

Disinfect packaging with ultra-violets.

Introduction.

The company Sanipro has developed a specific range for the disinfection of surfaces in the sectors of the pharmaceutical and cosmetics industries. The packaging destined for the conditioning of pharmaceutical and cosmetic products are often contaminated by bacteria and mildew during the storage, the manufacturing or during the transports. Surfaces often become contaminated with pathogens (e.g., salmonella or chicken parts). UV has proven an effective technology to reduce the level of these pathogens and thus prolong shelf lives. There is also interest in using UV to treat mail to avoid the threat of terrorist contamination (e.g., anthrax). Finally, UV (particularly UVA rays) has proven to be useful in the treatment of certain skin ailments, such as psoriasis.

Starting from this statement, our company has manufactured the series “TS” to disinfect packaging with ultra-violets.

1- Principle:

The sun emits an invisible light: the ultra-violets.

Ultra violet rays emitted at 254 nm, generally known as UV-C, penetrate inside the DNA and are capable of destroying living micro organisms and notably bacteria, viruses, fungi and algae. UVc rays act directly on organisms' DNA.

2- Functioning:

The “TS” process disinfects the packaging before their use. Most of the time, this operation is realized on the conveyors that bring the packaging to the filling section. The packaging are aligned one after the other on the conveyor so it is possible to disinfect them along their entire inner surface.

3- **Advantages:**

- A system that is strictly physical and that avoids the use of chemical products: it is therefore ecological and has no impact on the environment, it does not create harmful sub-products, it enables compliance with the European Directives related to the use of biocides.
- A physical active agent: it does not modify the treated fluid's physico-chemical balance, there is no risk of excess dosage, no sub-products are formed.
- Easy to install and run, this system do NOT need any wash or rinsing or drying, which differ from chemical process. It is necessary to use the packaging at the exit of our machine.
- The missing residuals avoids any risks of contamination to the products (food or else) from the disinfecting agent.
- Easy Maintenance: The UV lamps must remain clean and they need to be replaced only at the end of their life time.
- Low energy consumption for an investment cost and a running cost very competitive compare to other process.

4- **Technical criteria of the packaging and conveyor:**

For an optimal efficiency of the process and in order that the radiation by the ultra-violets is made to any point of the packaging, the packaging must comply to certain criteria of form (simple and rigid), respect dimensions characteristics and must be made of materials that do not suffer of the action of ultra-violets (even with high dosage).

5- **Applications:**

- treatment of baskets,
- conditioned products in pots,
- treatment of the pre-formed PET bottle,
- treatment of containers and of their closing system (cap, cork, etc...)

In order to answer to the specific needs of each industries, we have developed a standard module built to be adapted over the conveyors, in an autonomous manner. This compact system is placed over the conveyors, where pass the packaging, by means of settable feet.

The protection against UV is secured on the sides by rubber panels, even at the entrance and at the exit of the UV Tunnel. The reflector can swing in order to ease the maintenance and access to the lamps. The frame is in aluminium but can be made as well of stainless steel (INOX 316L). An independent electrical cupboard is supplied. The maximum distance between the electrical cupboard and the UV-C lamps is of 7 meters.

The method of disinfecting by means of Ultra-violets rays, type C, is today the most efficient, the simplest and cheapest. This principle knows an exponential growth with an unlimited potential for the treatment of waters, surfaces and air.

With compliments and regards,

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