Utilization of Metal Lathe Waste as Material for the Absorption of Electromagnetic Radiation Based Orgonite

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Abstract— Electromagnetic radiation is increasing along with the development of technology, especially electronic households with Electrical properties, causing physiological interference and neurological or sensitivity symptoms. This study was conducted to provide a solution to overcome the effects of electromagnetic radiation. Orgonite was prepared by combining resin, quartz crystals, and metals by utilizing waste metal lathe both iron and aluminum. The principle of orgonite based on absorption method, so the material can be used as electromagnetic radiation absorber, by testing using Electromagnetic Field Meters (EMF).

Orgonite has absorption of electromagnetic radiation with the best composition on Metal: quartz at 5:5. At the radiation source 407 mG, the efficiency of iron absorption in orgonite, up to 24.07862%, and aluminum orgonite reach 13.02211%. Increasing source of electromagnetic radiation given, so that the absorption of iron orgonite material up to 80.70175%, while the aluminum orgonite decrease in radiation efficiency of 1000 mG.

Keywords— *Electrical sensitivity, Electromagnetic Radiation, Orgonite*

I. Introduction

MODERN human life can not be separated from need for electrical energy that can generate electromagnetic waves. Interaction of electromagnetic fields with living matter through the induction field and electric currents into the tissues of living beings cause electrical interference sensitivity. This disorder is caused by electromagnetic radiation from high power lines or extra high voltage, electronic equipment at home, at work and industry, including mobile phones (cell phones) and microwave ovens [1]. Potential health problems by energy per photon generated by the electromagnetic radiation.

A variety of materials is designed to reduce electromagnetic waves such as metamaterial [2,7], ferrite[3,6], conductive polymer [4], and polyaniline (PANI) [8].

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The three material have high conductivity and nano-sized so it is able to convert microwave energy into heat energy [5]. However, the preparation of the three materials are very expensive and difficult, so we need an alternative material absorbing electromagnetic radiation.

Orgonite has known as a combination of metal and organic material which has the potential to be used as an absorber of electromagnetic radiation. Design of orgonite can be done with simple. It is mix of metal and crystal quartz and organic component polyester resin.

Metal waste of lathe workshop has not been optimized as material. Then we give innovation from metal waste to be used as the material making orgonite. Most metal waste of lathe workshop consists of aluminum and iron because they have high conductivity. While siliceous quartz crystals are semiconductors material which a semiconductor material can used as a microwave absorber [5]. Orgonite composition largely determines the nature of the electromagnetic wave absorption rate.

Therefore, it is necessary to study the preparation orgonite of metal waste lathe workshop and other components to address the optimal electromagnetic radiation especially in the domestic sphere. Furthermore, orgonite can be used as an alternative material which is cheap and simple to minimize radiation of electromagnetic waves.

II. Procedure for Paper Submission

A. Method Approach

The methods in this study are:

1. Literature study methods

Using books, newspapers, journals, internet or relevant articles as support materials.

2. Experiment

Conduct research directly to the absorption of electromagnetic waves in orgonite.

B. Program Implementation

1. Main ingredient

The main ingredient in this research is waste metal lathe and required supplemental materials such as quartz crystals , resin , talc , mesh , oil and CuO catalysts.

2. Place of research

The study was planned and carried out in the Laboratory of Basic Chemistry Faculty of Science, University of Sebelas Maret Surakarta.

3. Procedures of Research

a. Preparation of glass fiber resin

Glass fiber resin metal is used as a wrapper, composition talk : resin is 1:1 . For drying , the resin is mixed with 1-3 % catalyst .

C. Making orgonite with variations in the composition of the metal : crystal

Metal mixed with fiberglass resin mixture, then stirred evenly in pan. Before it molded, pan is lubricated with oil and mesh, so the resin would not cling in the container. The mixture was poured little by little with a spoon so quartz crystals were in the middle of the metal. Orgonite vary as follows:

TABLE I
COMPOSITION OF METAL AND QUARTZ

1. variation	2. composition	
	3. Metal (%) *)	4. Quartz crystals (%)
5. 1	6. 100	7. 0
8. 2	9. 70	10. 30
11. 3	12. 50	13. 50
14. 4	15. 30	16. 70
17. 5	18. 0	19. 100

*) this research used iron and aluminum metals.

