

Press-Release #1 (reported to the iFOOD conference, Oct. 2011, at DIL e.v., Germany):

Pulsed UV Sterilization of Nutrition Powder.

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SteriBeam has developed a pilot R&D PUV system for reducing bio-burden in powdered and shredded products. Its effectiveness was demonstrated with reducing 1 to 2 logs of Salmonella in fine and crude nutrition powders. The system employs UV flash lamp and a clear quartz processing chamber, both encircled by a reflector. A batch processing was in place by cycling powder samples of 40 g through this system x4 times each. No visible damage for powders was observed. Results confirmed that the sterilization of powders strongly depends on sizes of its granules: 1 and 2 logs were reached respectively for fine and crude powders at the same number (16) of identical 80 J pulses from a 40 cm long flash lamp. Powder grains were respectively about 50 and 100 microns. The system can be used for developing industrial powder sterilization processes. SteriBeam is capable to build also full scale systems of this type:

Press-release #2: (reported to the iFOOD conference, Oct. 2011, at DIL e.v., Germany):

Vitamin D2 Enrichment in Mushrooms with Pulsed UVB light.

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Vitamin D2 enrichment with our pulsed UVB source has been conducted on two types of fresh mushrooms: white champignons and oysters. Initial Vitamin D2 content in all groups was circa 0.5 µg/100g. Each sample was 30 g and after a single UVB pulse reached from ca. 20 to ca.150 µg/100g, proportionally to applied pulse energy, which respectively varied from 100 to 1000 J/pulse. Champignons had about 25% higher D2 response at the same pulse energies as oysters had. The precision D2 enrichment was demonstrated in these tests and allows to meet RDA standards for D2 (5 to 10µg/100 g, depending on a population group) on an industrial level, without side-effects such as mushroom browning or dehydration.

Press-release #3: (Abstract of our White Paper, to be released in Oct 2011)

Choices of UV Sterilization for Water Bottling Cups at Nestle Shanghai Source Ltd.

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Bacillus Subtilis spores have been inoculated over internal surfaces of large water bottling cups from Nestle Shanghai Source Ltd. Cups are made from soft blue PE plastic with an internal geometry, presenting a challenge to a full UV illumination: long vertical walls (ratio of its height to diameter is 1.5), groves on walls and a porous white plastic seal at the bottom, fixed by a ring at its center. The cups are to cup 20l glass jars each 11 second, in groups of 10 awaiting it's advance to a jar cupping mechanism on a vertical rail. Two competing UV sources (with focusing reflectors) have been used: amalgam doped high performance U-shaped low pressure Mercury lamp (load 1.5 w/cm, 30% UVC) and our UV flashlamp. Within the production time of 11 sec the sterilization goal of 3 logs was achieved only with our UV flash lamp with 4 pulses (750J/pulse) without heating cups. It took 40 sec to get the same sterilization with continuous UVC (254 nm) lamp. Energy consumptions were 3kJ for the flash lamp and 2.4 kJ for the Mercury vapor lamp.
