

WASHES & SANITIZES

In this period of the health emergency the
SANITIZATION
of items objects and tools used by several people is very important for
HEALTH
and
SAFETY
hygiene at work.

A clean environment with sanitized items considerably reduces the possible viral proliferation of a person to items to person contagion. The cleaning through all our machines is carried out by:

-  **ALKALINE DETERGENTS**
-  **HIGH TEMPERATURE**
-  **LONG CONTACT TIME**

WHAT IS SANITIZATION?

Sanitization is the process of mechanical removal of contamination through the use of detergents and/or surfactants through cleaning and cleansing preparatory to disinfection. "Sanitization activities are those that concern the complex of procedures and operations aimed at making certain environments healthy through the activity of cleaning and/or disinfection and/or disinfestation or through the control and improvement of microclimate conditions with regard to temperature, humidity and ventilation or with regard to lighting and noise"[1].



K 200 HT

SIMPLEX 80 HT

TAX CREDIT ON SANITATION COSTS

As well as in Italy, in your country tax relief may be granted on the purchase of this type of machinery. For this tax relief it may be necessary to evaluate high temperature HT version machines.

PERSISTENCE OF CORONAVIRUS ON INANIMATE SURFACES

According to a recent German study "human coronaviruses can remain infectious on inanimate surfaces at room temperature for up to 9 days. At a temperature of 30 °C or more the duration of persistence is shorter. [...] Contamination of frequent tactile surfaces in healthcare is therefore a potential source of viral transmission." [2] The contributing factors are the type of material on the contaminated surface, temperature and humidity.

WHY IS SANITATION WITH ALKALINE DETERGENTS USEFUL AGAINST CORONAVIRUS?

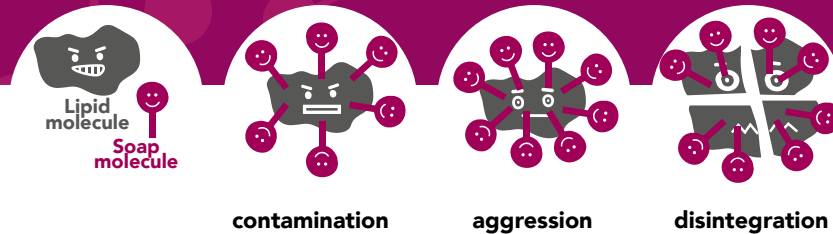
The external structure of the coronavirus is composed of lipids (fats). The detergent is able to dissolve the outer wall of Covid19 by exposing the genetic material inside (Rna) to unfavourable survival conditions.

Thanks to their chemical properties, the alkaline detergents and surfactants contained in it knot on both the lipid and water molecule, with the effect of penetrating the lipid membrane, detaching it from the surface on which it is attached and dissolving it.

Therefore under these conditions the virus does not survive and dies.

Technically, the hydrophobic part of the surfactants (the tail) binds to the outer membrane of the virus while the hydrophilic part (the head) is attracted by the water causing the breakdown of the lipid membrane.

This process occurs in about 30 seconds of contact with the detergent solution, so both spray and immersion machines can be functional with alkaline detergents.



THE CONTRIBUTION OF HIGH TEMPERATURE

A recent French study, still under validation, reports:

"The analysis of the Ct values (instead of the TCID50) showed that 56°C-30min and 60°C-60min did not affect significantly the number of detectable RNA copies ($\Delta Ct < 1$) (Table 4). In contrast, 92°C-15min resulted in a significant drop of the number of RNA copies ($\Delta Ct > 5$) (Table 4)." [3]

Heating protocol	Viral titer (TCID ₅₀ /ml) ²		log ₁₀ reduction factor	Number of RNA copies before vs after (x10 ⁶)
	Before heat inactivation	After heat inactivation		
		no BSA 3g/L BSA		
56°C, 30 minuti	3.3 ± 2.3 x 10 ⁶	8.5 ± 7 No VR	> 5	8.01 / 5.16
60°C, 60 minuti	3.3 ± 2.3 x 10 ⁶	No VR 5 ± 2.8	> 5	8.01 / 4.54
92°C, 15 minuti	3.3 ± 2.3 x 10 ⁶	No VR No VR	> 6	8.01 / 0.16

Mean value ± SD; no VR defined as absence of CPE at passage#1 and passage#2 confirmed by RT-qPCR showing a Ct value >40.

This high temperature, for a prolonged period of time, significantly contributes to reducing the ability of the virus to replicate.

References

- [1] Articolo 1, comma 1, lettera e) del Dm Industria 274/1997 - Italian industry ministerial decree
- [2] Persistenza di coronavirus su superfici inanimate e loro inattivazione con agenti biocidi https://www.eahp.eu/sites/default/files/journal_of_hospital_infection.pdf - Journal of Hospital Infection, Elsevier.
- [3] Evaluation of heating and chemical protocols for inactivating SARS-CoV-2 <https://www.biorxiv.org/content/10.1101/2020.04.11.036855v2> - Boris Pastorino, Franck Touret, Magali Gilles, Xavier de Lamballerie, Remi N. CharrelBiorxiv, CSH Laboratory