

THE STUDY OF WOOD CHARCOAL FOR DESIGN ODOR ABSORBING TILES.

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ABSTRACT

This research aims to analyze focusing on studying the properties of wood charcoal used in household use and Properties of tiles are an integrated research using qualitative research in analytical studies to obtain important information on the design of tiles from wood charcoal with an in-depth interview and observations from 20 experts in design marketing materials. The analysis of the properties of wood charcoal found that the odor-absorbing properties of wood charcoal have the most use with an average of 40 percent, followed by hygroscopic properties with an average value of 25 percent. According to the analysis of the type and characteristics of the tiles, it is found that in general, tiles can be divided into 6 types, namely ceramic tiles. Mosaic tiles, granito tiles, marble tiles, earthenware and glass tiles which each type have different characteristics and properties which affect the utilization in each area of use. The size of the popular tiles can be divided into 2 types, which are 8 x 8 inches, 12 x 12 inches, 13 x 13 inches, 16 x 16 inches, 24 x 24 inches, used for flooring and 8 x 8 inches 8 x 10 inches. The use of wall coverings, which the size and characteristics of the use area affect the selection of tiles which is divided into 2 types. For first type; If the area is wet, we should use the surface and small tiles. If the area that needs cleaning is easy, we should use tiles with shiny skin and large. For type 2; if it is the size of the area with a small area, we should choose light colored tiles and for large areas, we should choose dark tiles.

Keywords: design, odor absorbing tiles, wood charcoal

INTRODUCTION

When creativity is the connection of experiences, which when applied in one context to another context, it may create a new meaning of interest. The context that is full of cultures tied to faith, combined with the habits of people who love comfort and humor Thai creativity is unique. Sometimes it can be found in the form of innovation to solve immediate problems. Some are inventions or processes that deal with nature called local wisdom. However, when the world evolved into the era in which technology came to be a part of life, it is necessary to review, to explore, to understand where to go and to observe to find answers that meet the needs of the social context which may not be the accumulation of knowledge, but the knowledge and wisdom that is applied. [1] [2]

Charcoal burning profession is a career that has a long tradition. The ancient wisdom of processing wood into charcoal to be a fuel that is convenient to use and also provide high heat value It also helps to reduce emissions to be less directly than wood chips. Charcoal has many benefits. Whether agricultural benefits soil improvement absorb chemicals plant diseases prevention, etc. Benefits of animal health used to ferment grass, add value and help digestion reduce gas in the stomach, Prevent diarrhea, help the reproductive system, increase the amount, and value of meat and eggs, etc. Benefits in construction helps to extend the life

of the building, improve product collection, improve the indoor climate, and control the humidity in the building, etc. For other benefits, there are water filtration, waste treatment, refrigerator deodorization etc. What makes the charcoal have the ability to absorb odors? Because the structure of the charcoal has a very small porous appearance, with various musty odors, it will spread into the pores. If the charcoal is very porous, it will absorb a lot of odors as well. [3]

When evaluating from the initial properties of charcoal, it can be seen that there are features that can be used in the design for decoration especially the smell and moisture absorption. It can add value to become a product that responds to the needs of today's and future societies by adopting the unique properties of charcoal combined with production technology and design as a guide in product design. It is to upgrade the product and create value added to the modern life. It is also a push to play a role in strengthening the domestic economy and compete with the use of materials available in the country to develop potentials and consider environmental friendliness based on creativity and innovation.

OBJECTIVE

1. To analyze the properties of charcoal related to the properties of the tiles

METHODOLOGY

The researcher uses the qualitative research with the following steps:

Step 1: Study the characteristics of the properties of charcoal that affect the properties of the tiles by studying from book documents, related texts and research including the area to explore by using research tools as follows

1. Interview (Interview Method) by In-depth interview and group interview. Materials experts marketing and design are 20 contributors.
2. Observation method is the observation of the use of wood charcoal that is the use of decorative tiles.

Step 2: Analyze data on features

1. Analyze the properties of wood charcoal by selecting and collecting only the data that affects the processing to be used as materials in the design of tiles.
2. Analyze the type, type, size of the tiles to be used as criteria in the experiment and design.

RESULTS

The results of data analysis on the properties of wood charcoal by selecting and collecting only the data that affect the processing to be used as materials in the design of tiles can be distributed as follows.

Table 1
shows the properties of wood charcoal and household use.

Properties of wood charcoal	Utilization	Percentage of utilization
Smell	Used for sucking odors in the refrigerator, bathroom, shoe cabinet or in areas with a musty smell.	40
Absorb moisture	Used as moisture absorption in areas where the air is rarely	25

Properties of wood charcoal	Utilization	Percentage of utilization
	transmitted or rooms with high humidity, such as bathrooms and used in boxes like a tool box Will help reduce rust	
Sucking ethylene gas	Used for maintaining some of agricultural products or maintain the freshness of vegetables, fruits and flowers	10
Porous	Used to improve soil conditions and to help to absorb water well and add minerals to the soil	20
Suck electromagnetic waves	Used for placing areas with electrical appliances which will be able to suck and to refract electromagnetic waves	5

From Table 1, the results of the analysis of the properties of wood charcoal in the use of household use found that the odor absorption properties have the most use with an average of 40 percent, followed by hygroscopic properties with an average of 25 percent. For Porous properties, the average value is 20 percent. For ethylene gas suction properties, the average value is 10 percent. Properties of electromagnetic waves is average 5 percent, respectively.

The results of data analysis on types, types, sizes of tiles for use as criteria for experimentation and design can be summarized as follows:

Table 2
shows the type and characteristics of the tiles.

