

Pulsed Electrical Fields (PEF)

Bench-Top Customized System for Sterilization, Extraction and Tendering:

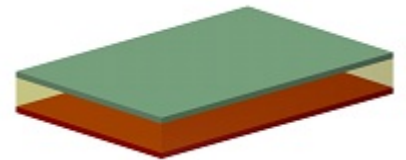


Pulse Parameters:

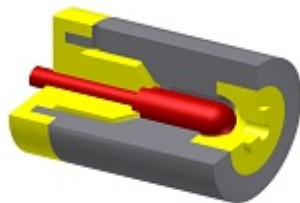
- Available ranges of operational voltages: 5-10 kV, 10-40 kV and 40-80 kV,
- Pulse Shape:
 - A): rectangular with fronts of 0.1µsec, tails of 1 µsec,
 - B): **Bi-Polar rectangular with a positive pulse** immediately followed by the negative pulse of the same parameters as positive and same ranges as in (A).
- Pulse durations: 2- 80 µsec,
- Pulse energies: 5 – 100 Joules,
- Repetition rates: 1-40 Hz, (limited by power for each selected energy),
- Max power output: up to 2000 w,
- Pulse bursts: 1-100 pulses/exposure
- Continuous timed pulsing for a liquid flow– yes,
- Processing of liquids: with sub-systems.

Type of electrodes:

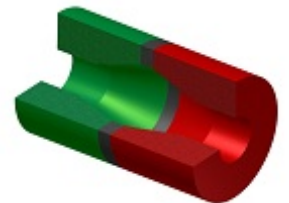
Parallel for bags etc:



Coax-Parallel for liquids:



Plane-Focussed for liquids:



Sterilization PEF process works at

- **El. field strength 20-50 kV/cm and**
- **pulse durations 2-10 µsec:**
 - by stretching bacteria to its disruption (electro-polation), and
 - by free electrons released during electrical breakdowns through bacteria.

Media-Objects for PEF sterilization:

- **skinny flat non-conductive objects or packaging,**
- **medical liquids or jells for direct sterilization just before filling in vials (syringes), packaging,**
- **juices without flakes.**

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Pulsed Electrical Fields (PEF)

Bench-Top Customized System for Sterilization, Extraction and Tendering:

Vitamin-Nutrients Extraction -

works at El. Fields of 5-20 kV/cm and pulse durations of ca. 10 -20 μ sec

by breaking membranes of natural vegetation cells leaking out its content.

The juices have to be pressed out by a cold pressing the mash.



Tendering meats, roots:

El. field strength of 5- 10 kV/cm & pulse duration of 20-50 μ sec:



PEF Advantages:

- does not change product properties,
- cost-effective,
- recommended by FDA.

PLUS SteriBeam Advantages:

- broad range of pulsed parameters,
- bi-polar pulsing which increase the efficiency of cells rupture at minimizing electrical break downs,
- custom processing chambers,
- integrating grinding and cold-pressing into one juice extraction system ,
- R&D and Pilot systems to rent-buy,
- custom turn-key industrial systems.

PEF Limitations:

- does not work on a conductive media,
- does not work on an insulated liquid media (e.g. PE, PP foil bags or syringes filled liquids or jells.
- life-time of HV switches 2-6 months at 7/24

Please inquire for **evaluation tests**

to find optimal PEF conditions

for your application.

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