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RESEARCH ARTICLE

Ceramic techniques for characteristic surface effects.

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Abstract

The idea of the research is to get some effects of the surface of the ceramic by codified ways, So it can be used on the surfaces of ceramic forms for different purposes besides aesthetic artistic promotional purposes of the ceramic product. Some chemical phenomena may be used where they are Adapted for a special surface, As in the case of the use of surface tension for both the ceramic body and the glaze, Where it can be controlled to get some cracks and assemblies to the surface of the glaze, which may give a beautiful ceramics if employed for this purpose, and this happens by the control of the pulling for each of the surface of the ceramic body and the pulling of the surface of the glaze. And control of certain natural phenomena as shrinkage, porosity of clay . it also affects by its role in the production of special surfaces of ceramic. The usage of the additives for items as metals and compounds on the ceramic surfaces with some fixing that comes with beautiful results for the surface if some technical things is treated. Some experiments were done and some special effects has appeared from it, it can be used on the ceramic surface. And the happening of this effects were explained , So that you can get the same effects Other times.

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Introduction:-

The beauty of the ceramic product is the most important thing that the potter is looking for, whether the ceramic product was for the purpose of art or an industrial one. The beauty of the ceramic piece comes in important elements that is : shape, color, the affection of the surface and harmony of these elements. And the research cared about what relates the art of the ways to get different surface effects to strengthen this element in the system of ceramic beauty.

Aim of the research:-

The research aims to reach techniques by which ceramic special surfaces with beautiful effects can be got, in which it support the beauty specifications of the ceramic product, and this is done by the control of the phenomena that is related to elements and ores of ceramics, natural or chemical phenomena.

Research importance:-

The importance of the research considered as artistic and economical, the research aspires to find effects of a beautiful ceramic surface. And this affects the promotion of the ceramic product so it gives economical importance.

Research methodology:-

The research follows the experimental and descriptive method, as the experiments is taking place and the results is discussed and it is described.

Research hypotheses:-

The research supposed possibility of identify ways to get to the aesthetic effects of the ceramic surface, using the properties of the ores and elements of the ceramic.

Research problem:-

The research problem is the identify ways to obtain the aesthetic effects of the surface of the ceramic so that they can take advantage of them in the field of ceramic production, by the Control of three elements are the ceramic body specifications, specifications coatings, and additives.

Applications:-

Some different experiences were conducted, every one of them depended on the control in a phenomena, or properties:-

1- Effect produced from the usage of colored, solid and insoluble materials.

This type can be reached by using colored and insoluble ceramic items, and a Prefabricated coating dissolves in water , Taking into account the : contrast between the color and paint materials, where you can get a special net effect with a dark color inside a glaze with a light color. Where the glaze is applied and colored materials on the wet glaze.

The technique: this experiment depends on the insoluble property for the colored material that makes it arrange in an organized shape during the melt of the glaze inside the oven, during the process of burning the glaze.



(Picture 1)

2- Effects in the transparent glaze resulted of the different of the porous of the ceramic body:-

By applying the transparent glaze on the different porous ceramic surfaces a difference in the surface effects were found. And to activate the factor of the porous improved clay was used to burn once with glaze.

The technique: the look of the glaze's surface changed by the change of the porous as in the first experiment : the body has a high porous, and this helped the glaze enters the pores, and the reaction with the body's components, giving a rough surface, and a partially effect on the glaze. (picture 2)

And in the second experiment : the porous of the body was decreased by using the smoothing of the surface, and this led to arranging the particles of the body's surface and decreasing the porous, so the glaze didn't get through, but it reacted with the surface only, and this led to the presence of the shiny transparent layer. (picture 3)

And in the third experiment the porous decreased by adding Aswan clay and mixed well, and this led to the presence of the transparent glaze in a harmony look, and a dark color because of the addition of the iron oxide in the Aswan clay. (picture4)



(picture2)



(picture3)



(picture4)

3- Effects from the control in the Surface tension coefficient:-

This type comes in different forms like cracks , crawling glaze, chipping glaze, and other.

The first experiment special effect for a shiny chipping glaze on the surface of the ceramic in an arranged form was done.

