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## Recycling Dirty Oil Becomes Fuel

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# Recycling Dirty Oil Becomes Fuel

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## Abstract

Used oil is a waste of industrial activities that are often found in Indonesia and also in the world, (especially developing countries). So far the method of processing that is performed including the recycling and mixing the oil with hydrocarbons. This paper air-kan scene of Used Oil Waste becomes fuel Along population growth rate of the industrial sector was automatically increased rapidly. Examples of small scale car and motorcycle repair shop, and still a lot of waste that is dirty and notorious harm lingkungan. Oli motor vehicle after use surely will be replaced on a regular basis, having worn a lot of people or the mechanics experts, most of it carelessly discard oil. We need to know the oil may still be recycled in a deep black color and a distinctive odor. Since the number is arbitrary memebuang oil may cause environmental pollution, namely land and water. 1 liter of oil can ruin 1 million liters of water. This time also the crisis of fuel which makes us to be thrifty in its use. So in this case would discuss the processing of recycling used oil into fuel in a way that is simple and inexpensive.

*Keywords:* oil; recycle; pollution; environment

## 1. Background Research

Oil or lubricant is a material that can not be separated from the automotive world because of oil or lubricant is useful to lubricate the moving parts on an object or tool motor vehicles both cars, motorcycles, and industrial tools, but there are still many people who still do not understand how the lubricant manage so many are put or membuangnya to the ground or kelingkungan and may result in environmental pollution if it continues then the land will be barren if thrown into an irrigation canal, the channel will also be contaminated. (Blessing Indonesia, 2012).

Used oil is produced from various human activities such as industri, mining, and business workshops. Used oil is included in B3 combustible waste that if not handled in the management and disposal will harm health in persons and the environment. The used oil management seeks to used oil that is produced does not pollute the environment and the nature of the used oil into a more harmless. In addition, used oil management aims to create a healthy environment for the community (otopos.net, 2014). According to sources Scribd also 1 liter can ruin 1 million water. B3 waste is hazardous, toxic, radioactive, and explosive, so that waste should be treated specially b3 (ARTICLE 7 PP 85/1995) but is only done in the industry is not in the community such as workshops and so on.

So we chose the title "Being Used Oil Recycling Fuel" in the hope to minimize the environmental damage caused by oil waste and also for a new breakthrough in the automotive field.

### 1.1. Formulation Problem

Can make recycling research dirty oil into fuel?

## 1.2. Limitation Of Problem

Just examine the recycling of dirty oil into fuel oil

## 1.3. Research Objectives

1.3.1. Recycling used motor oil into a fuel that can be used / reused

1.3.2. To reduce waste types B3 in larger quantities

## 1.4. Benefits Research

1.4.1. for all the people / society, especially in automotive

1.4.2. As an input to the government to recycle oil beaks with a new method is easy and inexpensive and affordable

1.4.3. Adding insight communities and researchers

## 2. Definitions Oli

Grease or oil is a kind of viscous liquid that serves sebagai lubricants, protective, and cleaner for the inside of the machine. Identification codes, the oil is in the form of letters SAE stands for Society of Automotive Engineers. Furthermore, the numbers followed behind, showing the level of the oil viscosity. SAE 40 or SAE15W-50, the greater the number that follows indicates the oil code kentalnya the oil.

While the letter W which are behind the initial figure, which stands for Winter. SAE 15W-50, meaning that oil has a viscosity SAE 10 for cold temperature conditions and SAE 50 in hot temperature conditions. With these conditions, oliakan provides optimum protection when the engine start under extreme conditions sekalipun. Sementara was normal in hot conditions, ideally oil will work within the broad range of viscosity of 40-50 according to SAE standards.

## 3. Function Oli

All kinds of oil is basically the same. Namely as a lubricant for the machine running smoothly and hassle free. Also functions as cooling and insulating. Oli contains layers of fine, works to prevent conflicts between metal to metal engine components to a minimum, preventing scratches or wear and tear. For some specific purposes, special application in a particular function, the oil is required to have a number of additional functions. The diesel engine, for example, normally operates at low speed but has a higher temperature than the gasoline engine. Diesel engines also have favorable conditions (opportunities) that is larger that could cause oil oxidation, deposit buildup and metals bearing perkaratan.

