

Lubricants importance and concerns toward human lives and environment

Analytical and theoritical reasearch

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Graduation Project – 1

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Chapter:1

Lubricants importance and concerns toward human lives and environment

Introduction

A chariot was once a machine used by the ancient Egyptians, early chariots were found at the tombs of Yuua and Thuiu back in 1400 B.C. Soon the wooden wheels hubs were becoming charred from frictional heat. That was the spark of many trials and experiments to reduce the cool down the generated heat as a result of friction using water and some olive oil. Eventually, they have noticed that some more viscous liquid didn't only prevent cool down the generated heat but even prevented the heat from being generated. furthermore, the wheels were moving more freely and smoother than before. (The History of Lubrication, [Jim Fitch](#), Noria Corporation)

Since then, lubricants have become very essential, they have developed enormously with time. Many forms like oil, grease, fluids. furthermore, characteristics are wide spreading, there are different viscosity grades, temperature endurance, pressure handling and so on. In addition, lubricants are becoming more critical and crucial with the big evolution of industries and factories, food and beverages machinery, oil & gas, textiles. Almost every machine used even at homes will require some type of lubricant to keep running efficiently without failures.

Petroleum-based lubricants are most popular form known in the modern form. It is derived from crude oil and being processed to be widely used in industries .([Bennett Fitch](#), Noria Corporation) Synthetic lubricants are another modern form is widely used and it is artificially fmade by chemical compounds rather the being derived from refined crude oil. ([Jonathan Trout](#), [Jim Fitch](#), Noria Corporation).

Moreover, another form of lubricants is the bio-based lubricants made of renewable energies like vegetable oil and animal fats .([Bennett Fitch](#), Noria Corporation)

Chapter2:

Research problem

The current research aims to draw your attention to the negative impact of every form of lubricants mentioned, mainly health related issues and environmental pollution. lubricants are being used widely as mentioned in the introduction, and after certain time, those lubricants are being disposed which means there are concerns regarding direct human beings contacts and the affect on both health and environment.

Lubricants might seem to be human friendly and the effect of their vapor inhalation and hand contact might seem mild as they don't cause immediate serious illness ,unlike hydrocarbons such benzene substance that is highly carcinogenic if inhaled or in direct contact through splashes or handling without applicable personal protective equipment .Although , the affect of being exposed to lubricants is not immediate ,long term exposure could cause serious illness due to the nature of lubricants derived from crude oil . In addition,

synthetic oil chemical formulation could also lead to serious illness due some chemical additives. Many aspect and characteristics to be taken in considerations like, volatility, temperature, contaminations.

Chapter2:

Literature Review and the relation between variables:

At this section it is important to review the main subject of this research, which is Lubricants importance and concerns toward human lives and environment, lubricant are essential for industries and many machinery. However, safety of people specially those in close contact with lubricant is a major concern. In addition, a safe environment is also a major concern, consuming lubricant never mean to damage environment around which could also lead to human health issues.

Variable 1: lubricants made of base oil

As most of us know that lubricant at the old ages were made of animal fat, and through time people become using lubricants made of base oil. waste lubricant made of base oil can only be recycled or used somehow but eventually, where this wasted lubricant will end up a big question mark as they are not degradable it can be used in wide variety of shapes and it is involved in many industries.

Variable 2: Bio degradable lubricants

It is worth to mention and deeply discuss the possibilities of bio degradable lubricants to replace the base oil lubricant and their importance in industries as well.

