Recycling of Used Cooking Oil to Make Soap
Introduction

• Soap making generally involves the reaction of a fatty acid with an alkali to produce soap & glycerol.

• The quality of the soap produced depends on the cleaning and quality of the oil.

• NaOH is used to make hard soap while KOH is used to make liquid soap.

• Other additives such as, antioxidants, colors and fragrance can be added to improve soap quality.
Pretreatment of cooking oil

- Used Cooking Oil
  - Gravity Settling
  - Filtration
  - Hot Water Washing
  - Deodorization & Decolourization
  - Vacuum Filtration
  - Treated Oil
Pretreatment of cooking oil

Settling
- UCO is allowed to settle using gravity to remove solids in the oil. Then, the top part of liquid UCO is filtered.

Hot water washing
- Hot water (95 °C) is mixed with the filtered UCO to remove water soluble impurities.

Clay Treatment
- 10% of Clay is mixed with UCO (about 70 °C) for 25 minutes to remove color and odor.

Vacuum Filtration
- Use vacuum filtration to separate the clean treated oil and the clay.
Hot Water Washing
Vacuum Filtration
Steps For Making Bar Soap

1. **Mixing and saponification** at 55 °C for 25 minutes
2. **Soap Tracing**
3. **Adding fragrance and colour**
4. **Pouring into moulds**
5. **Curing for two weeks**

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- **Treated oil**: 55 °C
- **NaOH solution**: 55 °C
Steps For Making Liquid Soap

Mixing and saponification
95 °C for 50 minutes

Soap Tracing

Double - boiler heating
95 °C for 2 hours

Mixing with 60 °C hot water

Add fragrant and colour
40 °C

Liquid Soap
Photos for Liquid Soap Making

Adding Treated UCO at 55 °C

Adding KOH at 55 °C
Photos for Liquid Soap Making

Soap becomes tracing

Becoming thick paste
Photos for Liquid Soap Making

End of Saponification

Adding Hot Water

Liquid Soap
Solid Soap Product
Liquid Soap Product
THE END