

DEPARTMENT OF CHEMISTRY
SRR & CVR GOVERNMENT DEGREE COLLEGE(A),
VIJAYAWADA.

NAME OF THE ACTIVITY: DETERGENT POWDER MAKING

A workshop on Manufacture of Detergent Powder was conducted on 23.08.2017 for final year students of MPC, BZC and MBC. 40 students were trained in the process of preparation of detergent powder in safe and hazard free conditions (Do It Yourself). The idea behind this workshop is to provide them with training in the preparation, packing and marketing of household detergent powder in a small scale so that they become a small-scale entrepreneur after completion of their under graduate studies.

If they are successful in the process, the same may be expanded into a small-scale unit with support and cooperation from government or self-finance (own resources).

A detergent is a substance or a mixture containing soaps and surfactants used for washing and cleaning processes.

INGREDIENTS REQUIRED: (For approximately 6 kg product)

1	Soda (Sodium Carbonate)	2kg
2	Acid Slurry LABSA (OLEUM)	1kg
3	TSP(Trisodium phosphate)	700g
4	STPP(Sodium Tri Poly Phosphate)	
5	Glauber's Salt (Sodium Sulphate)	1kg
6	SMS (Sodium Meta Silicate)	500g
7	Caustic Soda(LYE)	100g
8	SLS (Sodium Lauryl Sulphate)	250g
9	Sodium Carboxy Methyl Cellulose	100g
10	Scent	10ml
11	Tinopal	25g
12	Coloured Balls	100g

Washing soda is used in detergent, to clean especially in hard water, and as a laundry additive to soften water.

Acid slurry is a sulphonation product made by sulphonation of linear alkyl benzene by oleum giving Linear Alkyl Benzene Sulphonic Acid (LABSA) (Soft Acid Slurry) which is the main Raw Material in the formulation of Washing Powder.

Trisodium phosphate (TSP) is a white, granular or crystalline solid, highly soluble in water, producing an alkaline solution. TSP is used as a cleaning agent, that helps to loosen dirt and grime.

Sodium Tri Poly Phosphate (STPP) in detergents acts as a water softener. In hard water (water having high concentrations of Mg^{2+} and Ca^{2+}), detergents are deactivated. Being a highly charged chelating agent, STPP prevents them from interfering with the detergent.

Sodium Sulphate (Glauber's Salt) is used as a filler in detergent, in powder form to increase the quantity of detergent powder.

Sodium Meta Silicate (SMS) is a colorless crystalline hygroscopic and deliquescent solid, soluble in water and is used as a bleaching aid and to enhance the cleaning efficiency of the surfactant in soaps and detergents.

Caustic Soda (NaOH) is used as a cleansing agent.

Sodium Lauryl Sulfate (SLS) is an additive used to increase lather and foam. SLS acts as a surfactant, wetting surfaces, emulsifying or solubilizing oils, and suspending soil so that they can be rinsed away. This ingredient contributes foaming properties to detergent.

Sodium Carboxy Methyl Cellulose (SCMC) is used in detergents as an anti-soil redeposition agent, particle suspender, skin protector, color retention agent, stabilizer, homogenizer and texture protector.

Tinopal gives high level of whiteness and brightness, improves the cleaning efficiency in laundry process, prevents greening after multiple washing cycles, improves whiteness of power detergent.

PROCESS OF MANUFACTURE:

Acid slurry is first neutralized with soda ash and mixture is kept for one hour for completion of reaction.

Other ingredients such as STPP, TSP, Glauber's salt, SCMC, Colors, Scent etc. are then blended to the neutralized acid slurry with continuous mixing.

The mixture is then dried, and packed in suitable packings.

Students from each of Final B. Sc classes namely MPC, BZC, MBC, were involved in the process of making the washing powder and explained the process. This would make them manufacture it in their respective villages and earn a considerable income.

APPROXIMATE COST OF RAW MATERIALS

S.No	Raw Material	Cost/kg
1	Soda (Sodium Carbonate)	25/kg
2	Acid Slurry LABSA (OLEUM)	104/kg
3	TSP(Trisodium phosphate)	40/kg
4	STPP (Sodium Tri Poly Phosphate)	55/kg
5	Glauber's Salt (Sodium Sulphate)	18/kg
6	SMS (Sodium Meta Silicate)	23/kg
7	Caustic Soda (LYE)	90/kg
8	SLS (Sodium Lauryl Sulphate)	250/kg
9	Sodium Carboxy Methyl Cellulose	60/kg
10	Scent	90/10ml
11	Tinopal	125/kg
12	Coloured Balls	100/kg
13	Packing Jars(500ml) 90 Nos	145.00
14	Printing of Stickers (100 Nos)	400.00
15	Buckets for mixing	450.00

All the raw material were purchased from local markets.

The approximate cost of raw material required for preparing 25kg of detergent was Rs 5000/-.

The approximate yield is 24.3 kgs.

The revenue generated while selling the 24 kg detergent @ Rs130/kg is Rs3120/-.

Net profit for 24 kg's is Rs 1880/-.



