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Article

Optimal Colorant Composition For Agateware Products at Lukita Ceramic Studio Yogyakarta

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Abstract: This article discusses the optimal dye composition for ceramic products produced using the agateware technique at Lukita Ceramic Studio. The agateware technique is known for its unique color patterns and gradations resulting from mixing various types of colored clay. This technique requires the right dye to obtain the desired aesthetic results. The purpose of this study is to identify the color composition needed to make agateware products at Lukita Ceramic Studio so that they can have quality and visual appeal. This study uses a qualitative descriptive methodology with the aim of clearly describing the steps and results of selecting the right coloring composition for agateware ceramic products made at Lukita Ceramic Studio. The results of the study show that several coloring processes, such as white, blue, and orange, and so on, produce harmonious and complex patterns and increase the aesthetic value of the product. In addition, this study examines the impact of dye composition on consumer perception and market potential. It is hoped that this will make a significant contribution to the development of innovative and high-quality agateware products at Lukita Ceramic Studio.

Keywords: Colorant Composition, Ceramic Products, Agateware, Lukita Ceramic Studio, Aesthetic Value.

1. Introduction

Ceramics is a science that has characteristics, namely formed through stages of the process, which must be sequential and measurable. In making ceramics, each process must be carried out sequentially because the stages of the process in ceramics cannot be repeated after the ceramic work is half-finished or finished. Ceramic calculations and planning must be recorded so that the ceramic making process runs perfectly. Clay must go through a processing process from the beginning and firing is carried out after the work is dry, then the firing process or glazing process is carried out which is the last stage in the process of making the work. Ceramic forming techniques can be done manually or using molds, this is closely related to the ability of ceramic artists. In the process of making ceramic works, it is highly recommended to master each stage of the forming technique well. Mastery of these skills cannot be done instantly, in the ceramic processing process, experimentation and experience are the main indicators [1].

The process of making ceramics can be done with several techniques. One of the developments in the ceramic world is the processing of agateware techniques. Agateware is a technique that can produce a marble effect from the influence of clay processing by mixing two types of clay with different colors. The agateware technique is similar to the marbling technique. Agate rocks are the inspiration for the creation of the agateware technique. The uniqueness of the agateware technique is that the resulting motifs will not have the same motifs as each other so that each work has its own visual appeal [2].

Lukita Ceramic Studio as one of the ceramic craftsmen who focuses on agate ceramic techniques, strives to produce products that not only have aesthetic value but also high quality. In this context, the selection of optimal dye composition is very important to achieve

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the desired results. The selection of the right type of clay and dye can affect the resulting pattern, texture, and color. so that with the experiment of color composition for agateware products in Lukita, Lukita products have a raw material structure for their agateware products [3].

This study uses a qualitative descriptive methodology with the aim of clearly describing the steps and results of selecting the right dye composition for agateware ceramic products made at Lukita Ceramic Studio. In addition, this method provides space for deeper exploration and interpretation of the aesthetics and technical aspects of the dye composition used. Through descriptive analysis of data collected through observation, interviews with Craftsmen, and product documentation studies, this study attempts to identify color compositions that produce harmonious patterns and visual effects and increase the aesthetic value of agateware products. In addition, this study also describes the supporting factors and challenges faced in the dye mixing process, so that it can provide practical recommendations for the development of high-quality ceramic products in creative industries such as Lukita Ceramic Studio [4].

The purpose of this study is to determine the best dye composition for agateware ceramic products at Lukita Ceramic Studio. By conducting experiments with various dye compositions, it is expected to find a combination that not only improves the visual appeal of the product but also improves its quality and durability. In addition, this study will investigate the impact of dye composition on consumer perception and market potential to make a significant contribution to the development of innovative ceramic products.

Through this research, it is expected that Lukita Ceramic Studio can develop more quality and attractive agateware ceramic products and increase the growth rate of the ceramic industry. Therefore, this research does not only focus on the technical aspects, but also the aesthetic and commercial aspects of the agateware ceramic products produced.

