



# INVENTION

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## The Effectiveness Of Active Carbon From Sawdust Of Coconut For Reduce To Reduce The Lead Waste

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### ABSTRACT

The main objective of this research is the content sawdust of coconut can be processed into activated carbon which can be used to reduce lead waste. The presence of heavy metals in the environment is an environmental problem that needs serious attention. Pollutants are dominated by heavy metal waste, one of which is lead (Pb). Pb is classified into dangerous pollutants. In this study, coconut wood powder was used as activated carbon because the price was cheap and could reduce the negative impact on the environment because the sawdust of coconut was a waste in the wood industry. The advantages of activated carbon are its large capacity and absorption, because the pore structure and the presence of chemical functional groups on the surface of activated charcoal such as C = O, C, and CH. The quality of activated carbon is shown by the absorption value of Iod where based on the provisions of SNI 06-3730-1995 the activated carbon is considered to be of high quality if the value of its absorption is close to 750 mg / g.

**Kata Kunci**

*Active Carbon, Sawdust Of Coconut, Lead (Pb), Heavy Metal, Waste.*

### INTRODUCTION

Waste is material that contains pollutants and is toxic and dangerous. This material is formulated as a relatively small amount of material but has the potential to pollute / damage the living environment and resources. In Indonesia, pollutant sources can come from household, corporate, mining, industrial and other wastes.

The presence of heavy metals in the environment is an environmental problem that needs serious attention. Waste containing heavy metals needs special attention, considering that in certain concentrations it can provide toxic effects that are harmful to human life and the surrounding environment.

Pollutants are dominated by heavy metal waste, one of which is lead (Pb) (Tangio, 2013). Pb is classified into dangerous pollutants. Lead or black lead is a chemical compound used to mix gasoline. The use of lead here aims to control the octane number of gasoline, so that combustion efficiency and lubricant power can increase, therefore motorcycle workforce can also increase. In high octane, the pop noise of the engine can be muted, this can make the engine more durable and its performance to be better (Palar, 2012). Besides being used

as a mixture of gasoline, lead can be used as a base for batteries, cable coatings, coloring agents, and others. The presence of Pb metal ions in the water is a problem that needs special attention, because this heavy metal can adversely affect all organisms that are in the water and can accumulate in the food chain (Tangio, 2013)

So much material in nature has not been used well, such as coconut wood powder which is usually wasted once the coconut stem has been processed into coconut wood which is ready for sale. Coconut sawdust, after investigating the content of coconut wood powder can be processed into activated carbon which can be used to reduce lead waste (Pb), with consideration among others in the field available in large quantities, utilization is not maximized and for certain industries the need for activated charcoal from wood is still imported. In this research coconut wood sawdust was used because the price was cheap as well as being able to reduce the negative impact on the environment because the wood powder of coconut stems was a waste in the wood industry.

The advantages of activated carbon are its large capacity and absorption, because of the pore structure and the presence of chemical functional groups on the surface of activated carbon such as C = O, C, and CH. The quality of activated charcoal is indicated by the absorption value of Iod where based on the provisions of SNI 06-3730-1995, activated carbon is considered of quality if the value of its absorption is close to 750 mg / g.

## RESEARCH METHOD

1. The first step we have to do is burn coconut powder in the drum, now we cut the first drum at the bottom, the goal is to circulate the air (oxygen), so that the heat can be distributed evenly.
2. If you have become charcoal (charred), we charcoal / combustion products first puree by filtering. Our sawdust charcoal is sieved with a 50 mesh escape filter.
3. After that, the coconut powder charcoal we have filtered is put into the available seawater, before and after we measure lead levels.

## RESULT & DISCUSSION

The discussion in this study are:

1. This research was conducted 10 times
2. The raw material for making activated carbon in the form of coconut stem powder is assisted by combustion.
3. The raw material in the form of coconut powder is used as much as 20 grams and 40 grams.

4. After the activated carbon is finished, further testing is carried out by testing it in sea water containing lead by measuring the levels of lead then measuring it before and after testing the levels of lead in sea water undergoing changes.

No	Sebelum	Sesudah
1	90,0	50,34
2	90,0	48,31
3	90,0	47,32
4	90,0	46,87
5	90,0	44,46
6	90,0	37,31
7	90,0	35,66
8	90,0	32,64
9	90,0	31,48
10	90,0	28,34

## CONCLUSION

The conclusions in this study are:

1. Activated carbon has been made with coconut stem powder as much as 20 reducing lead waste in seawater as much as 75 grams and 40 grams with the help of combustion.
2. Activated carbon made from coconut stem powder
3. This research makes activated carbon from coconut stem powder by 75%

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