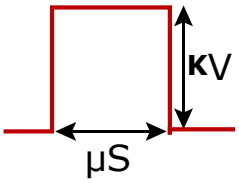
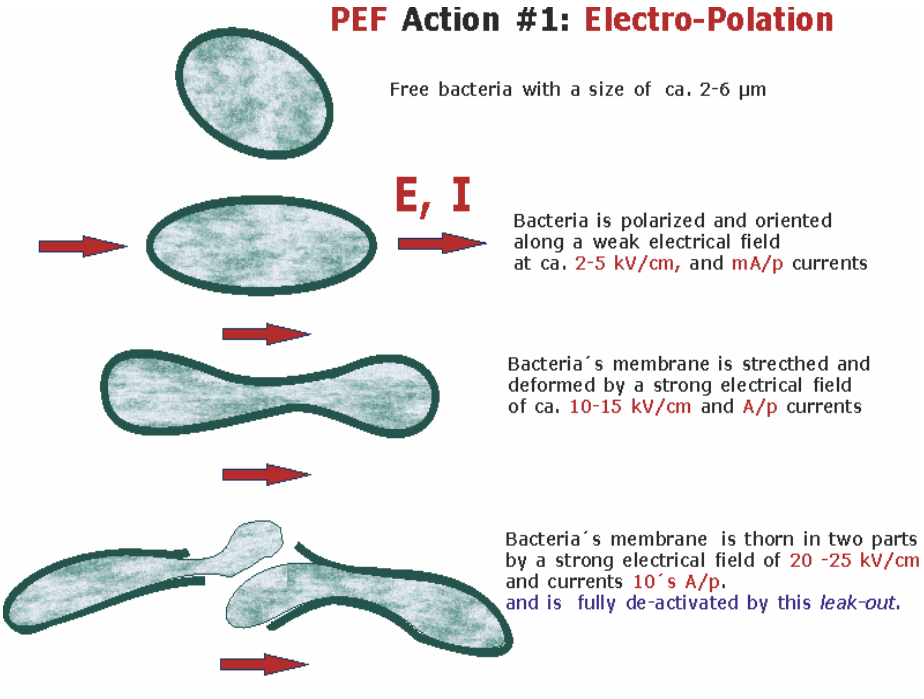
# Non-Invasive Sterilization
# by Strong HV Pulsed Fields
*(also known as "PEF"):*

Pulsed parameters are selected for each treated media and contamination to *stretch* ALL bacteria to its disruption by so-called "electro-polation".




To be cost-effective it has to be done very fast and requires electrical fields from 20 to 35kV/cm, with durations from ca. 2 to 20μs or longer having very sharp fronts ca. 1μs ($10^{-6}$ s) and "tails".




PEF action is not for a fully dielectric media - where no current flows through!

At higher el. fields 35-75kV/cm sterilization can be supported by micro-discharges over surfaces of hard to break bacteria and also over spores, which are not stretchable since are dried and solid.

Media properties, required pulse parameters determine the effectiveness of the process and have to be found for each new application through piloting tests.

PEF will not work on a conductive media, neither on a fully insulated media (like in a liquid enclosed in a plastic bag). A small current has to flow through a treated media to allow PEF to work. Conditions for tests can be found and/or tested media can be a bit adapted to allow PEF to work in our tests on our PEF pilot with very broad pulse parameters and geometries.

FURTHER PEF PROCESS INMPROVEMENTS.

There is a well-known PEF method to enhance a break-up of bacteria by applying additional mechanical stress on bacterial shells through its wearing with Bi-Polar pulsing. This requires to generated negative pulses which immediately follow

positive pulses and have the same parameters. This method substantially increases the complexity and costs of such a PEF system and doubles its energy consumption.

***By contrast, wek-tec offers simpler and rather cost-effective method supported with our new PEF pilot system*** *(applied for patenting)**:***

In our cased treated liquids pass through two in line processing chambers with different pulsing parameters having also an improved flow arrangement in the whole flow. We offer to try with your product.

**PEF assisted cold extraction**
**of juices and color**:

A cold pressing does not allow a rupture of all plant cells to obtain a high extraction yield. The application of PEF pre-treatment before pressing up to 80% increases the cold extraction yield and increases its quality keeping the original properties unchanged.

It can be also used for softening various organic tissues (roots, skins, hard meats, etc.) also without changing its natural properties.

***Please, inquire for evaluation of your case on our PEF pilot***
*by sending us the description of your task.*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