2. Literature Review

The purpose of this literature review is to provide theoretical insights that support research on optimal dye composition for agateware ceramic products made at Lukita Ceramic Studio. In this context, several important points that will be discussed are agateware ceramic manufacturing techniques, dye composition, and the impact of dye composition on the quality and aesthetics of ceramic products [5].

The development of contemporary art has brought new concepts and logic in presentation and expression, especially in the field of ceramic art. The concept of ceramic art forms is now undergoing significant changes and transformations. There is no longer a bound definition for the techniques and materials used. Under the concept of assembly, they create forms that are not bound by homogeneity, producing unique and innovative works. Various explorations in color composition and techniques are carried out in the ceramic making process [6]. Thus, understanding the current trends and philosophies of ceramic art is very important to create products that are not only aesthetic, but also relevant to existing cultural and technological developments.

The development of contemporary ceramic art is one of them, namely the agateware technique. The agateware technique is a ceramic forming technique that uses two or more types of different color clay which are then combined to form a separate motif. In general, the agateware technique has similarities with the more commonly known marbling technique. In addition, the motifs produced by the agateware technique will not have similarities with each other so that each work has its own uniqueness [7].

In agateware techniques, color composition is highly dependent on the use of colored clays that have different mineral and raw material compositions to create distinctive patterns and motifs. The process of mixing colored clays is carried out mechanically and experimentally to produce optimal and consistent color gradation patterns. In the context of making agateware ceramics, the process of processing colored clay is the main key to achieving the desired visual effect and then explains that each color of clay in agateware has

a different mineral and raw material composition, which ultimately produces distinctive effects and textures after the firing process. These differences in composition are very important because they affect how the colors interact and blend during firing, as well as how they contribute to the final visual characteristics of the product [8].

It is important to assess the strength and stability of the various colorants used in the study of the best warning composition for agateware ceramic products at Lukita Keramik. Coloring strength and stability, for example, are achieved by adding them to various ceramic substrates, including bright transparent glazes, matte opaque glazes, and stoneware pastes. This assessment offers valuable insights into how various substrates affect the durability and quality of ceramic products, and helps in determining the most effective combination to achieve the desired aesthetics and performance in agateware ceramic products [9].

The resulting agateware ceramic products have high aesthetic value due to the natural color gradation and transition. This shows that the beauty of agateware ceramics lies not only in the colors used, but also in how the colors are arranged and mixed to create an attractive visual effect [10]. Thus, understanding the colored clay processing process and how this process affects the final result is very important in research on the optimal color composition for agateware ceramic products at Lukita Ceramic Studio.

The main advantage of the agateware technique is that it can create variations in color and motifs without the need for additional coloring such as glaze or decorative paint. This technique relies on the natural properties of the clay itself so that the final ceramic product has a long-lasting color result and does not fade easily. In addition, agateware has high artistic quality because each product produced is different from each other, thus providing its own characteristics for consumers [11].

Lukita Ceramic Studio adopts agateware techniques as part of their innovative efforts in developing quality ceramic products that combine aesthetic beauty with function. The experimental process of mixing clay colors is an important part of agateware production in Lukita, to answer the market's need for ceramic products that are not only visually appealing but also durable and have aesthetic value. The following are the supporting elements of the aesthetic value of ceramic products at Lukita Ceramic Studio; shape, texture and color. These are some of the elements that Lukita Ceramic Studio uses in the production of agateware products to create agateware works that have aesthetic value [12].

The color composition of ceramics is not only about the selection of colors, but also how the color appears due to the arrangement of the ceramics in the kiln during the firing process. This process can determine the initial visible coloring results, colors that have resistance to firing temperatures, and textures formed on the ceramic surface. Therefore, the composition of dyes in agate ceramics requires a deep understanding of the arrangement of ceramics in the kiln, the nature of clay coloring and the changes that occur during firing [13].

