

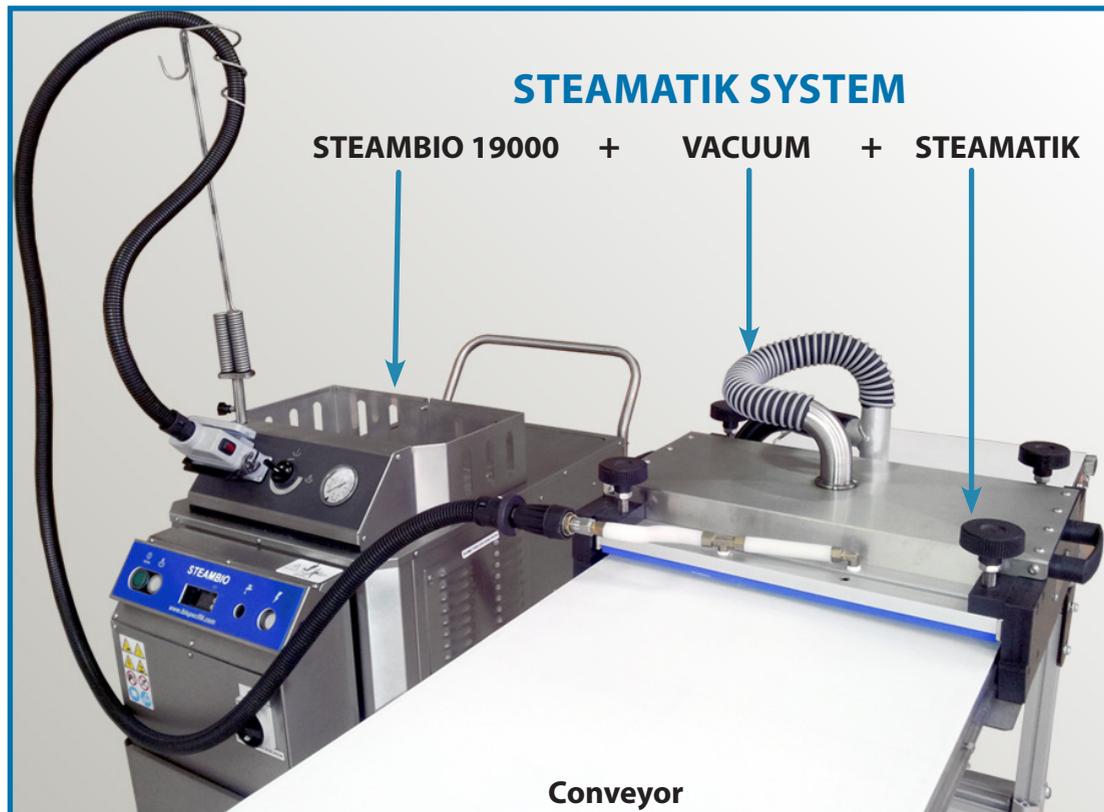
Deterative and biocide action of dry steam in food industries

Objective

The aim of this study was to assess the efficiency of a cleaning and disinfection procedure with an industrial steam process on different surfaces commonly found in food industry.

Methods

The tested surfaces (stainless steel, painted metal and tiles) were directly cleaned with the **STEAMBIO 19000** (no brush, with turbo nozzle). Besides, the mobile **STEAMATIK system connected to the STEAMBIO 19000** was also used to clean a conveyor belt (PVC).

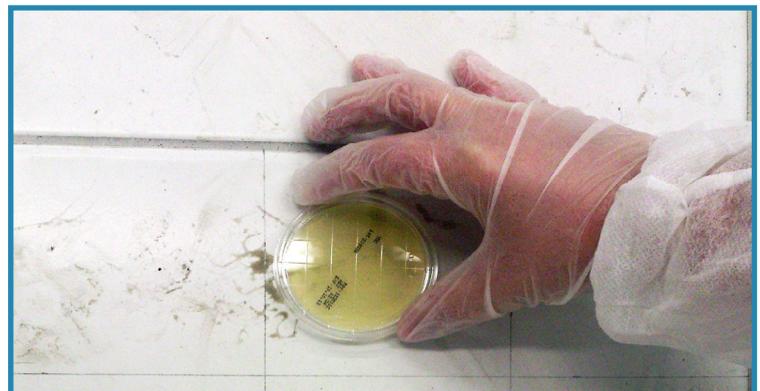


Deterative action assessed by ATPmetry.

Samples were taken from a 100-cm² surface swabbing. Once the swab is put inside the luminometer (Luminomat, AES Chemunex), ATP quantities are given as RLU (Relative Luminescence Units).

Biocide action assessed by the whole flora count.

