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LIMASAN HOUSE OMPAK STONE PAINTING PROCESS AND MATHEMATICAL MODELING OF OMPAK PAINTING DRYING

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Abstract

Ompak painting is a coating of ompak stone with the aim of being nice to look at. In the drying process of painting ompak stone, the Moisture Ratio formula $MR = 1 - \frac{1}{23}t$ is obtained, where t the paint drying time.

Keywords: Ompak, Coating of Ompak Stone, Moisture Ratio.

1. INTRODUCTION

Painting is the process of coating a material that comes from a liquid substance and then dries. The purpose of painting is to protect the object from natural damage, give a good impression and make the object a different color.

Ompak batu is the base or foundation of the pillars of Javanese wooden houses. Javanese wooden houses consist of Gasebo, Limasan, and Joglo. Ompak is usually made from natural stone arranged according to the sculptor's taste. Ompak is useful for protecting wood from wood tear attacks, which can extend the life of wooden poles. Apart from that, ompak can also beautify wooden houses.

Mathematical modeling of the drying of ompak painting is modeling the length of time for the drying process of ompak painting. This modeling produces a function over time. Next, a graph can be made of the drying process of ompak painting.

2. OMPAK PAINTING PROCESS

The Ompak painting process uses Propan Stone Care brand paint (Candi Stone Paint) and is satisfied with the Tika 2.5 inch brand. From the information on the can, Propan Stone Care Batu Candi is a natural stone coating made from Acrylic Solvent Based material with Alkaline Guard. This propane provides maximum protection to natural stone and forms an even black layer on the surface of natural stone. This propane has excellent penetration ability and adheres strongly to natural stone, prevents the growth of moss and fungus, is weather resistant, and can be applied indoors and outdoors.

`The stages of the ompak painting process are as follows. (1) We clean the surface of natural stone from mold, moss, dust, oil and other dirt and let it dry. (2) We stir Propane thoroughly without diluting. We apply it with a brush evenly over the entire surface of the natural stone and we let it dry. (3) We paint again with Propan and let it dry.

Figure 1. Ompak Painting Materials

Figure 2. Ompak before painting

Figure 3. Ompak after painting

3. MATHEMATICAL MODELING OF IMPACT PAINTING DRYING

This mathematical modeling refers to Sugiyanto (2020), Rahayu (2023), Salmayanti (2023). In the drying process for ompak painting, we assume the Moisture Ratio value is $MR = 1 + at$. The drying process for ompak painting is carried out at an ambient temperature of 24°C. Ompak painting takes 23 minutes to dry. Moisture Ratio value, $Mr = 1$ at time $t = 23$ minutes and $Mr = 0$ at time $t = 0$ minutes. We can write

$$(t_0, MR_0) = (0,1)$$
$$(t_1, MR_1) = (23,0)$$

We obtain a linear equation

$$MR = 1 - \frac{1}{23}t$$

We obtain $MR = 1 - \frac{1}{23}t$. The general Moisture Ratio formula for drying ompak painting is $MR = 1 - at$, where a depending on the environmental temperature. Figure 4 is the Moisture Ratio curve against time.

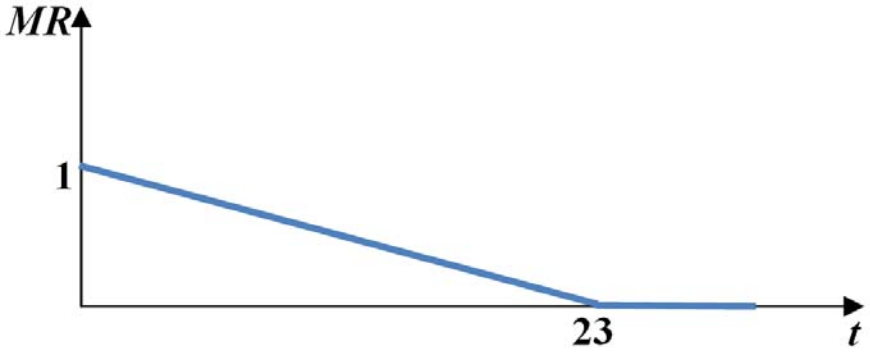

Figure 4. Moisture Ratio curve for the drying process of wave painting versus time

The Moisture Ratio formula for the drying process of ompak painting is

$$MR = \begin{cases} 1 - \frac{1}{23}t, & 0 \le t \le 23 \\ 0, & t > 23 \end{cases}.$$

4. CONCLUSION

Ompak painting is coating ompak stone to make it look good to look at. The Moisture Ratio formula for the drying process of ompak painting is $MR = \begin{cases} 1 - \frac{1}{23}t, & 0 \le t \le 23 \\ 0, & t > 23 \end{cases}$.

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