Lukita Ceramic conducted experiments to determine the composition of basic colors, such as white, blue, orange, pink, and green, which were then evaluated to find the optimal composition. It is hoped that this combination will produce colorful and complex designs, as well as a cohesive aesthetic for the final product. The composition of raw materials in agateware ceramics at Lukita Ceramic Studio is also influenced by the characteristics of the raw materials used, which may differ in terms of their physical and chemical properties compared to soil abroad [14]. Adaptation to local raw material conditions is a great opportunity to create products with distinctive characteristics and high art [15].

3. Proposed Method

The method used in this study is a qualitative research method with a descriptive approach. Qualitative research is research that produces and processes descriptive data, such as interview transcriptions, field notes, images, video recording photos and others. The purpose of this study is to describe the optimal color composition for agateware products at Lukita Ceramic Studio. The results of this study will later be realized in the form of written

data and photos obtained from the results of literature studies and direct observations of the composition of dyes for ceramic agateware products at Lukita Ceramic Studio. The following are the stages of the research method carried out in this study.

3.1. Literature Review

This literature review aims to provide a strong theoretical basis regarding the optimal color composition in agateware products, as well as its relevance in the context of production at Lukita Ceramic Studio. The purpose of this study is to identify gaps in the literature by investigating the combination of dyes that can improve the quality and durability of ceramic products at Lukita Ceramic Studio. It is hoped that by understanding these aspects, this study can make a significant contribution to the development of clay coloring techniques and increase the market share of ceramic products.

3.2. Location Determination

Field observations were conducted at Lukita Ceramic Studio, located at Jl. Sekarpetak, RT. 02, Gedongan, Bangunjiwo, Kec. Kasihan, Bantul Regency, Yogyakarta. This studio is known to actively develop agateware techniques in making ceramic products. For approximately 4 months for the observation and interview process in the form of field studies carried out through direct observation by the author of the object being studied, the object is a ceramic product with agateware techniques.

3.3. Data Collection

In his book, Lexy J Moleong, states that the main source of data in qualitative research is words and actions, while other data, such as documents, are supporting data. In this study, the data sources used in this study include,

1. Observation

Observation is a method for collecting data through events, places, locations, and recordings. Observation techniques are based on direct observation. This observation is considered a valid tool for testing the truth of information given to subjects, with the aim of ensuring the validity of data through direct observation of objects at the research location (H.B. Sutopo, 2001). The purpose of conducting this direct observation is to find out about the optimal dye composition for ceramic products with the agateware technique at Lukita Ceramic Studio. Direct observation in the field is carried out in order to be able to observe a clear picture of the object against the color composition for ceramic products with the agateware technique at Lukita Ceramic Studio. Observation also functions as a method to make it easier to observe objects directly, provide stronger evidence, and align study literature with conditions in the field.

2. Interviews

Interview were conducted informally and unstructured, due to their open, flexible, and repeatable nature with the same informant. The main purpose of this interview was to gather information on the color composition used in the ceramic production process with the agateware technique at Lukita Ceramic Studio, the process, which can provide additional knowledge to broaden horizons. Interviews will be conducted at the Lukita Ceramic Studio location.

3. Documentation

Documentation in the form of photos is done directly at Lukita Ceramic Studio. Includes photos of ceramic products with agateware techniques, technical notes or experiments that have

been carried out, as well as visual portfolios or catalogs of products that have been exhibited or sold. As additional document data, it is also obtained from several other sources such as books, the internet, or journals.

