

UV-Vortex-1L for R&D for UV-C sanitation of Powders and Shreds



Most of powders vastly differ in particle sizes and its shapes, moisture content, colors, UV absorption, micro-biological contaminations and its non-uniformity within the bulk of powder, oil content, density in g/cm^3 , or if is it a mixed or one-type powder.

Powder sanitation costs for production depend on above parameters, which impact is measured in evaluation tests.

Evaluation tests are absolutely necessary to find optimal UV parameters and circulation parameters for each planned production system.

The system was proven to reach 1 to 3 logs sanitation for various uniform nutrient and vegetative powders. Plus able to perform directed photo-synthesis like up 100 times increasing D2 content in mushroom powders.

Depending on tests results, the production system can be build either as a batch system or as a flow-through system.

Limitations:

The method is not suitable for non-uniform multi-component spices. Some shreds can be sanitized by this method, some are not, which is concluded only after getting samples.

UV chamber:

- diameter-30cm, height is 50cm, volume is ca. 45l, material-polished stainless steel, with a powder collector at its bottom,
- choices of a few forced air cooled Mercury vapor lamps with the UVC output from 12w to 30w to fit a task,
- the lamp well is from a clear UVC quartz,
- a manually driven quartz cleaner, Ultrasonic quartz cleaner and 10Hz vibration quartz cleaner.

Paid Options:

- A: UVC (or UVB) flash lamp instead of UV-C lamp.
- B: a flow-through 100-1000 kg/h **pilot-production systems** with UV-C or with PUV lamps.

Controls:

- an adjustable speed of powder circulation by changing the input voltage to the blower, with Volt- and Amp- controls.
- viewing the flow through the UV absorbing top window.
- Ni or air atmosphere in the process chamber with T° indicator.
- Process Timer 1-9min on the Ultrasonic generator.

EI connection:

220-230 VAC, 1 phase 50-60 Hz, full power is 150-500 w.

Safety:

Ni gas filling prevents powder ignitions, the top flange for observing powder circulation absorbs all UV, the electrical section is wired to CE standards and is fully enclosed inside a stainless steel box.

Maintenance:

top flange, blower, collector, return tubes are to be de-assembled for cleaning.