III. ANALYSIS OF ORGONITE WITH RADIATION MEASURING DEVICE (ELECTROMAGNETIC FIELD METER)

A. Radiation absorption efficiency to determinant of the best composition

Analysis done on radiation optical mouse. First, measured the electromagnetic radiation emitted by a mouse that is connected to the laptop. Then measured again with orgonite with each variation (2 metal variations and 5 composition on each metal). Recorded the results of electromagnetic radiation measurements on the measuring device, and compared all the data were obtained. So we can get the best metal and optimal composition to absorb radiation. This research used iron and aluminum metals.

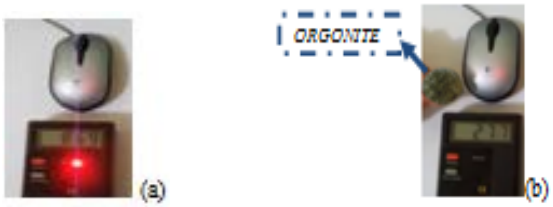

Fig. 1 EMF meter on the optical mouse (a); EMF meter on orgonite + optical mouse (b)

IV. ANALYSIS OF VARIATION WITH ABSORPTION OF RADIATION

The best result of composition with two metal was tested again with variety of electromagnetic radiation from the laptop. Thus it can be seen the effect of orgonite ability to absorb electromagnetic radiation to the amount of electromagnetic radiation.

V. DESIGN OF RESEARCH

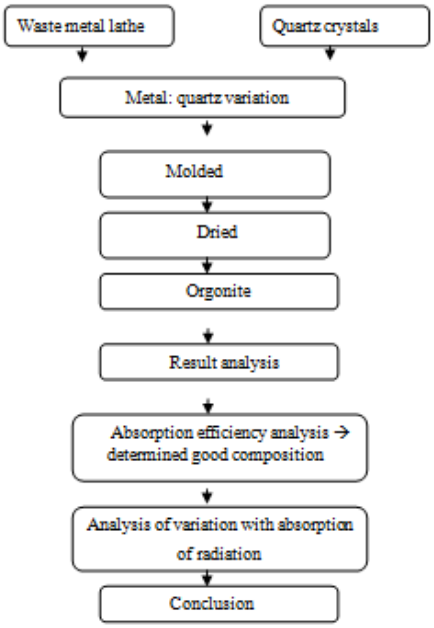

Fig. 2 Research Design

VI. RESULTS AND DISCUSSION

In this study, designed orgonite is result of a combination of metal and crystal quartz using polyester resin adhesive. Metal used in making orgonite comes from waste metal lathe workshop. Basically, most metal waste lathe workshop, for example aluminum and iron have high conductivity. While siliceous quartz crystals that are semiconductors in which the semiconductor material used as an excellent absorber of microwaves. Orgonite absorption of electromagnetic radiation can be determined based on the results of measurements of electromagnetic waves by means of the EMF meter (Electromagnetic Field) with units of milli-Gauss (mG). Strong magnetic field has weakened if the farther the distance from the source . Strong magnetic fields units is tesla or militesla tesla, also used gauss or miligauss (1 T = 1000 mT ; 1 G = 1000 mG and 1 T = 10,000 G). Orgonite composition consist of metal and quartz are critical nature of absorbance against electromagnetic waves. This is shown in fig 3.

Based on Fig.3 shows that the absorption of iron orgonite larger than the absorption of aluminum orgonite. Both aluminum and ferrous metal is a transition metal that has a positive charge and high conductivity values to absorb electromagnetic waves through a gap crystal lattice.

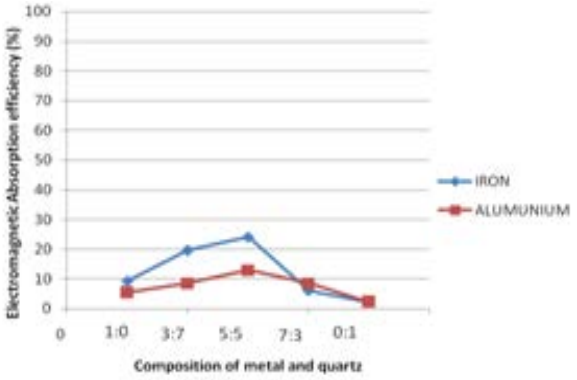

Fig. 3 Electromagnetic Absorption efficiency of the composition of Orgonite

Orgonite composition varied with the ratio between the metals (both ferrous and aluminum) and quartz as follows 1:0; 3:7; 5:5; 7:3, and 0:1. Each composite was tested on a optical mouse orgonite with electromagnetic radiation at 407 mG. Both iron and aluminum orgonite shows that the best composition is 5:5. The orgonite iron absorption is 24.08764% and the aluminum orgonite reach 13.02211%. Furthermore, the best composite orgonite tested against the source of electromagnetic radiation that varies as shown in Fig. 4.

