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Procter & Gamble

Screening and identifying the lead cleaning and scent technologies for new toilet cleaning formulation

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Summary

It is known that cleaning the toilet is one of the least liked house chores. Most of the current toilet cleaners are liquid and require an effort in brushing the toilet to remove the waterline. With this project, the intention is to find a new toilet product that can make this task easier and more pleasant. Moreover, the product is expected to leave a nice odor during several flushes of the toilet and prevent the appearance of a waterline in the future.

The product consists of a pouch filled with powder that is thrown into the toilet and will react giving a high foam. With the help of the surfactants and the polymers the walls of the toilet will stay clean. The foam can stay in the toilet for 20-30 minutes.

Surfactants play an important role in this toilet bomb. With their amphiphilic structure, they modify the particle-surface interaction forces and this effect strongly helps to remove particles from surfaces.

This work encompasses the results for the optimization of the size of the product and the powder formulation. Moreover, a comprehensive analysis of the raw materials is done as well as for the performance of the product in terms of freshness and residue. Finally, new materials are screened to find a better performance product capable of removing soil.

It has been seen that using a different weight percentage of the raw materials can increase the foam volume. One of the formulations has been chosen as stable under certain conditions of temperature and humidity which will help with the storage and transportation of the product.

On the other hand, the surfactants used have been characterized in terms of their dynamic surface tension and their viscosity. This helps with the understanding of the performance of the product and to have a comparison for the future blends with other materials.

Finally, it is studied the addition of a chelate and hydrotropes to the main formulation.

This project will help with the launch of the product in the market for the future and it collaborates with Procter & Gamble in EEUU.