4. Results and Discussion

The purpose of this study was to determine the ideal dye composition for agateware ceramic products at Lukita Ceramic Studio. This study will discuss the dye composition of four agateware ceramic products produced by Lukita Ceramic Studio. Through extensive experiments and analysis, several combinations of dyes tested produced significant results in terms of product quality and aesthetics. The following are the main findings of this study:

4.1. Details of the Coloring Composition on the "Candy Crush" Glass

The first step in making ceramic glasses with the agateware technique is to attach layers of clay with different colors to the ceramic material. Craftsmen at Lukita Ceramic Studio need to be careful so that the layers of clay blend together to create an agate effect. The combination of colors on the Candy Crush glass, such as pink, blue, orange, and green, gives a pleasant impression and has a candy-like composition. The marble layer motif on the Candy Crush glass with the agateware technique has a small and intricate motif pattern structure. This structure is influenced by the soil kneading technique when mixing several soil colors. Several folds are found on the Candy Crush ceramic glass which is kneaded at an angle to create a layered marble motif.

Figure 1. Agateware 'Candy Crush' Glass.

The agateware technique on Candy Crush ceramic cups creates a natural agate effect on the surface of the cup. The presence of patterns and colors that are natural patterns of agate gives the ceramic work an authentic and serious impression. The skill in choosing harmonious color combinations is also a crucial factor in creating aesthetic sincerity. The right color selection and careful combination can create a striking effect, have distinctive and balanced characteristics, and give a sense of unity to the Candy Crush ceramic cup. The following is the composition of the dyes used to make Candy Crush cups,

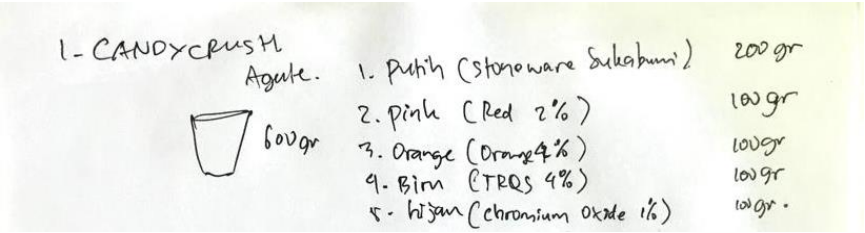

Figure 2. Composition of 'Candy Crush' Glass Colorant.

In making Candy Crush cups, the composition of the dyes used is very important to achieve an attractive and aesthetic end result. Here is a complete explanation of the details of the composition of the dyes used in making the cups, based on the initial material of 600 grams of clay.

1. Clay Starting Material

The total initial weight of the clay is 600gr. The clay used comes from Sukabumi, which is known to have good quality for making ceramics. This clay has good plasticity properties, so it is easy to shape and color.

2. Color Composition Division

The 600 gr clay is divided into several parts to produce different colors on the Candy Crush glass. Here are the details of each part:

a. White Color

Clay weight 200 grams, this part uses original clay without added dyes. The white color is produced from the natural properties of Sukabumi clay which is clean and of high quality. This white color provides a good base for creating contrast with other colors.

b. Pink Color

Clay weight 100 grams, using 2% red dye or 2 grams of red dye. Red dye is added to give a soft pink color. This color gives a cheerful and attractive impression, suitable for playful glass designs.

c. Orange Color

Clay weight 100 grams, using 4% orange dye or 4 grams of orange dye. Orange dye gives a warm and bright feel to the glass. This color combination creates an attractive and fun visual effect.

d. Blue Color

Clay weight 100 grams, using Turquoise dye (TRQS) as much as 4% or 4 grams of Turquoise dye. Turquoise dye provides a fresh and bright blue color. This color adds dimension and depth to the glass design, creating an interesting contrast with other colors.

e. Green Color

Clay weight 100 grams, using 1% Chromium Oxide dye or 1 gram of Chromium Oxide dye. The green dye produced from Chromium Oxide provides a natural and calming color. This color complements the Candy Crush glass color palette with a balanced nuance.

The composition of the dyes used in making Candy Crush cups consists of various colors produced from the right combination of clay and dyes. By using Sukabumi clay as the base material and adding dyes in a predetermined proportion, these cups not only have high visual appeal but also good quality. The right mixing and firing process ensures that the resulting colors will be long-lasting and attractive to consumers.

