

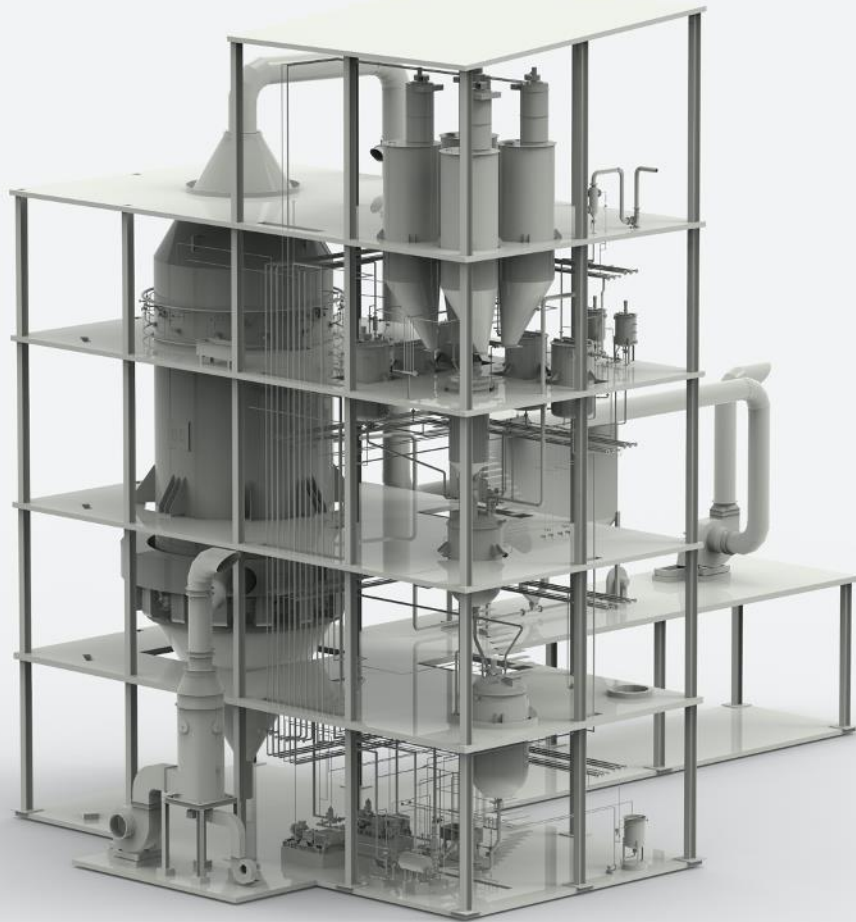


POWDER DETERGENT PLANT

Customer satisfaction is our mission...
experience is our strenght



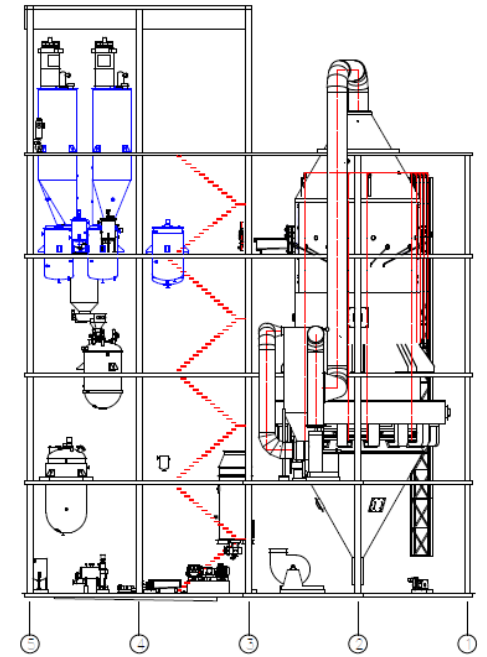
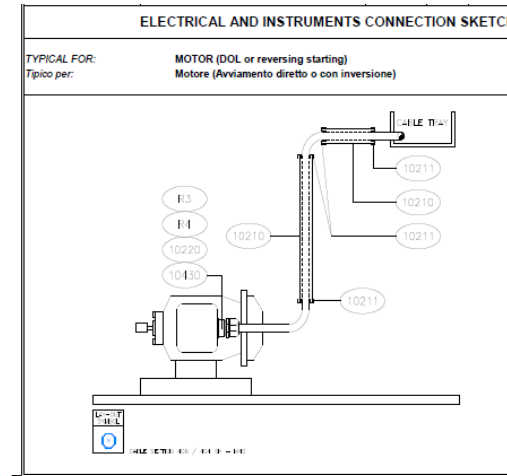
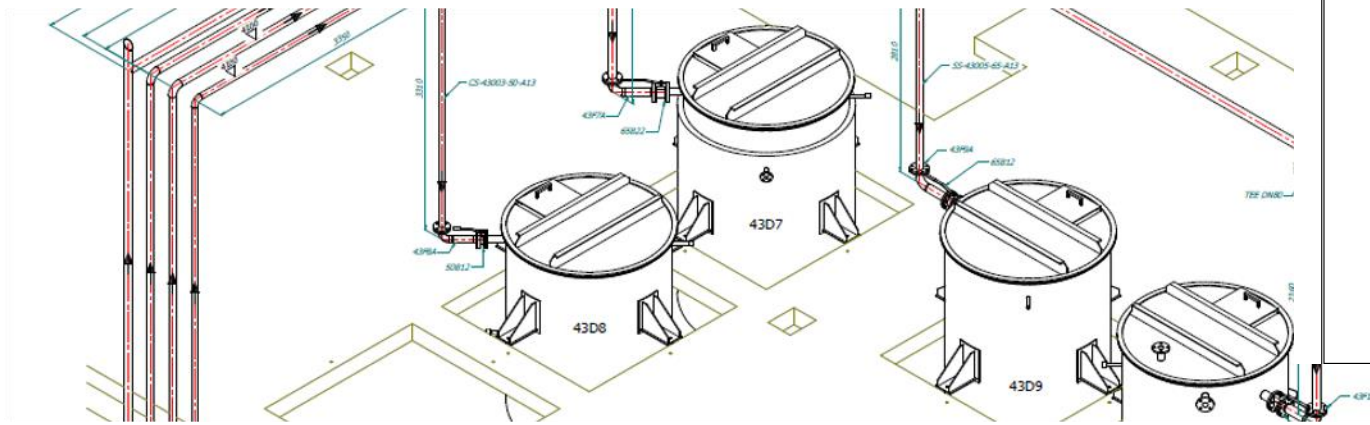
POWDER DETERGENT PLANT



The production of powder detergent is an interesting and relatively simple process, which consists of three main steps:

- Slurry production.
- Spray drying,
- Post-addition.

SPECIALISED IN TAILOR-MADE PROJECTS



Our company specializes in the manufacture of tailor-made plants and machinery dedicated to the production of Personal Care and Household soap. Based on individual requirements, our company designs and builds custom compound plants using different types of basic elements such as tower, agitators, homogenizers, pumps, heat exchangers and so on.

All of Soaptec's equipment is developed in accordance with national and international safety regulations and is manufactured using the best materials available, including stainless steel and carbon steel, to provide customers with maximum reliability, durability, and overall quality.



SLURRY PREPARATION

Slurry is best described as a suspension of solids within a liquid. In our case, the liquid consists of an aqueous solution of active substance, produced by the in-situ neutralization of sulfonic acid by caustic soda, combined with sodium silicate, whereas the solid part consists of a combination of sodium sulphate, sodium carbonate, S.T.P., and zeolite.

All ingredients of the formula are loaded into the reactor where they are mixed properly. The sulphonic acid is neutralized by caustic soda. The finished material is transferred to a Maturator vessel where all dry substances are properly hydrated.

This slurry is then filtered twice: first by a magnetic filter to trap any metal contaminants and then by a self-cleaning filter that filters out other contaminants and impurities.

The filtered material is sent to the homogenizer mixer which ensures an adequate particle size. It also provides a slight positive pressure that will help the high-pressure pump. This is a piston type pump capable of developing significant pressures, which is necessary to convey the suspension to the top of the spray tower and disperse it into mist by means of special nozzles.





