

Classification of lubricants with Examples

Classification of Lubricants

Lubricants are classified according to their physical state

1. Solid lubricants
2. Semi-solid lubricants
3. Liquid lubricants

1. Solid lubricants – They are solid in nature. Solid lubricants are used at high temperature and heavy duty operations. Solid lubricants are used at very high loads and low speed. Solid lubricants are used in situation when semi-solid or liquid lubricants cannot be maintained.

E.g. Graphite, talc, waxes etc.

2. Semi-solid lubricant – They are semisolid fat like in nature at ordinary temperature. They are most popular and widely used as lubricants. They are used in heavy load bearings.

E.g. greases, Vaseline, some fats

3. Liquid lubricant- They are liquids at ordinary temperature

E.g. **Vegetable oil, Mineral oil etc.**

Classification of Liquid lubricants

1. Vegetable oil and animal oil

- These oils are the most commonly used lubricants.
- They are quite oily and are absorbed by all the metallic surfaces
- They decompose at high temperature, undergo oxidation easily, forming gummy and acidic hydrolyzed products

2. Mineral oil from petroleum

- These lubricants are obtained by fractional distillation of petroleum
- The shorter chain oils have lower viscosity than the longer chain hydrocarbons
- Shorter chain hydrocarbons are widely used as lubricants because they possess good stability.

3. Blended oil, doped oil, or compound oil -

- These lubricants are obtained by mixing or doping two or more lubricants together

Mechanism of lubrication

Mechanism of lubrication can be explained by three types:

- A. Fluid Film Lubrication/ Thick Film Lubrication**
- B. Boundary Lubrication**
- C. Extreme Pressure Lubrication**

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