



SNS COLLEGE OF TECHNOLOGY

(An Autonomous Institution)

COIMBATORE-35.



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Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai.

DEPARTMENT OF AUTOMOBILE ENGINEERING

COURSE NAME : 19AUB301 – AUTOMOTIVE FUELS AND LUBRICANTS

III YEAR / V SEMESTER

Unit 1- Manufacture of Fuels and Lubricants

Topic : Manufacture of finished automotive lubricants



INTRODUCTION



- Although the refining and processing techniques have been developed technologically in order to produce **base mineral oils** with very good properties.
- Those produced cannot meet the requirements of today's applications.
- For this reason, to the base mineral oils they add chemical additives or improvers, which enhance their physicochemical characteristics and properties while giving the final product



SYNTHETIC BASE LUBRICANT



- The increasing demand of lubricants to perform in ever expanding temperature function ranges marked the continuing development of synthetic lubricant technology.
- The synthetic base lubricants:
 - ❖ Offer better thermal and oxidative stability.
 - ❖ Retain their viscosity.
 - ❖ Are less mutable in different conditions.
 - ❖ Exhibit improved friction properties.
 - ❖ Exhibit lower solubility to additives.



ADDITIVES



Additives are chemical compounds used to affect the performance characteristics and the required properties by the lubricant.

- ***Antioxidants***: They constrain the “attack” of oxygen to the oil, and reduce its fattening, especially at high temperatures.
- ***Detergents***: Metal compounds which control deposits and keep the engine clean.
- ***Dispersants***: Non-metallic (ash-free) organic compounds that keep deposits and by-products suspended in the lubricant and prevent their creation.



ADDITIVES



- **Against wear:** They prevent wear. They are usually based on zinc, phosphate or other organic-metallic substances.
- **Inhibitors of rust and acidity:** They prevent the “attack” of acids on metal surfaces.
- **Modifiers of friction:** They reduce friction and vary in chemical composition, depending on the lubricant type.
- **Additives of extreme pressure:** It is usually about additives based on sulphur-phosphorus. They are mainly found in transmission lubricants but also in the lubricants of air compressors, hydraulic systems and machine tools



ADDITIVES



- **Anti-foaming agents:** They prevent the foaming of the lubricant due to presence of air and thus help maintain the lubricant film and the pumping of oil.
- **Viscosity index improvers:** They change the thinning rate (as well as the viscosity index) as the temperature increases. They are polymer components varying in chemical composition, depending on the lubricant type.
- **Degradation of pour point:** They improve the property of lubricant to flow at low temperatures.



RE-REFINING OF USED LUBRICANTS



- The waste lubricant, through the contamination undergone during use, has become unsuitable for lubrication due to the presence of impurities and other products or due to the loss of its original properties.
- Re-refining separates water, oil and asphalt products and through distillation it restores the lubricating oil (distillate) as in the refining process.



REFERENCE



- <https://www.lpc.gr/en/technology/how-are-lubricants-produced/>



THANK YOU !!!