SNS COLLEGE OF TECHNOLOGY

(An Autonomous Institution)

COIMBATORE-35.

Accredited by NBA – AICTE and Accredited by NAAC – UGC with 'A+' Grade

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

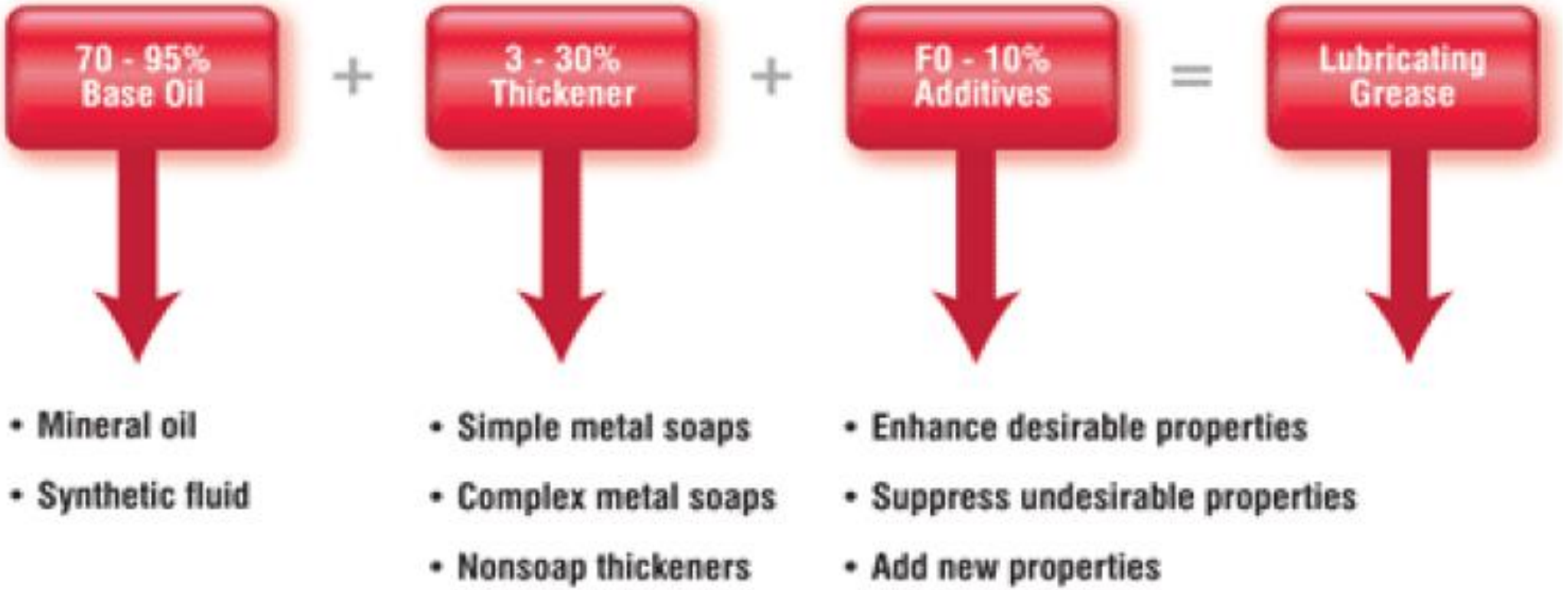
Unit 3 - Lubricants

Topic : Grease, classification, properties, test used in grease

GREASE

- Lubricating grease is defined as a solid to semi fluid product of dispersion of a thickening agent in liquid lubricant.
- There are three components that form lubricating grease.
  - Base oil
  - Thickener
  - Additives.
- The base oil and additive package are the major components in grease formulations.
- The thickener is often referred to as a sponge that holds the lubricant

GREASE


70 - 95% Base Oil
+
3 - 30% Thickener
+
F0 - 10% Additives
=
Lubricating Grease
• Mineral oil
• Synthetic fluid
• Simple metal soaps
• Complex metal soaps
• Nonsoap thickeners
• Enhance desirable properties
• Suppress undesirable properties
• Add new properties

BASE OIL

- Most greases produced today use mineral oil as their fluid components.
- These mineral oil-based greases typically provide satisfactory performance in most industrial applications.
- In temperature extremes (low or high), a grease that utilizes a synthetic base oil will provide better stability.

