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LIQUID DETERGENT and FABRIC CONDITIONER

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'Our Business is Industry…"

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LIQUID DETERGENT AND FABRIC CONDITIONER

INTRODUCTION

The main ingredient in a detergent product is a surfactant, a material containing in a single molecule, a hydrophobic (water-repelling) group on one end and a hydrophilic (water-attracting) group on the other end.

Surfactants are compounds that affect (usually reduce) surface tension when dissolved in water or water solutions. The HYDROPHOBIC group is a hydrocarbon containing 12 to 20 carbon atoms in a straight or slightly branched chain. The HYDROPHILIC functional group may vary widely as a) an ANIONIC, b) CATIONIC and c) NON-IONIC. In general, the hydrophilic nature of those functional groups decreases from ionic to non-ionic groups. Soaps and detergents are ANIONIC while fabric conditioners are CATIONIC.

While soaps and detergents can be produced as bar, liquid or powder, the trend is in the use of liquid products due to economy in production and ease of application. A variety of organic molecules as a base material for detergents, either from mineral oil, crude oil resources or from natural products are used in practice.

MINIMUM REQUIREMENT

1. Weighing scale (top-loading, ordinary or digital), *10-kg capacity, 50 grams graduation*
2. Plastic pail, *20-L capacity (2 pcs); 4-L capacity (3 pcs)*
3. Electric hand mixer (portable), *1 unit*
4. pH paper, 0-14 (Merck), *1 pack*
5. Plastic bottle with cover, *250mL capacity; 500mL capacity, 1L capacity, 1 gal capacity*
6. Plastic water dispenser, *20L capacity*

LIQUID DISHWASHING DETERGENT

Raw Materials

855	G (ml)	Deionized water
12	g	Caustic soda (flakes)
94	g	LABSA*
27	g	CDEA**
4	drops	Colorant, green; (McCormick)
1	g	Essence (green apple)
12	g	Sodium chloride (technical grade)

*LABSA – Linear Alkyl Benzene Sulfonic Acid
**CDEA – Coco Diethanolamide

Procedure

1. Dissolve the caustic soda flakes in 350ml water.
2. Slowly add to the LABSA with slow agitation for 10-15 minutes or as necessary to obtain a clear solution.
3. Incorporate CDEA dissolved in the remaining water and continue mixing until homogenous.

4. Check pH and adjust with 10% caustic soda solution or LABSA, if necessary to get pH = 9 to 10.
5. Add the remaining ingredients with slow mixing.
6. Set aside to allow clearing of solution (bubbles to subside).
7. Pack into clear PET bottles or containers.

LIQUID LAUNDRY DETERGENT

Raw Materials

776	g (ml)	Deionized water
15	g	Caustic soda flakes
123	g	LABSA
49	g	CFAS powder/needle
5	g	Na_4 EDTA* (Trilon B)
10	g	Aquasol
10	g	Essence (Ariel-like)
12	g	Sodium chloride (technical grade)

* EDTA – Ethylenediamine Tetraacetic Acid

Procedure

1. Dissolve the caustic soda flakes in 350ml water.
2. Slowly add to the LABSA with slow agitation for 10-15 minutes or as necessary to obtain a clear solution.
3. Dissolve CFAS and EDTA in the remaining water in separate containers.
4. Incorporate CFAS and EDTA solutions with mixing after each addition then add “Aquasol” until clear.
5. Add essence until uniform.

6. Thickener may be added as desired. (Addition of too much sodium chloride will "thin" the product.)
7. Set aside to allow clearing of solution (bubbles to subside).
8. Pack into bottles or containers.

FABRIC CONDITIONER

Raw Materials

870	g (ml)	Deionized water
100	g	Fabric softener beads
5	g	Na_4 EDTA (Trilon B)
2	drops	Colorant (H_2O-Soluble); McCormick
12	g	Essence (Downy-like)
14	g	Sodium chloride (technical grade)

Procedure

1. Fabric softener beads (or flakes) is slowly dissolved in 600ml water. (*If you use flakes, dissolve in hot water at 80°C.*)
2. Dissolve EDTA in the remaining water and add to the dissolved fabric softener solution.
3. Add the remaining ingredients and mix until uniform.
4. Set aside and allow clearing of solution.
5. Pack into PET (plastic) bottles or containers.