumes.

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Water pollution treatment of chinese highway tunnel construction

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The damage to water environment in highway tunnel construction is mainly manifested in two aspects: the destruction of groundwater system in the tunnel area and wastewater pollution generated in the process of highway tunnel construction. The steady-state of groundwater system in the tunnel area must be destroyed in the process of highway tunnel construction, and the highway tunnel will become the natural channel discharging underground water. The waste water generated in the process of highway tunnel construction will also pollute groundwater system in the tunnel area and damage surrounding environment.

Water pollution treatment mainly focus on the six aspects: (1) construction and domestic garbage must be stacked centrally; (2) the domestic sewage can be discharged only after it is disposed; (3) the settling ponds should be build in the tunnel area; (4) the storehouse storing grease must be make anti-seepage treatment; (5) mechanic waste oil should be recycle or carefully dispose; (6) the management of chemical grout must be strengthen.

Taking the route that can develop continuously is the inevitable choice of 21 centuries China. To the sustainable development, the water environmental protection is of critical importance. The highway tunnel construction and water environmental protection go hand in hand only if we must consider the characteristic of the highway tunnel to perfect construction technology and take corresponding water environmental protection countermeasure.

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