On the Surface Texture Effect of Ceramic Materials

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Abstract. The surface texture of art ceramics gives pottery vitality and vitality. The ever-changing textures and colorful shapes make pottery products rich in artistic expression tension. Different textures are used to form various kinds of texture beauty, which is indispensable for art ceramics. Performance techniques. From the relationship between texture changes and ceramic modeling, the paper elaborates on various aspects of texture performance and decorative aesthetics by using different textures of texture materials and treatment methods, and the art of applying texture process and different angles. The effect is summarized and summarized, which has certain theoretical and practical significance.

1. Introduction
Texture refers to the texture structure and texture changes on the surface of the object. It also refers to the subjective perception and experience of texture structure and texture changes. The texture is visible or touchable. The texture of the skin, the texture of the wood, the texture of the stone, these are the textures that can be recognized by the human eye. There is also a type of texture that not only needs the naked eye, but also depends on the sense of touch. From the visual point of view, the rock face that also looks smooth and identifiable, when touched, will have a large tactile difference due to the type of rock. The same is true of the texture of the art in ceramic art. To meticulously appreciate and appreciate the texture of ceramics, we need to mobilize the senses of sight and touch, and use the mind to feel the artistic power contained therein. Ceramic art texture refers to the texture formed by human beings to consciously make clay or porcelain clay after being produced and fired [1].

2. Texture in ceramic materials
2.1. The crack texture is expressed by mud
Another manifestation of crack texture is artificial deliberate production, that is, manual molding, which is the extension of the green mud in a certain direction during molding, thereby affecting the arrangement of molecules, and generating cracks during drying and firing. This technique often produces unexpected results if used properly in the personal creative process.
2.2. Crack texture through glaze
Crack glaze is one of many glazes. Its unique style and artistic charm can attract people's attention. The crack glaze was accidentally discovered in the initial production of ceramics. It was not in the initial development process. The successful glaze, which has a problem with the attachment relationship between the blank and the glaze, has not caused it to fall off, but it has produced many cracks. However, it is this kind of crack that makes people discover its incomplete beauty and make people late. More varieties of crack glaze have been developed, such as caviar, ice crack, cow hair, crab claw, etc. The process principle of crack glaze is due to the mismatch of expansion coefficients of the billet and glaze. In general, the expansion coefficient of the glaze is larger than the expansion coefficient of the green body. During the cooling process after firing, the glaze layer is subjected to tensile stress and cracking occurs. After molding, the texture can be realized by the combination of the mud or the porcelain and the glaze, such as the mud plate [2], the glaze is colored by the metal oxide therein, and the metal element is reduced at high temperature. For example, copper metal is burnt into red, and iron metal is burned into blush, which realizes the performance and production of texture color. Once again, the glaze will melt at high temperatures and flow on the surface of the mud to form a textured pattern. In addition, the color of the mud itself, the temperature and quality of the fire in the kiln, the composition and thickness of the glaze also affect the changes in texture. Moreover, the mud blank does not move and the glaze moves, so that the engraving tool can be used to paint on the mud blank, and the glaze is applied after the texture is carved. After the glaze flows, it penetrates into the mud with different surface depths, and the texture can appear. Moreover, it can be re-created after one firing, and the glaze is applied to the porcelain slab formed by firing, and the casual texture of the crack can be formed by using different shrinkage ratios of the glaze and the glaze [3]. Defect texture is an accidental texture, and crack texture is the representative of defect texture [4].
2.3. Demonstrate ceramic texture through defects

In recent years, artists have gradually broken the traditional aesthetic concept and are more advocating individuality. In terms of craftsmanship, artists often use the defect texture to express their artistic personality and creative inspiration, and pursue the randomness and contingency of the texture effect, maintain and reveal the traces of hand-made, and the works produced in this way have unique characteristics, giving people a unique Returning to the true feeling. Crack texture is also the most common in the artist's creation process. Modern ceramic art constantly learns from each other in the great atmosphere of good ceramic development. More and more artists use hand-molding to create their own works, and make the residual surface. The crack texture also reflects the subjective idea and aesthetic level of the author, and it also shows the artificiality. In this way, it impacts the real problems of the art of crude production and imitation of the modern industrial production environment [5].

![Ceramic defect texture](image)

Fig.3 Ceramic defect texture

3. Ceramic material texture application test

There are many methods and ways to make textures. The experimental practice activities aiming at artistic creation are one of the lessons of most contemporary ceramic art creators. The development of modern ceramic art has a strong experimental nature. The development trend of experimental ceramic art is the development of ceramics in the future. The inevitable direction, the artist's experimental practice from different angles also promotes the diversity of modern ceramic art. The author of this paper mainly obtains the method of texture from experimental methods and effects, mainly from the two aspects of blank and glaze [6].

3.1. Billet experiment

Ceramic blank refers to the raw materials used in the ceramic molding process. From the perspective of ceramic technology, ceramics can be divided into three categories: pottery, pottery and porcelain. This classification method is mainly composed of clay, feldspar and quartz, which are mainly composed of clay, feldspar and quartz. The properties and effects of these materials are also different. Although modern ceramic art has a broader line of materials, most of them are developed on the basis of these materials. My creative practice is based on the "Silk Road" as the theme of artistic creation practice, and has done a lot of experiments from the application and selection of blanks. details as follows [7].

