Significance of Discovery and Exploitation of Kaolin Deposit in Jindezhen, China

Chen Guo-quan; Chen Mao-song
Trading Center for Land & Resources of Jiangxi, Nanchang, Jiangxi, 330000, China

The porcelain making technology of Jindezhen in China, which started in Han Dynasty, grew up in Tang Dynasty, prospered in Song Dynasty and prevailed in Ming and Qing Dynasties, is famous all over the world. Its porcelain making raw materials were mainly taken from a kind of clay at the Kaolin village of Jindezhen City, China. *Discussion of Kaolinite and Fine Piece of Haolin (1869)* of Johnson and Blake firstly named the clay minerals constituting kaolin as Kaolinite. Since then, “kaolin” has been stretched into the mineralogical field from the ceramics circle. Chemical formula of kaolin is $\text{Al}_2\text{O}_3\cdot2\text{SiO}_2\cdot2\text{H}_2\text{O}$, being a kind of aluminosilicate mineral. The kaolin from processed and dissociated kaolin ore are widely used in ceramics industry. Crafts ceramics products as eggshell china, sculpture china and imitative ancient china produced in handmade porcelain craft in Jindezhen of China enjoy a good reputation of “being white as a jade, thin as a piece of paper, bright as a mirror and sounding like Qing” and were sold over forty of countries and regions around the world.

About one thousand years of kaolin ore excavating has made the kaolin ore resource in Jindezhen faced with exhaustion. In recent years, the parties concerned have strengthened the kaolin ore prospecting in the area. Three million tons of reserve of kaolin ore resource has been newly increased by the prospecting and exploration of the Ehu kaolin deposit. The kaolin ore in the Ehu kaolin deposit has a chemical composition of 17.18% $\text{Al}_2\text{O}_3$ and 1.24% $\text{Fe}_2\text{O}_3+\text{TiO}_2$, natural whiteness of 64.5%–66.6%, roasting whiteness increased by an average of 15.30%, a dry strength of 2.3Mpa, an coefficient of drying shrinkage of 4.8%, a plastic index of 4.8% and plastic water of 28.8%, which represent the ore is of higher quality. The evaluation of the kaolin deposit in the ore field powerfully guarantees the supply of ceramic industry raw material in Jindezhen, which is of far-reaching significance for the traditional ceramic industry development in Jindezhen.
Fig. 1 raw ore of the Ehu kaolin deposit
Fig. 2 concentrate of the Ehu kaolin deposit
Fig. 3 vase of ceramic art
Fig. 4 table ware of china