



DISHWASHING COSTS AND CONTROL

The operation of washing dishes which get dirty in the preparation and service phases of every business that prepare and serve food such as catering companies, hotels, schools, and restaurants is very important. Dishes can be washed by hand or in dishwashing machines. In the 1980s, there were only a few enterprises with dishwashing machine, but nowadays, dishwashing machines are used in all medium and large enterprises.

The capacity and number of machines are selected according to the size of the enterprise and the number of meals eaten per day. Keeping the operation cost of dishwashing machines at optimum level is important for controlling operating costs.

In terms of dishwashing operation costs, the first thing that comes to mind is often the cost of “chemicals”. However, there are other cost elements that are much higher than the cost of detergents. These are electricity, water, personnel cost, machine repair/maintenance costs, and breakage-corrosion in washed dishes.

In order to ensure optimum dishwashing costs, the overall cost of the operation should be checked, considering all factors affecting the cost.

Personnel costs and control: It is all kinds of costs of personnel hired for carrying out all the related works within the flow of the dishwashing process. Some 45-50% of the total cost of the dishwashing operation is the personnel cost.

A good organization is required for the proper execution of the job by the personnel who are responsible for the stages of the entire operation such as collecting dirty dishes, piling them according to type and size, carrying, scraping, rinsing, dipping in water, placing them in the machine, machine washing, collecting the clean dishes, emptying the machine, and cleaning the interior and parts of the machine. In all these stages, it is important to use the time efficiently and do the work in the shortest time possible.

It is possible to achieve the desired washing results, minimize the number of dirty and stained dishes, and prevent rewashing through “correct chemical - correct dosage - correct washing temperatures - correct program selection”. The steps that need to be taken before machine washing the dishes are important stages affecting the result. Rewashing is minimized with correct separation and stacking of dirty dishes, scraping, rinsing, dipping, correct placement on correct baskets, etc.



Energy cost: It is the cost of electrical energy used by dishwasher for heating water, washing-rinsing, and drying. For optimum use of the electricity consumed by each machine, it should be regularly maintained, ensuring that heaters are always clean and not covered with limescale. If the rate of lime or total dissolved salts is high, lime and mineral layer will deposit on the heater over time, the efficiency of the heater will decrease, and it will take longer to heat water. The “boiler”, in which rinsing water is heated, should not have limescale either. If the heater and boiler have limescale due to hard water, they should be descaled regularly.

Ensuring the optimum cleanliness of dishes by providing optimum conditions with the above steps in washing operation and preventing rewashing with the correct washing programs will ensure optimum use of electricity.

In addition, using the machine in full capacity all the time and running it with all baskets full will ensure optimum operation of the machine.



Water cost: The quality of water (hardness, total dissolved salts, and silica values) is one of the most important issues in preventing water spots on dishes and excessive use of detergent. If the water hardness is high, water use will increase unnecessarily due to rewashing and lime washing. Another important issue in controlling water use is the proper operation of the overflow valve at the bottom of the machine and preventing unnecessary water overflow. The overflowing hot water in the washing tank will not only cause excessive water consumption but also excessive electricity consumption. As chemicals will mix directly into the waste water, it will cause more pollutants in nature as well as increasing costs. Using the machine at full capacity and full loading as much as possible will also play an important role in the use of water.

New machines are continuously developed by companies to diminish the use of washing and rinsing water.



Chemical cost: It is important to use the correct detergent in the correct dosage to clean dishes properly. The chemical dosage is adjusted according to the type-amount of dirt and the hardness of water. 3-5 dH water hardness is ideal for optimum use of detergent. Dosages are determined based on water hardness to ensure that the cleaning quality is high, there are no water spots on dishes, no limescale on heaters and inside the machine, washing and rinsing ejectors are not clogged with limescale. As the hardness increases, the dosage will need to be increased in certain amounts, thus increasing the detergent costs. Depending on the quality of detergent formula, the dosage will generally be 1 g/l higher in every 5 dH increase in hardness.

In order to prevent rewashing and to ensure the full performance of the detergent, dirty dishes should be scrapped, rinsed with warm water, dipped with a suitable non-foaming chemical before they are placed in the machine, which will ensure the efficiency of chemicals and minimize rewashing. Washing and rinsing ejectors clogged with limescale or food residues will reduce the mechanical effect of water, thus reducing the cleaning performance and causing rewash. For the optimum effect of the detergent, check and clean the ejectors every time the machine is shut down.

Renewal costs due to breakage and deterioration (corrosion, scratches, etc.): One of the important cost items in the dishwashing operation is the breakage rates of washed porcelain-glass objects. A good organization at every step of the operation stages will minimize breakage.

Using suitable transport carts-baskets in stages such as collecting dirty dishes, stacking according to their types and transporting to the washing area, preventing over-stacking of dishes, and ensuring the personnel to be careful are the necessary measures to ensure minimum breakage. Washing the glasses separately, at a lower temperature and with a lower alkaline product, prevents glasses from fogging (corrosion) and scratching. The silverware is washed upside-down in special baskets to ensure proper cleaning and prevent rewashing. Since keeping the silverware and other metal items in a high alkaline product for a long time will cause corrosion and deterioration of metal, the use of chlorinated and high alkaline products should be limited and they should be rinsed right after washing.

Special attention should be paid to broken and lost pieces that may fall into the washing tank to prevent damage on filters, heater, and other parts of the machine.

In conclusion, dishwashing costs have a significant impact on the profitability of an enterprise and control of operational costs and optimum results can be achieved by checking all factors that affect the cost, such as organizational arrangements, ensuring the water quality, using right products in the correct program and in the correct dosage, and ensuring regular maintenance of machines.

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