Selecting materials from the perspective of the shape of the work, the design of the artwork is more complex and the shape is exaggerated. The first requirement for the billet is high plasticity. From the technical point of view, it is necessary to select a billet with good enthral, and ① Sichuan clay ② Guangdong Foshan clay, ③ Shandong Zibo clay, ④ Jingdezhen kaolin, ⑤ ceramic pigments. Based on the experimental basis, Foshan clay was selected as the experimental leading material.
Step 1: Prepare the required materials, pulverize the raw materials, and test the numbers as shown above.

Step 2: According to the experimental requirements, according to the order of addition of raw materials, add 5%, 25%, the proportion of the addition.

Step 3: Make the prepared ingredients into a certain shape and wait for the drying.

Step 4: The completely dried billet is fired in a kiln at a temperature of 1230 °C and oxidized.

Step 5: Summary of the experimental results. See the table below for details.

### Tab.1 Ceramic texture table prepared by different raw material ratios

| Raw material | Add ratio | Firing temperature | Burning atmosphere | Artistic effect | Feasibility Analysis |
|--------------|-----------|--------------------|--------------------|-----------------|---------------------|
| ②+①+③       | 50% 25% 25% | 1230°C             | F                  |                 | Lower               |
| ②+③+④       | 50% 25%, 25% | 1230°C             | F                  |                 | Middle              |
| ②+③+⑤       | 50% 25% 25% | 1230°C             | F                  |                 | low                 |
| ②+④+⑤       | 50% 25% 25% | 1230°C             | F                  |                 | low                 |
| ②+①+③+④    | 25% 25% 25% 25% | 1230°C             | F                  |                 | Higher              |
| ②+①+④+⑤    | 25% 25% 25% 25% | 1230°C             | F                  |                 | Higher              |
| ②+③+④+⑤    | 25% 25% 25% 25% | 1230°C             | F                  |                 | Lower               |
| ②+①+③+④+⑤ | 50% 15% 10% 20% 5% | 1230°C             | F                  |                 | High                |

Description: 1. Chart 2 is a comprehensive experiment, based on the number 2, the stacking experiment is carried out in sequence.

2. Select the blanks needed for artistic creation from the experimental analysis. The pictures are all experiments performed by the author.

3. Feasibility analysis is divided into five levels: high, higher, medium, low and low.

3.2. Glaze test

This experiment is based on my artistic creation needs, and selects and configures the glaze required for the work based on the completion of the blank. The experiment was based on Foshan medium-temperature ceramic glaze and the corresponding superposition experiment was carried out [8-9]. Glaze is divided into:
(1) White Burst, (2) sherwani Red, (3) lank, (4) iron red, (5) light green, (6) red, (7) yellow Green, (8) 22 #red, (9) dark red, (10) gold bronze, (11) white magnolia, (12) light yellow, (13) black.

Step 1: prepare the required glaze, weigh, grind, and spare.
Step 2: carry out the glaze drug number, spare.
Step 3: prepare the green body and wait for the drying to be used.
Step 4: Perform cross-over stacking experiments between glazes and make a record.
Step 5: Wait for drying, fire in a kiln, and fire at 1230 °C. Take out the observation effect.

| Glaze       | Overlay ratio | Firing temperature | Burning atmosphere | Artistic effect | Feasibility Analysis |
|-------------|---------------|--------------------|--------------------|----------------|---------------------|
| (2) +(6) + (9) | 60% 25% 15% | 1230°C             | Oxidizing flame    | Artistic effect | Feasibility Analysis |
| (1) +(4) + (3) | 50% 25% 25% | 1230°C             | Oxidizing flame    | high           |                     |
| (13) +(5) + (2) | 40% 40% 20% | 1230°C             | Oxidizing flame    | low            |                     |
| (10) +(9) + (4) | 45% 35% 20% | 1230°C             | Oxidizing flame    | low            |                     |
| (11) +(9) + (6) | 50% 10% 40% | 1230°C             | Oxidizing flame    | Middle         |                     |
| (11) +(7) + (2) | 35% 35% 30% | 1230°C             | Oxidizing flame    | low            |                     |
| (2) +(7) + (11) + (6) | 40% 20% 10% 30% | 1230°C             | Oxidizing flame    | low            |                     |
| (8) +(9) + (11) + (1) | 35% 35% 20% 10% | 1230°C             | Oxidizing flame    | high           |                     |
| (1) +(8) +(11) + (9) | 40% 25% 15% 20% | 1230°C             | Oxidizing flame    | high           |                     |

4. Conclusion
The use of texture in ceramic art has a very long history, and it has become an indispensable part of ceramic art decoration. By controlling all aspects of the factors, the creator, under the premise of
exerting self-imagination, will visualize the feelings in the heart as visually sensible entities, and let the ceramic art exude endless charm. With the continuous improvement of the craft level, the complexity, artistry and aesthetic taste of the texture performance are constantly improving. While improving the exquisiteness of the ceramic works, it also brings endless spiritual feelings. The ceramic art works of each era has different temperament. Through the application of ceramic texture, we can glimpse the aesthetic orientation and mainstream art concept of an era from the perspective of art. Looking at the history of the development of ceramic art, it is not difficult to see that the progress of its technological level is a process of constantly innovating and striving for change. Efforts to improve the level of skill, and study the use of decoration, the use of texture can be more sophisticated.

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