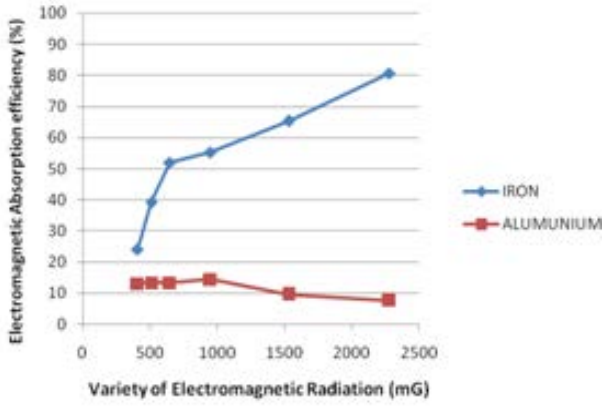

Fig 4. Absorption efficiency of Electromagnetic Radiation to the Great Variety

Electromagnetic radiation varies give different absorption efficiency orgonite. Orgonite iron absorption in the absorption of electromagnetic radiation having a large enough. The increasing of the electromagnetic radiation it will increase the absorption of iron orgonite from 24.07864% to 80.70175%. As with the iron orgonite, aluminum orgonite remained stable around 13%, and decreased at the radiation of 1000 mG. The absorption between iron and aluminum orgonite is very different because metals have different properties.

Electromagnetic wave are combination of electrical properties (electrical) and magnetic (magnetization) so in this case the crystal properties such as electrical conductivity, magnetic properties, and the crystal lattice was important.

TABLE II
PROPERTIES OF IRON AND ALUMINUM (HUSNA, ET AL, 2010)

Properties	**iron**	**Alumunium**
Electron configuration	[Ar] $3d^6\ 4s^2$ 2, 8, 14, 2	[Ne]$3s^2\ 3p^1$ 2, 8, 3
magnetic properties	ferromagnetic	Paramagnetic
electrical conductivity	$1{,}0 \times 10^7$	$3{,}8 \times 10^7$
crystal lattice		
a. Structure	BCC	FCC
b. lattice	2,8664 Å	4,0496 Å
c. the distance between atoms	2,4823 Å	2,8635 Å

Presence of electrons in the outer that has not been filled subshell causes Fe and Al have unpaired electrons. The movement of unpaired electrons in the lattice also cause metal both iron and aluminum as good conductor. Electrical conductivity is an important property of a material to external magnetic field. When an electric field is given in a dielectric, polarization will be occurred on the dielectric. Based on Table 2. known that conductivity and lattice of aluminum is greater than iron. However, based on the experiment, the absorption of electromagnetic waves in iron orgonite was better than aluminum orgonite. This is because iron has a strong magnetic properties (ferromagnetic) while aluminum is paramagnetic. Orgonite phenomenon begins with the formation of static electricity energy from the crystal. This trait is called the piezoelectric effect crystals. The piezoelectric effect will generate the electric field due to change in the form of crystal structure. The resulting electric field of crystal would make the absorbed electromagnetic radiation be polarized and transformed into heat, called elektrostriksi. Then it is released through the end of the crystal to the positive terminal. Therefore, the energy produced is secure.

Based on this study, it was evident that presence of orgonite has the potential to reduce electromagnetic radiation in environment, so as to protect the effects of radiation on human health. Making orgonite can be applied directly on a household scale because the material used is cheap, easy to find, and easy processing. Orgonite development with attractive packaging display objects can be useful and able to absorb radiation of electromagnetic waves generated from electrical appliances such as cell phone or computer. Here is a orgonite application interesting and useful in the form of a vase (Fig. 5) or a stationary point (Fig. 6) as well as a table decoration that can enhance your work table.

Fig. 5 Vase

Fig. 6 A stationary point

VII. Conclusion

A. Waste lathe composite, resin, and quartz, can be utilized as an absorber of electromagnetic radiation.

B. Orgonite has absorption of electromagnetic radiation with the best composition on Metal: quartz at 5:5. At the radiation source 407 mg, the efficiency of iron absorption in orgonite, up to 24.07862%, and aluminum orgonite reach 13.02211%. Increasing source of electromagnetic radiation given, so that the absorption of iron orgonite material up to 80.70175%, while the aluminum orgonite decrease in radiation efficiency of 1000 mG.

Suggestion

A. Orgonite is known by the public to minimize electromagnetic radiation.

B. The further testing of the orgonite to obtain greater efficiency.

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