

From the Miele Professional White Paper series

COMMERCIAL DISHWASHING SYSTEMS

#SinnerCircle

Sinner's Circle: For a hygienic wash cycle

Lipstick on a red wine glass, food residue on a fork, a smeary film on plates: Guest have little patience with dirty crockery. First impressions count! We would like to provide some information, tips and tricks to ensure guests feel at home from the word 'go'.



WHICH FACTORS ARE IMPORTANT IN ACHIEVING A CLEAN FINISH ON CUTLERY AND DISHES?

Four factors play a decisive role in every wash cycle:

- Temperature
- Time
- Chemistry
- Mechanical action

HOW DO THESE FACTORS INTERRELATE?

All four factors can be almost freely selected and weighted as required. Important: When altering two or more factors, it is important to take a close look at interdependencies in the interests of ensuring the same high standards of performance. Example: A reduction in temperature, for instance, must be compensated for by extending the cycle time

What is Sinner's Circle?

The Sinner's circle describes the interaction between the 4 factors listed above and their impact on the cleaning process. This concept is named after the chemist Herbert Sinner.



Examples of Sinner's circle: When washing up at the sink, the level of mechanical action (scrubbing) is particularly high (fig. 1).

In a dishwasher, a lower level of mechanical action is offset by more aggressive detergents (chemistry) and longer program cycles (fig. 2).

Figure 1
Sinner's circle at the sink

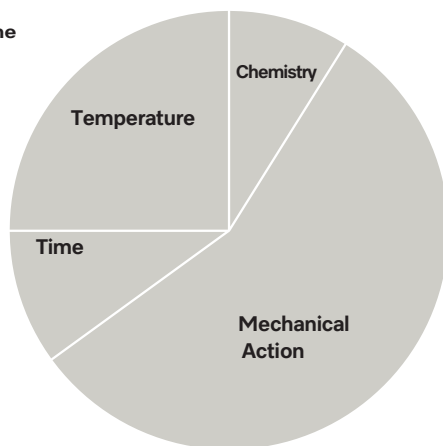
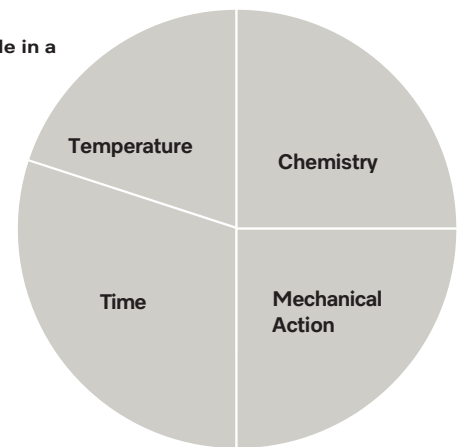


Figure 2
Sinner's circle in a dishwasher



WHAT EFFECT DO THE VARIOUS FACTORS HAVE?

Temperature

Temperature not only accelerates the activation of the ingredients of detergent and rinse aid but also speeds up the removal of soil from the load, in particular grease and fat. Important: The factors must reflect the load and the degree of soiling. Some materials, such as for example glassware, do not tolerate high temperatures. Exposure to heat may modify the structure of several types of soil, making them even more difficult to remove. This is for instance the case with proteins.

Time

The longer the cycle time, the better the cleaning performance – prolonged washing and interim soak phases have a positive effect on results. If, on the other hand, the goal is to achieve the shortest possible cycle time, the other factors must compensate accordingly.

Chemistry

Chemicals (detergent) have the purpose of removing and suspending soil. The important thing about chemicals is the right dosage, the concentration and the quality of the products used. Targeted ingredients ensure perfect cleaning and hygienic performance on particular types of soil (fats, protein, stains) – the chemical composition of a detergent can at the same time be mild or aggressive. The higher the concentration and the more aggressive the formulation, the better the cleaning performance. But beware: Overly aggressive ingredients and excessively high concentrations can damage both the load and the machine.

Mechanical action

Mechanical action ensures that soil is removed from the surfaces of dishes. When washing up at the sink, brushing and scrubbing represents the mechanical action; in a dishwasher, the circulation of water via the pump and the spray arms serves the same purpose.

WHAT IS THE SIGNIFICANCE OF WATER?

Water is a medium to transport the other factors. It is needed to dissolve chemicals, transfer heat to the load and also plays an important role in applying mechanical force. In the process, the properties of water have an impact on results. Note: Just because tap water is potable doesn't necessarily mean it is the best type of water for dishwashing.

SUMMARY

In achieving good cleaning results combined with the efficient use of resources, it is particularly important that the dishwasher settings are correct and that the best possible chemicals are used. The perfect interplay of the four factors which make up the Sinner's Circle guarantee trouble-free processes in the kitchen, leaving a lasting impression on guests.

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