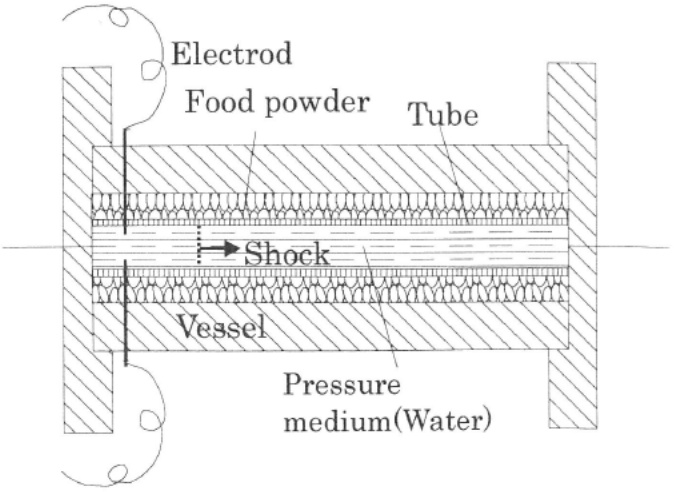
36－15　Shock Sterilization of Dry Powder Foods

知能生産システム工学科　助教授　藤原和人
知能生産システム工学科　教　授　廣江哲幸
教育学部食物学教室　教　授　浅川牧夫

A sterilization and a cell rupture using the shock wave generated by a wire explosion was tested and the effect of the impulsive load on the mortality of microorganism. This technique enables the sterilization of foods, juice or chemical agents without heating them. Microorganism cells were broken by shock waves and ultrasonic waves and different fracture patterns were shown in the SEM image. In the shock the efficiency was depended on the size of bacteria, although that was depended on the strength of the cell membrane in the ultrasonic. It was also found that the shock is effective for spores of bacteria that are superior to normal cells in the endurance and the resistibility. Numerical simulations demonstrated the size effect in the shock cell rupture.



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