Relation between variables:

Oil industries are very essential for our lives almost everything around us is some how made of oil refining, devices, furniture, plastic bottles clothes, detergents etc. but if there is any possibility to replace oil-based lubricants with a more human and environment friendly lubricants, this might reduce the risk of being exposed to oil products and reduce health risk. Also, it will reduce the risk of polluting environment

Chapter3:

Main research question

The majority of lubricants in their nature are subject to change in their characteristics due to wear of parts, friction, heat and contaminations, so after some time, they will be disposed and replaced with new fresh lubricants. As a result of that, disposed or wasted lubricants are a serious concern. A research by Ramesh Chand & Binay Kumar says it is estimated approximately 50 % of all lubricants sold worldwide end up in the environment via total loss applications, volatility, spills or accidents (IJSET - International Journal of Innovative Science, Engineering & Technology, Vol. 4 Issue 4, April 2017)

Lubricant are very important for industries, manufacturers and even at home appliances. So, it worth to question. What possible methods ,techniques and procedures can be used to control lubricants environmental pollution and prevent health problems?

Research Significance

The significance of this research strengthens the need of balanced, reasonable and strict solutions for saving human lives and raise the responsibility senses and the awareness level of keeping our environment clean unharmed as well as keeping industries running efficiently without disturbing by figuring out better solutions, better ways of lubricants handling, usage and disposing.

Research Questions:

This research study will be about offering reasonable solutions or alternatives for lubricants handling, disposing and to study the impact of lubricants toward individual's health and the environment

Main research question & sub-Questions

- Main Research Question: What possible methods, techniques and procedures can be used to control lubricants environmental pollution and prevent health problems?
 - **Sub-Question 1:** what are the possible remedies to control lubricants spill and wasted lubricant disposal?
 - **Sub Question 2:** Are there additional safety measures to be taken in consideration while handling lubricants?
 - **Sub-Question 3:** Can we count on bio-based lubricants that are highly biodegradable and more environment friendly to replace crude based lubricants?

Research objectives

The main aim of this study is to determine the focus points and to analyze, evaluate and examine the key objectives of this study is based on

- ✓ To identify all possible lubrication spills and best practices of used lubricants disposal.
- ✓ To evaluate the effectiveness of current safety measures, personal protective equipment and labeling used while handling lubricants.
- ✓ To examine the effectiveness and of replacing crude based lubricants with bio-degradable lubricants and the impact on the environment.

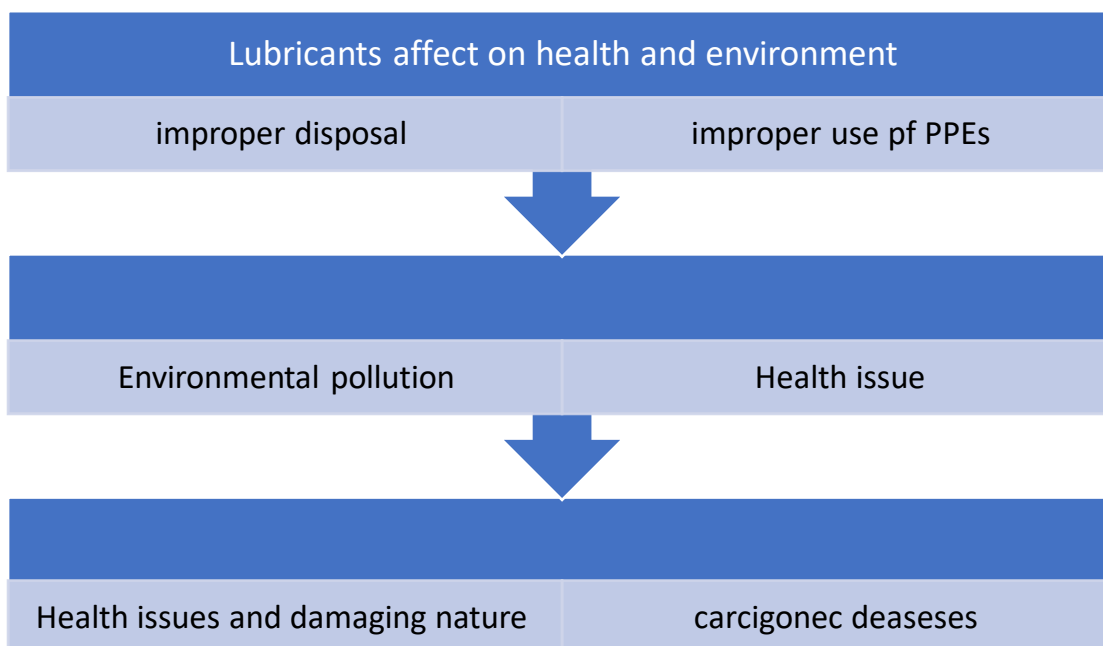
Chapter4:

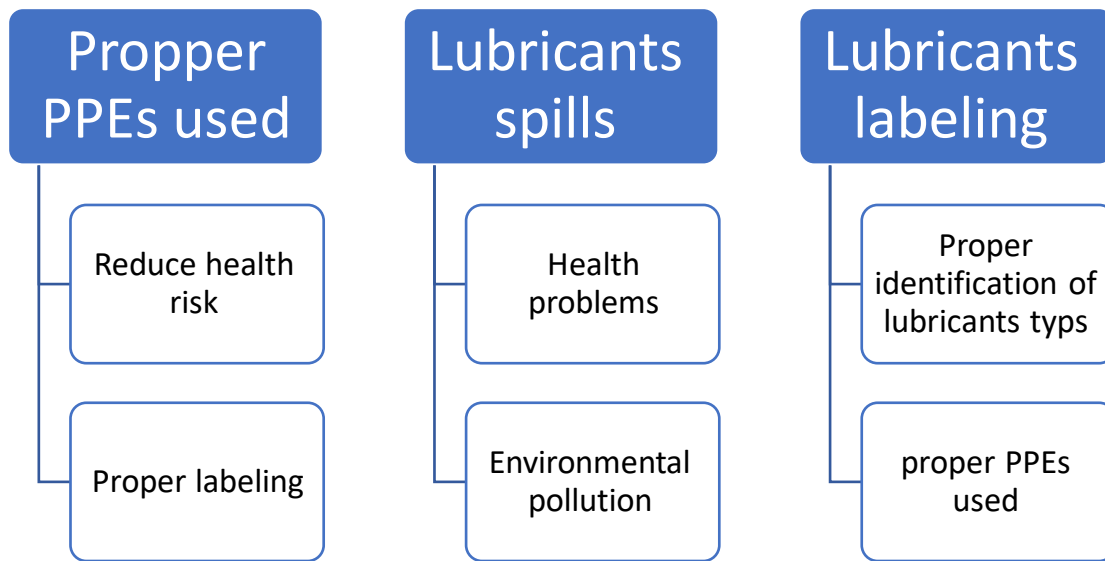
Research Hypotheses:

- There is a statistical positive relationship between lubricants spill, waste disposal and environmental pollution
- There is a positive relationship between using proper PPEs and reducing health risks
- There is a significant statistical positive relationship between lubricants labeling and proper lubrication identification and proper storage
- There is a significant relationship between replacing crude based lubricants with bio-degradable and the impact on environment
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Research Model:

Presents the relation between independent variables and the affect on independent variable





Chapter4:

Conclusion:

In conclusion, oil-based products and lubricant have contributed to change the world we know. However, I believe it is the time to try to develop and consider human health and environment as a priority, large companies and manufacturers of lubricants have a huge responsibility in this matter to keep factories running and in the same time to invest more in researches regrading more efficient and safe lubricants products on humans and environment.

Reference list

1. (The History of Lubrication, Jim Fitch, Noria Corporation)
2. .(Bennett Fitch, Noria Corporation)
3. (Jonathan Trout, Jim Fitch, Noria Corporation)
4. .(Bennett Fitch, Noria Corporation)
5. (Ramesh Chand & Binay Kumar, IJSET - International Journal of Innovative Science, Engineering & Technology, Vol. 4 Issue 4, April 2017)