The technique: this effect was done by the control of the factors of the shrinkage of the glass paint that was applied on the surface of a made ceramic surface.

The first experiment: the surface of the ceramic shape had a very weak shrinkage factor, and the one of the glaze was higher.

And this led to the gathering of the glaze by this arranged shape, according to the absence of the shrinkage and pulling factor that resist the movement of the glaze.

And the thick applying of the glaze layer helped to insure the result effect. (picture 5)



(picture5)

Second experiment: a layer of glaze on the surface of the pottery, its burned and made of Aswan clay, and the glaze had a shrinkage factors bigger than the body, that led to the presence of cracks on the glaze layer, the glaze was applied by a little thickness, with the burning in 900 C° , and that's less by about 170 C° from the needed degree for the burning, so it gave a mutt color. (picture 6),(picture 7)



(picture 7)



(picture 6)

4- Effect from the addition of metal to the ceramic surface:-

Experiment : Coarse iron powder was added to a part of surface of the clay slab, then covering all the surface with transparent glaze, and it was settled directly in 1000 C° . And revising the result it was found that a part of the surface that the coarse iron powder was added to it, had a very shiny black color, and because the surface was uneven, the iron concentrated in the cavernous places and it was more shiny, while the other part it absorbed the glaze and made a mutt, rough surface, and this is from the porous of clay that was specially prepared to the ability of a burn with the glaze once. (picture 8)

The technique: it depends in this experiment on the benefit from the metal by applying it on the clay surface directly and covering it directly with a transparent glaze, that worked on covering the porous with the metal and

made the reaction between the glaze and the element without being effected by the the body, and this led to direct reaction between the silica in the glaze and the Iron made of iron silicate with its special shiny metal color.



(picture 8)

5- the effect of the addition of organic materials on the glaze's surface:-

It has been getting special surface effect when adding a mixture of organic materials (terpentina oil and arabic lure) to the surface of the glaze that is put on the surface of the pottery dish made of Aswan clay and settlement it in 900 C°. And the glaze was settlement in another burn in 1050 C°. (picture 9)

The technique: the idea here depended on the effect of the organic materials on the glaze as it contains the carbon, in a form of fumes while burning. that affects by its role on the color of the glaze , beside the benifit from the oil surface that gives circle spots and it is different of the areas.



(picture 9)

results discussion:-

Results generally indicate the possibility of obtaining a distinctive and new effects to the surface of the ceramic in several ways.

The use of solid-colored materials that do not dissolve succeeded in creating a net effect distinctive technique, and can do more experiments to get different results.

The effect of different porous to the body on the look of the transparent glaze is clear from the experiments and this effect can be confirmed through other types of glaze.

The Control in a shrinkage factors of both the body and glaze gave good results for surface effect, especially in the case of mud equipped for this purpose, and it can give other new results if the glazes with different shrinkage factors is applied.

Adding iron metal to the surface of the clay and covered by a transparent glaze on a clay with very small shrinkage factors, that gave a special surface, other special results may appear by using other metals and other materials.

Organic additives on the surface of glaze showed special effect, the experiment can be applied to other types of glaze, using different types of organic materials.

Recommendations:

Study of the resulting effects in this research, and possibility of using it in the work of a special artistic products.

Study of the possibility of benefiting from the effects of the surface resulting in this research in the field of valuable ceramic industry.

Search in use of materials that do not dissolve in finding a more distinctive effects of ceramic surfaces.

Search in the effect of porous of the ceramic surface to find a more distinctive ceramic surfaces.

Work experiences more and more in terms of deflation and screwing each of the glaze and body transactions for new and outstanding results, particularly using improved clay being used in the first experiment in item 8.3, where the clay used is equipped for this purpose.

The use of materials and inorganic elements on ceramic surfaces more and more, to get more diversity to the effects of the new surface. Note that this kind of technology is applied to the clay especially intended for this.

Study of the use of organic materials more broadly on ceramic surfaces covered with glaze to get more of the surface effects characteristic.

Study of the possibility of using the previous results in the restoration of Ceramic archeological, with respect to the completion of or simulation the Ceramic archeological, as well as to explain the ways of implementing some of them.

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