4.2. Details of the Coloring Composition in "Morning Glory" Glasses

The use of white, yellow, blue, and purple clay for the layers on the Morning Glory ceramic cup creates an eye-catching visual effect. Aesthetic unity comes from the use of

contrasting or opposite but harmonious colors. The contrast and harmony of colors on the Morning Glory ceramic cup with the agateware technique create an eye-catching appearance. The use of opposing or contrasting colors can achieve a strong aesthetic unity on the cup. The combination of yellow, blue, white and orange on the teapot can give a refreshing and pleasant impression.

Figure 3. Agateware ' Morning Glory' Glass.

The agateware technique used to create Morning Glory glassware is complemented by an intricate clay layering technique. The layers must be pressed together with pressure to create the agate pattern, a process that requires a high level of diligence and attention to detail. The complexity of this layering technique also contributes to the striking aesthetics of Morning Glory glassware. Here is the color composition used for Morning Glory glassware,

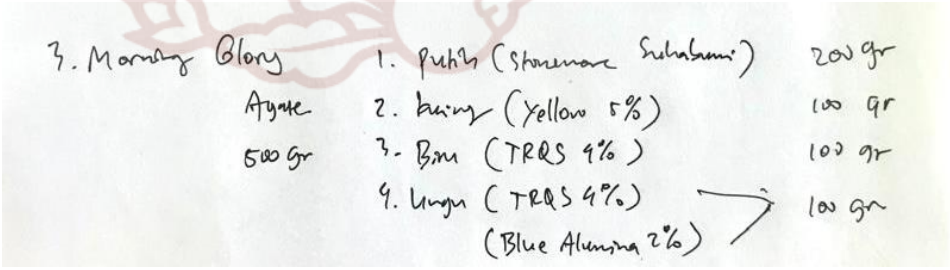

Figure 4. Glass Coloring Composition 'Morning Glory'.

In making Candy Crush cups, the composition of the dyes used is very important to achieve an attractive and aesthetic end result. Here is a complete explanation of the details of the composition of the dyes used in making the cups, based on the initial material of 500 grams of clay.

1. Clay Starting Material

The total initial weight of the clay is 500 grams. The clay used comes from Sukabumi, which is known to have good quality for making ceramics. This clay has good plasticity properties, making it easy to shape and color.

2. Color Composition Division

The 500 gram clay is divided into several parts to produce different colors on the Morning Glory glass. Here are the details of each part:

a. White Color

Clay weight 200 grams, this section uses original clay without additional coloring. The white color is produced from the natural properties of clean and high-quality Sukabumi clay. This white color provides a good base for creating contrast with other colors.

b. Yellow Color

Clay weight 100 grams, using 5% Yellow red dye or 5 grams of yellow dye. Yellow dye is added to give a bright and cheerful color to the glass. This color gives a fresh and attractive impression, suitable for a vibrant glass design.

c. Blue Color

Clay weight 100 grams, using 4% turquoise dye (TRQS) or 4 grams of turquoise dye. Turquoise dye provides a fresh and bright blue color. This color adds dimension and depth to the glass design, creating an interesting contrast with other colors.

d. Purple color

The weight of the clay is 100 grams, using 4% purple dye (TRQS) and 2% blue alumina or 4 grams of TRQS and 2 grams of blue alumina. The combination of purple dye and blue alumina gives a rich and deep purple color. Purple dye provides an elegant feel, while blue alumina adds brightness and uniqueness to the resulting purple color.

The color composition used in Morning Glory glass consists of several colors produced by mixing clay and appropriate dyes. By using Sukabumi clay as the base material and increasing the dyes in a predetermined proportion, this glass not only has excellent visual quality but also high quality.

4.2. Details of the Coloring Composition in "Romance Down" Glasses

The agateware technique requires ceramic experience and skills. The seriousness of the aesthetic is manifested in the strength of the technique, where the ceramic craftsmen at Lukita Ceramic Studio show their dedication and commitment in creating agateware products with high quality and aesthetic designs. The use of techniques and careful attention to detail in creating Romance Down glasses reflect the seriousness of the aesthetic. Good proportions, smooth surfaces, accuracy of color choices, and attention to detail all contribute to the attention given to creating beautiful and visually appealing Romance Down glasses.