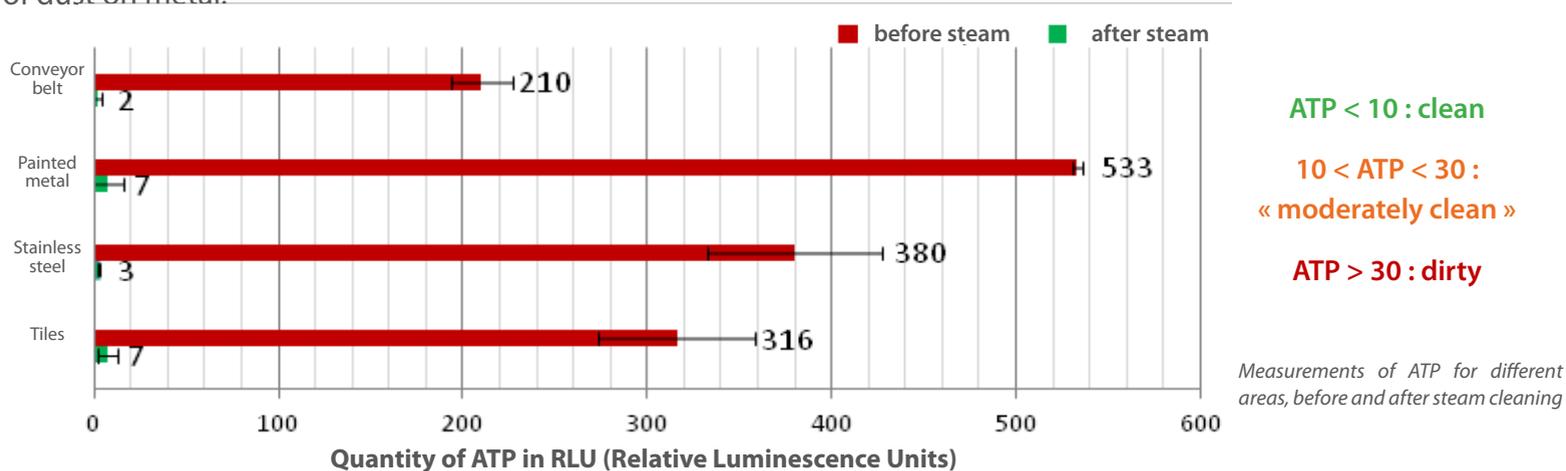
Agar plates (Hygicount, AES Chemunex) were squeezed on the surface for 15 sec (NF EN 1632-3 standard) and incubated for 48 h at 30°C. Results are given as Colony Forming Units (CFU) per plate.



Deterstive and biocide action of dry steam in food industries

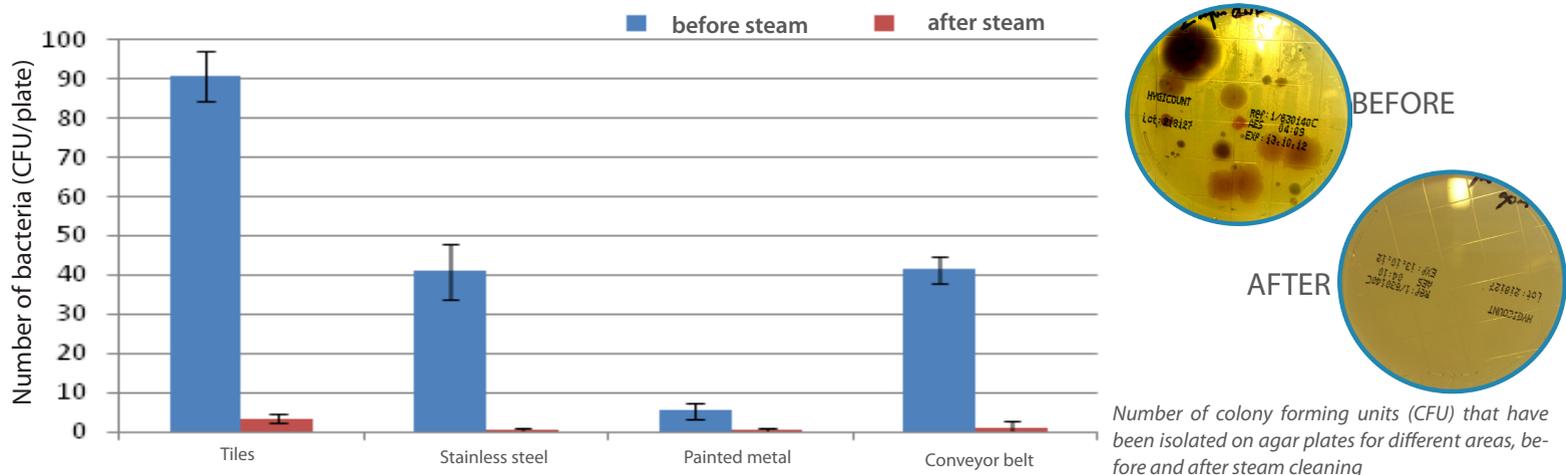
Results : deterstive action

Visually, there were traces of soil on tiles, of fat and food residues on stainless steel and the conveyor belt, and mainly of dust on metal.



All tested surfaces show ATP values above 30, so that they can be considered as dirty before steam cleaning. Painted metal shows the highest value of ATP but it was also the most visually dirty surface (lots of dust). After steam cleaning, all surfaces show an average value of ATP below 10 : **therefore, saturated dry steam enables an efficient cleaning of all the tested surfaces.**

Results : biocide action



Tiles are the most contaminated surfaces before cleaning. This high rate could be explained by the presence of soil, source of soil microorganisms. Stainless steel and the conveyor belt show a similar level of contamination, probably due to the presence of flora from food and manipulators. After steam cleaning, all surfaces show a very strong decrease in the number of microorganisms (< 4 CFU/plate), **as an evidence of the lethal action of steam on germs present on surfaces.**

Conclusions

According to the study, in our experimental conditions, the procedure of steam cleaning and disinfection shows an excellent deterstive efficiency by removing dirt from a wide range of solid substrates and without damaging them. In addition, dry steam has a very good biocide action on microorganisms which are naturally present on surfaces.