Gyeryong Mountain Chulhwa Buncheong Ware 2

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# Gyeryongsan Buncheong Ware

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4. Buncheong Bottle with Vein Design in Underglaze Iron The National Museum of Korea 粉青沙器鐵畵唐草文瓶



5. Buncheong Jar with Vein Design in Underglaze Iron The National Museum of Korea 粉靑沙器鐵畵唐草文壺



17. Buncheong Ridge Jar in Underglaze Iron Busan Museum 粉青沙器鐵畵文耳壺



28. Buncheong Flat Jar with Ginseng Leaf Design in Underglaze Iron Saga Prefectural Nagoya Castle Museum 粉青沙器鉄絵人参葉紋俵壺



Picture 8. Excavation Condition of Chulhwa Material Test Sample 5 (A) Heuk-to (B) Juto Soil of Ulleung-do (C) Hwang-to of Gilmyeong-ri (D) Geomjeong Johap-to



Picture 9. Excavation Condition of Chulhwa Material Test Sample 6 (A) Uitsagi-gol Clay (B) Heuk-dol of Geoncheon-ri (C) Yongam-to of Geoncheon-ri (D) Beoseot-to of Geoncheon-ri



Picture 10. Excavation Condition of Chulhwa Material Test Sample 7 (A, B) Huin-dol of Geoncheon-ri (C) Heuk-dol of Gwangan-ri (D)Heuk-dol of Hantangang river (processed)



Picture 11. Excavation Condition of Chulhwa Material Test Sample 8 (A) Imari Seokganju (B) Imari Celadon Clay (C) Izumi Yama (D) Garatsu Seokganju



Photo 37. Yongdam-ri Clay

#### Comparative Analysis Iron Containing Mineral (Seokganju) of Each Region

Chulhwa Material (Seokganju)

Design Procedure : Refined Materials above Bisque Fired Shard (Moltal technique) Chulhwa Material : Seokganju of Each Region (Based on Historical Research and Document) Bisque Fired Ware : Mixed Onggi Clay with Red Clay (50 : 50) Size : 195x195x167mm Firing Temperature : 850°C



Gwangan-ri Basalt



Geumam-ri, Jincheon



Gwangju Clay



Gongju Clay

## **Thermal Analysis(DTA-TG)**

In this research, a Differential Thermal Analysis(DTA) and Thermogravimetry(TG) were conducted to analyze the mineral transmissions according to thermal changes. Each test sample was ground to under 2µm and underwent a thermal analysis from room temperature to 1,000°C at a heating rate of 10°C/min. Each material showed its own distinctive DTA-TG curve and weight reduction rate. In the case of Yongdamri clay, the largest weight reduction happened between room temperature to 150°C and it was estimated to be due to the dehydration of absorption water, according to the differential thermal analysis result. The temperature range where the second largest weight reduction happened was beween 350°C~550°C and was estimated to be due to the continuous dehydration of absorption water. Generally, most of the clay showed endothermic peaks in the low temperature range of 100°C~200°C and, once again, the second endothermic peaks happened between the high temperature of 500  $^\circ$ C $\sim$ 600°C. As the clay mineral became recrystallized, it showed its exothermal peak at around 900°C.

Also in the case of the Yongdam-ri clay test sample, the exothermal peak was confirmed to be around 900°C due to the recrystallization of clay minerals. Also, due to the  $\alpha \rightarrow \beta$  transition of quartz, differential thermal analytical curves showed sharp endothermic peaks around 573°C(Picture No.42).

Weight loss : 1,70wt,%

600

600

800

800

1.6

0.4

emp 1.2

ature 0.8

differe

ice(°C/mg)

α

nperature 0.5

0

difference(°C/mg)







Photo 39 Gyeryongsan Basalt

The Second Firing Result of Iron Containing Mineral (Seokganju) Firing Condition : Reductive Firing Size : 175X175X165 Firing Temperature : 1230°C

The Second Firing Test Result of Iron Containing Mineral (Seokganju) of Each Region



Jeok-to of Gongju



Ulleung-do Seokganju



Volcanic Rock of Ulleung-do



Hwang-to of Gilmyeong-ri



Elvan of Dochon-ri



Heuk-to of Dochon-ri



Geoncheon-ri Seokganju



Beoseot-to of Geoncheon-ri



Huin-dol of Geoncheon-ri

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