CHAPTER 2

ENERGY RECOVERY POTENTIAL OF WASTE ENGINE OIL FROM AN ALTERNATIVE PERSPECTIVE

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INTRODUCTION

Energy has always been a need, including in primitive lives. As the information on how to use fire was developed, it was learned that energy is a controllable concept. Today, however, there is a competition for energy. Energy is now used as a formidable weapon against other countries for countries [1]. Energy, which cannot be supplied to production-oriented countries, primarily affects consumption-oriented countries. When we look at the whole history of humanity, especially the developments after the industrial revolution show our connection to controllable energy. In addition to energy efficiency for energy, it has brought concepts such as environmental effects (carbon footprint) and waste energy during the production and consumption of energy [2,3]. The world has come to such a point that even our garbage waste is seen as an important energy source. As in every consumption, more or less waste is generated. While some of these wastes can be recycled as products, some of them unfortunately remain as waste. It is the same with energy. In an energy conversion system, some of the energy is directly converted, while some creates waste. However, although it is not an energy source itself, there are materials that require energy to be produced and become waste after their useful life. For example, waste tires, plastic bottles, vegetable oils and engine oil are just a few of them [4-7]. It should not be forgotten that these materials cause environmental problems as well as waste energy potentials. Therefore, these materials must be recycled (either as product or energy) or disposed of at the end of their

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ral lands, population growth. Petroleum-based waste oils are also environmental wastes. While some of the waste oils are lost during use, the rest is collected and recycled or incinerated. A small part of the mineral oils consumed in our country can be collected. Considering that some of the non-collected oil is lost during use, it is a pity for our country that there is no record of how the waste oil that needs to be collected is evaluated or how it is made.

The biggest threat in waste mineral oils is that it mixes with soil and water and creates an ecological threat. Although various organizations are organized in our country for the collection of waste mineral oils, this issue is still a big problem in our country. For this reason, improving the usability of waste mineral oil, in other words, adding economic value to waste mineral oil will be a more effective method.

As a general evaluation, waste mineral oils have a great economic value due to their petroleum origin. However, it is promising that it can be developed with additives, although it does not seem appropriate to be used directly as a fuel in diesel engines. It is estimated that the use of waste mineral oils will be more attractive by intensifying research on methods and additives that will significantly reduce viscosity in order to guide the studies to be carried out in parallel with this subject in the future.

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