## 4. Content Used Oil

Used oil contains chemicals, including hydro carbon and sulfur. because of work lubricate the metals, used motor oil also contains residual fuel, copper, iron, aluminum, magnesium and nickel and others.

## 5. Content Of Oil New

Fuel + other additives.

## 6. Definitions Phase Sae

SAE is the oil viscosity level code that has been standardized internationally

## 7. Research Methodology

### 7.1. The Research

Physics Laboratory Academy Maritim Belawan Medan.

### 7.2. Time Research

On July 1, 2017 until 7 September 2017

### 7.3. Tools And Materials

Tool

- Ayaan
- Collision
- wooden sticks
- compressor
- Canned bread
- Matches

Material

- dirty oil
- charcoal
- Blencin
- PVC pipe

Work procedures

- Prepare tools and materials
- Dirty oil is placed in the measuring cup mix the charcoal that has been ground or mashed through a filtering mechanism, then stirred with a  $\pm$  20 minutes.
- Mix with blencin by comparison
- Dirty oil: Charcoal: Blencin  
3: 1: 1      5: 2: 2

### 7.4. Research Result

	Oil 1	Oil 2	Oil 3	Oil 4	Oil 5
30ml:10ml:10ml	11	11	11	11	11
50ml:20ml:20ml	20	20	20	20	20

#### 7.4.1. The Density OF CHARCOAL

The density of charcoal :  $208 \text{ kg/m}^3$   
 $= 208 \times 10^{-3} \text{ kg/dm}^3$   
 $208 \times 10^{-3} \text{ kg/dm}^3 = 208 \times 10^{-3} \text{ kg/l}$   
 $10 \text{ ml} = 208 \times 10^{-3} \times 10^{-2} = 208 \times 10^{-5} \text{ kg/ml} = 208 \times 10^{-2} \text{ g} = 2,08 \text{ gram}$   
 $20\text{ml} = 4,16\text{gram}$

#### 7.4.2. SPECIFIC GRAVITY

$$\text{SPECIFIC GRAVITY} = \frac{\text{massa} \times \text{gravitasi}}{\text{volume}} = \frac{208}{1} \times 9,8 = 2038,4 \text{ N/m}^3$$

#### 7.4.3. POWER absorbency CHARCOAL AND BLENCIN

Absorption Arang And Blencin 3: 1: 1

From the available data it can be seen and blencin charcoal absorption (in%) using the following comparison system.

$$\frac{100}{x} = \frac{30}{11}$$

$$x = \frac{1100}{30} = 36,67\%$$

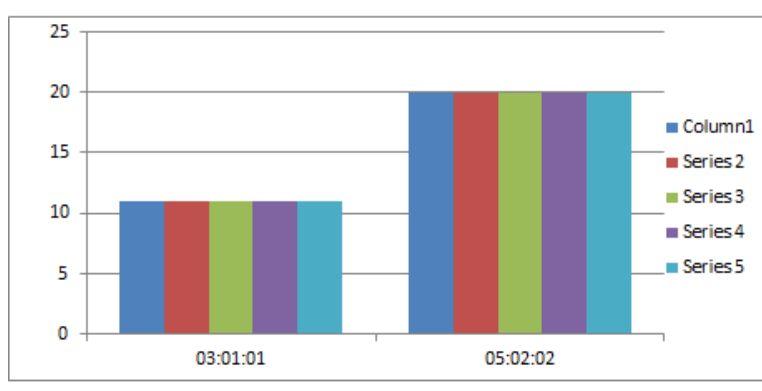
Absorption Arang And Blencin 5: 2: 2

From the available data it can be seen and blencin charcoal absorption (in%) using the following comparison system

$$\frac{100}{x} = \frac{50}{20}$$

$$x = \frac{2000}{50} = 40\%$$

#### 7.5. FIGURE POWER ABSORBENCY CHARCOAL AND HATE



## 8. Conclusion

### Conclusion

It has been obtained from the recycled fuel oil with charcoal and blencin with 5 samples of 10 variants. The more the amount of coal it will be more clean and less and less oil is produced

### Advice

Better to use a ratio of 5: 2: 2 for if too much charcoal then the result bit and for a 5: 2: 2 is clear and maximum results

For further study if the conditions and time permits there will be a fractional distillation to extract the type of fuel

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