Figure 5. Gelas *Agateware* ' Romance Down'.

The agateware technique used to create Romance Down glassware is complemented by an intricate clay layering technique. The layers must be pressed together to create the agate pattern, a process that requires a high level of diligence and attention to detail. The complexity of this layering technique also contributes to the striking aesthetics of Romance Down glassware. Here are the color compositions used for Romance Down glassware,

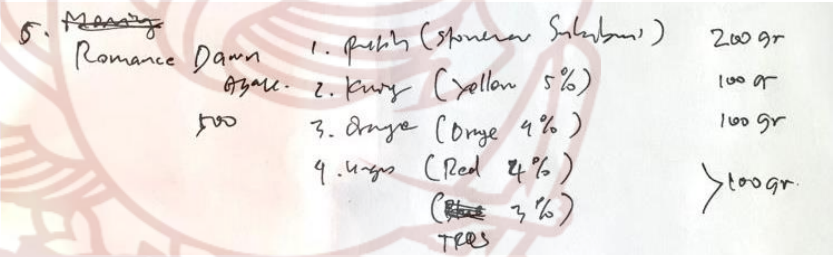

Figure 6. Glass Coloring Composition 'Romance Down'.

In making Romance Down glass, the composition of the colors used is very important to achieve an attractive and aesthetic end result. Here is a complete explanation of the details of the color composition used in making the glass, based on the initial material of 500 grams of clay.

1. Clay Starting Materials

The total initial weight of the clay is 500 grams. The clay used comes from Sukabumi, which is known to have good quality for making ceramics. This clay has good plasticity properties, making it easy to shape and color.

2. Color Composition Division

The 500 gram clay is divided into several parts to produce different colors on the Morning Glory glass. Here are the details of each part:

a. White Color

Clay weight 200 grams, this section uses original clay without additional coloring. The white color is produced from the natural properties of clean and high-quality Sukabumi clay. This white color provides a good base for creating contrast with other colors.

b. Yellow Color

Clay weight 100 grams, using 5% Yellow red dye or 5 grams of yellow dye. Yellow dye is added to give a bright and cheerful color to the glass. This color gives a fresh and attractive impression, suitable for a vibrant glass design.

c. Orange Color

Clay weight 100 grams, using 4% orange dye or 4 grams of turquoise dye. Orange dye gives a warm and bright nuance to the glass. This color combination creates an attractive and pleasant visual effect.

d. Purple Color

The weight of the clay is 100 grams, using 4% purple dye (TRQS) and 2% blue alumina or 4 grams of TRQS and 2 grams of blue alumina. The combination of purple dye and blue alumina gives a rich and deep purple color. The purple dye gives an elegant nuance, while the blue alumina adds brightness and uniqueness to the resulting purple color.

The state of the art in the development of agateware ceramic color composition emphasizes the importance of a combination of quality raw materials, sustainable coloring innovation, and an in-depth experimental approach. Lukita Ceramic, with a local raw material base and applied research approach, is in a strategic position to optimize the color composition that suits the needs of the contemporary market.

5. Conclusions

This study has successfully identified the optimal color composition for agateware ceramic products at Lukita Ceramic Studio. Through experiments and analysis that have been carried out, it is known that the use of Sukabumi clay as a base material, combined with the right proportion of dyes, produces products that are not only visually appealing but also have high quality. By applying innovative and creative coloring techniques, Lukita Ceramic Studio has the potential to increase the market share of agateware ceramic products. Recommendations obtained from this study can be a guide for consumers when developing products that not only meet aesthetic standards but also consider environmental factors. Overall, this study contributes to understanding the optimal color composition in agateware ceramics and creates opportunities for further exploration in the development of high-quality and attractive ceramic products.

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