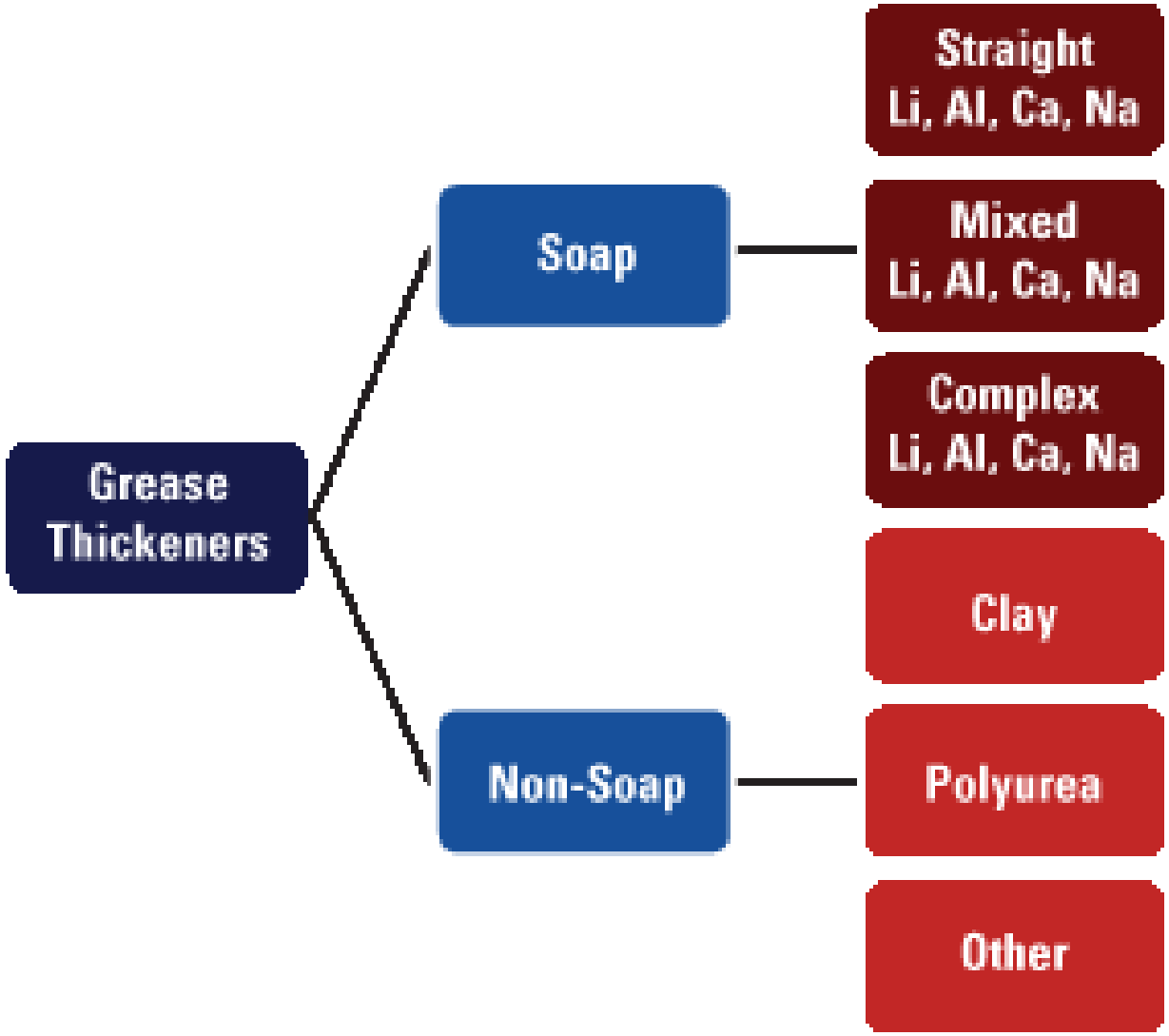
THICKENER

- The thickener is a material that, in combination with the selected lubricant, will produce the solid to semifluid structure.
- The primary type of thickener used in current grease is metallic soap.
- These soaps include lithium, aluminum, clay, polyurea, sodium and calcium.
- Laterly, complex thickener-type greases are gaining popularity.
- They are being selected because of their high dropping points and excellent load-carrying abilities.

ADDITIVES

- Additives can play several roles in lubricating grease.
- These primarily include enhancing the existing desirable properties, suppressing the existing undesirable properties, and imparting new properties.
- The most common additives are oxidation and rust inhibitors, extreme pressure, antiwear, and friction-reducing agents.

TYPES OF GREASE



PROPERTIES OF GREASE

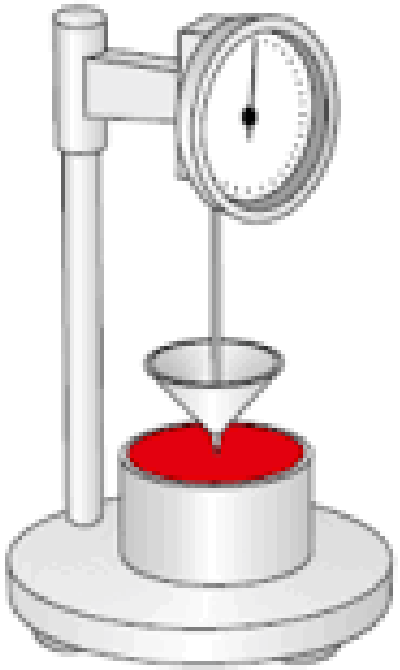
- Consistency
- Dropping point
- Should be Water Resistance.
- Base oil viscosity
- Pumpabality
- Compactibility
- Shear stability

FUNCTIONAL PROPERTIES

- Grease functions as a sealant to minimize leakage and to keep out contaminants.
- Cost of Lubrication system is less compared to Liquid Lubrication system
- Finely ground solid lubricants, such as molybdenum disulfide (moly) and graphite, are mixed with grease in high-temperature service or in extreme high-pressure applications.
- Fluid level does not have to be controlled and monitored.

TEST ON GREASE

- Drop point Test
- Penetration Test



REFERENCE

- https://www.efficientplantmag.com/2009/07/grease-basics/

THANK YOU !!!