

Making Aritayakiai



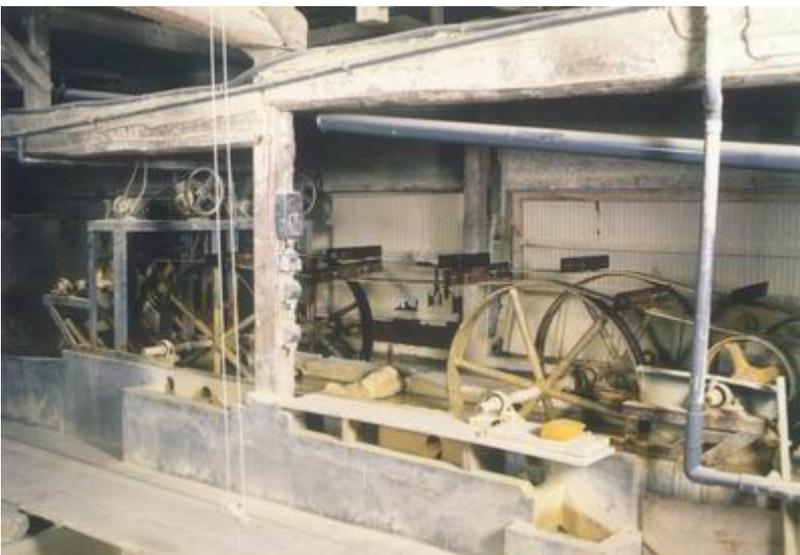
1 Quarrying

Kaolin rocks of Izumiyama are open cut. The rocks are washed in water, cracked with a hammer, and sorted according to the quality of their cracked surfaces. Today, kaolin rocks from Amakusa are also used.



2 Crushing

Kaolin rocks are crushed, then ground to fine powder with a stamper.



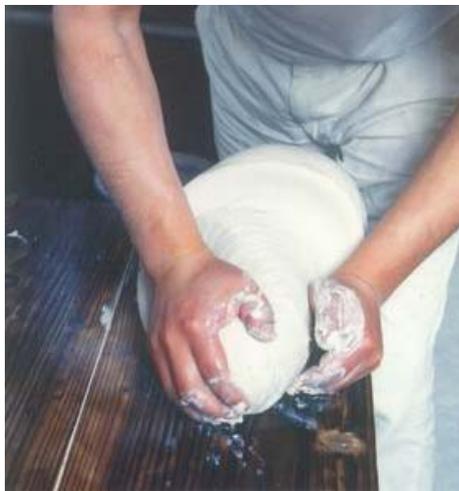
3 Precipitating and filtering

First, kaolin powder is mixed with water. Then the solution is precipitated and its supernatant fluid flows in a long tank and is filtered with a fine mesh to remove iron ingredients and other impurities. Thus good kaolin clay is obtained, which is easy to form.



4 Filter-pressing

Extra water is removed to make clay of adequate firmness.



5 Clay kneading

Clay has to be kneaded well to blend its particles and moisture and to remove all bubbles. Articles made of well-kneaded clay will not crack or distort when fired.



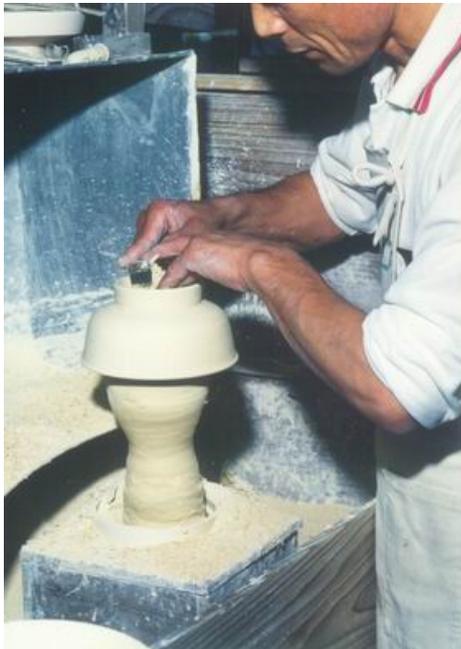
6 Forming

This is the most important operation in the entire process of porcelain manufacturing. Most of Arita's porcelain is formed by using lathes.



7 Body decorating

Various decorative techniques as carving, lines engraving by using a comb, cutting holes, adding small knobs, etc., are performed on the articles at the appropriate degree of dryness.