SPRAY DRYING TOWER



The spray tower is essentially a suitably sized (quite large!) steel tube in which the hot air entering the lower part of the tower (prepared by a separate section consisting of a burner, an oven, and two air fans) bakes the droplets of detergent slurry sprayed on top.

As they fall to the bottom of the tower, these droplets form perfect spherical shapes and heat up, causing the water inside to boil.

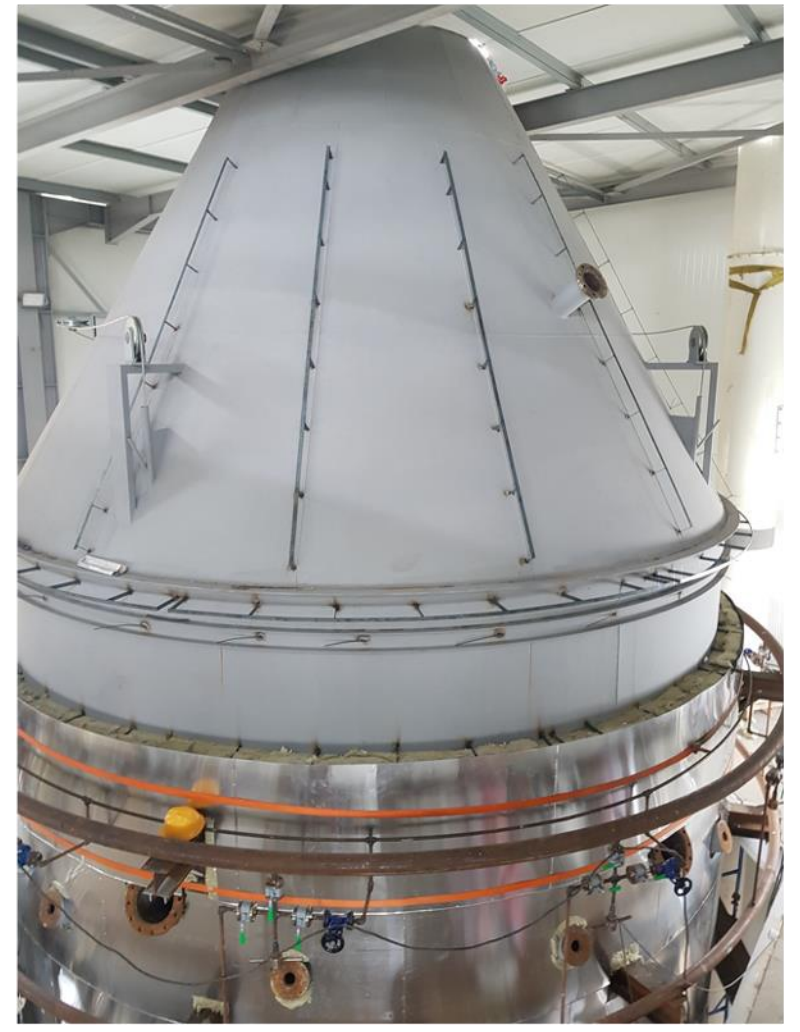
This steam forces the solids onto the outer surface of the sphere and finally, when the internal pressure rises beyond the limit, breaks away from the sphere leaving it hollow.

This shape is called a 'hollow bead'.

These hollow beads are what the detergent powder is mainly composed of. What we find at the bottom of the tower is called "base powder".

Before its further use, it is cooled and sieved to ensure the correct particle size and homogeneity of the product.

Any lumps and out-of-specification materials are recycled back into slurry production.





POST ADDITION



Base powder is rarely sold as a final product. Usually, commercial products have complex formulations that require a number of ingredients that cannot be sent to the tower.

This may be due to the heat sensitivity of the ingredients (the enzymes would be deactivated) or the high losses that could occur (the fragrance would evaporate!).

SOLIDS & LIQUIDS ADDITION

These materials are added to the cold, sifted base powder in Post Addition, the third and final stage of detergent powder production.

This section consists of a continuous mixer in which metered quantities of all ingredients are mixed and sent downstream for storage and packaging.





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