Types of tiles	attribute	usage condition
Ceramic tile	- is a tile that is produced from the burning of glaze - There are many colorful patterns. - There are many sizes.	- Used in bedroom, living room, living room
Mosaic tiles	- Small tiles Lined up on the net - There are many colorful patterns. - Good water resistance, low absorption - Can be attached to a rounded area	- Use in small bathrooms rounded area
Granito tiles	- Produced from burning granite Powder with high heat - very strong resistant to scratches - Very low water absorption	- Used in the kitchen
Marble tiles	- Individual patterns - Giving luxury	- Used in the living room
Earthenware	- Produced from soil and burned - Gives a natural feeling - Drain moisture and heat well	- Use at the balcony of the house or balcony
Glass tiles	- Is a tile with a glass surface coating - Colorful patterns - Durable pattern due to coated glass	- Used for wall coverings in narrow spaces

Types of tiles	attribute	usage condition
	- Very low water absorption - translucent	

From Table 2, showing the type and characteristics of the tiles, it is found that in general, tiles can be divided into 6 types, each of which has different characteristics and properties. Which affects the utilization in each area of use.

Table 3.
shows the number of sheets per square meter and the number of containers per box of standard tiles.

Size		Number of sheets / square meter	Packing number / box	Popularity of operating	
inch	cm.			Floor	Wall
4 x 4	10 x 10	100	100		
6 x 6	15 x 15	44	20		
8 x 8	20 x 20	25	25	/	/
8 x 10	20 x 25	20	20		/
8 x 12	20 x 30	16	16		
8 x 16	20 x 40	12	12		
12 x 12	30 x 30	11	11	/	
13 x 13	33 x 33	9	9	/	
16 x 16	40 x 40	6	6	/	
18 x 18	45 x 45	5	5		
20 x 20	50 x 50	4	4		
24 x 24	60 x 60	2.78	4	/	

From Table 3 shows the size of sheets per square meter and the number of containers per box of standard tiles. It is found that the size used in flooring is 8 x 8 inches, 12 x 12 inches, 13 x 13 inches, 16 x 16 inches, 24 x 24 inches and 8 x 8 inches 8 x 10 inches.

Table 4.
shows the size and area of usage and the selection of tiles.

Size and characteristics of the area	Considerations for choosing tiles
The area is always wet.	- Should use the surface tiles to slip - Use small tiles to increase the drainage groove and increase the friction surface
The area needs easy cleaning.	- Should use shiny surface tiles - Use large tiles to reduce the groove between the tiles and to be easy to clean
Small space	- Should use light tone tiles to feel clear
Large area	- Should use medium to dark color tiles to help the area not be exposed and not boring

From Table 4, the size and area of usage and the selection of tiles. It was found that the usage was divided into 2 types: type 1, the area is wet. It should use the surface and small tiles. For the area that needs cleaning is easy, we should use tiles with shiny skin and large, type 2 is the size of the area by a small area, we should choose light colored tiles and for large areas, we should choose dark tiles.

CONCLUSION AND FUTURE WORK

1. Properties of wood charcoal that can be used in the household

1.1 Odor absorption properties. It is used for placing in a place with bad odors such as refrigerators, bathrooms, shoe cabinets by small porosity on the surface of the charcoal. It will help absorb the aromatic hydrocarbon-type chemicals that cause the odor

1.2 Moisture absorption properties are used for placing in areas where air is not ventilated. Or areas with high humidity, such as bathrooms, due to charcoal being burned by moisture sticks from the wood and has a porous surface that can suck and release moisture well

1.3 Various gas suction properties which when placed near vegetables, fruits or flowers will help absorb ethylene gas which is a gas to accelerate the ripening of fruits and vegetables making it possible to maintain freshness for longer

1.4 Properties of porous charcoal when mixed in the soil, it will help to loosen soil. And can absorb water well. It also helps to increase minerals in the soil.

1.5 Electromagnetic wave suction properties when placed near electrical appliances, it helps to suck and refract electromagnetic waves.

2. Due to the properties of wood charcoal, that is not strong Therefore, the wood can be designed as a paving tile. Therefore choosing the properties of wall tiles that do not need to be used as a basis for design which has the following features.

2.1 Lightweight, high porosity In order to mount the wall without the need to gain a lot of tile weight.

2.2 Medium to low strength because the wood must be used to support the weight.

2.3 must be consistent in size because when put to the crab, then must be arranged together into a beautiful line.

2.4 Must have a small contraction or not shrink at all In order to avoid cracking

2.5 should be resistant to acids, alkalis, because cleaning requires a swab solution which may affect the tiles.

From the conclusion, it was found that Wood charcoal has a unique property that can be used in the household, in addition to being just another fuel. The most distinctive feature is the absorption of moisture, which is consistent with Pajaree Tiewsuwan [4], which has designed the decorative products for smell and moisture for use in condominiums using the properties of wood charcoal. Have brought the charcoal to be designed as a shoe cabinet to reduce the smell But there is one more feature that is a special feature of wood charcoal, namely the gas absorption properties which will help to maintain the freshness of vegetables and fruits for longer which is consistent with Tanutpong Phriwanrat [5]. that has concluded results from the experiment of mangrove charcoal properties and product design performance that Mangrove charcoal has a special feature in gas suction, which allows the fruit to have a slower rate of rotting than usual.

From the research results, there are suggestions as follows:

This research is a study of information on wood charcoal. Other types of charcoal may be studied. To compare experiments will help to have a greater variety of designs.

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