8 Paring

At this stage, the formed articles are still moist and must be finished by hand paring. According to the shapes of the articles, bottom rim paring, surface paring, knob making, edge finishing, and other finishing touches are added.



9 Wiping

The surfaces of the articles are carefully wiped with wet cotton cloth or deer skin until extremely smooth, before the under-glazing and glazing are applied.



10 Drying

If the articles are dried quickly, cracks may occur due to shrinkage. So the articles are put on long boards and allowed to dry in the shade or the sun.

11 Low-firing

Prior to high-firing, the articles are low-fired. The temperature inside the kiln is gradually Low-firing is done at 900c.

12 Removal from kiln

The low-fired articles are gradually cooled in the kiln, and then taken out and carefully inspected.



13 Underglaze mixing

The most important operation of the porcelain painters is to determine how to mix the underglaze with water. There are two kinds. One is for drawing (outlining patterns) and the other it for painting (filling in of shading the pat terns).



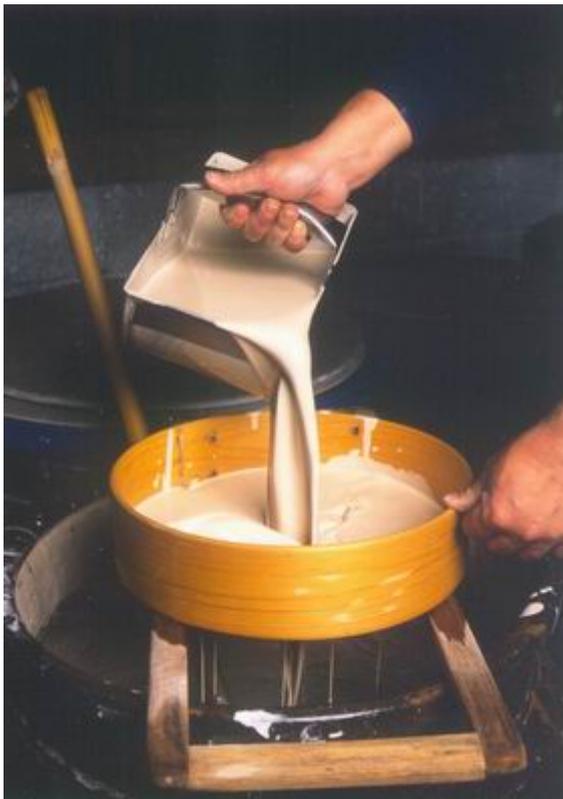
14 Underglazing (drawing)

"Gosu" is used as blue underglaze.

The main ingredient is cobalt oxide. After firing gosu turns blue. Low-fired articles absorb water, so that it is difficult to draw or paint on their surfaces with brushes. The quality of the finished porcelain is determined by the Painter's skill.

15 Underglazing (painting)

Big brushes are used to apply the blue paint inside the patterns. Some parts are shaded. This technique is called "dami".



16 Glaze making

Glaze is a thin film covering the surface of the article Which becomes glass after firing. Its ingredients are feldspar, limestone, silica, ash from the "yusu" tree, and various other substances.



17 Glazing

Small articles are dipped in a glaze tank. Big articles are glazed by using a dipper called a "choppage" in Japanese, to pour the glaze over the object.



18 Glaze finishing

The glazed surfaces are carefully checked to be sure they are smooth. The glaze on the bottom of the article is pared or wiped off so that the article won't adhere to the tools inside of the kiln during high-firing.



19 High-firing

When high-fired the clay and glaze are matured and porcelainized, resulting in beautiful porcelain.

There are three stages of high-firing. At first, kilns are gradually heated to 900c, then rapidly heated to 1,200 and finally the temperature reaches 1,300c.



20 Removing from kiln

White porcelain without colored patterns called "hakuji" in Japanese, blue and white porcelain called "sometsume", celadon porcelain called "seiji" and dark blue porcelain called "ruri" are completely finished at this stage. The others require further processing described next.



21 Over-glaze mixing

There are many colors of over-glaze such as red, yellow, green, black, gold, silver and so forth.



22 Over-glazing

The over-glaze is painted on the vitrified glaze. Like under-glazing, the drawing technique and shading technique "dami" are also used here.

23 Fusing

Over-glaze is fused to the porcelain in kilns fired at a low temperature(720-830c).



24 Products

Thus the finished porcelain is called "iroe", "akae" and "somenishiki" according to its pattern.