

A large industrial stainless steel machine, the E-FLO Electroporation System, is shown in a factory setting. It has a large vertical cylindrical component and a motorized base. The background shows a complex network of pipes and industrial lighting.

E-FLO is an Electroporation system that uses pulse electric fields (PEF) technology. The system sends PEF through the cell walls of potatoes and root vegetables and perforates the cell membranes with microscopic holes. This allows sugars and amino acids to be released from the vegetables before they are cooked, reducing harmful acrylamides and lowering oil content.

Reduce acrylamide

Meet legislative requirements and create a healthier finished product by reducing acrylamide levels in potatoes and other root vegetables.

Greater yield

Increase output and deliver a more robust potato thanks to less breakage and a cleaner cut.

Shorter, cheaper process

Experience healthier, more permeable potato tissue, so there's little-to-no need for expensive blanching.

E-FLO[®] ELECTROPORATION SYSTEM

IMPROVE POTATO CHIP AND FRENCH FRY QUALITY, REDUCE ACRYLAMIDE FORMATION AND INCREASE YIELD



LOWER YOUR PROCESSING COSTS AND REDUCE ACRYLAMIDE LEVELS

Using Pulse Electric Field Processing (PEF) the patent protected E-FLO Electroporation System can achieve higher yield and reduced processing costs, as well as a reduction in acrylamide formation and oil content, for a tastier, healthier product.

Using PEF technology, the E-FLO provides significant yield savings to producers, with faster processing of the potatoes, cutting improvements for a longer blade life and lower oil content in the final product. E-FLO technology removes sugars and amino acids to reduce the level of acrylamide in potato chips by half. Raw cut sliced French fries that have gone through the E-FLO are more flexible, resulting in less product damage.

YIELD IMPROVEMENTS

Softer potato tissue makes the product easier to cut, resulting in faster processing speeds, higher slice yield and a longer blade life. Less pressure on the equipment means less downtime for maintenance and fewer blade changeovers. French fries are more permeable resulting in less product breakage.

IMPROVE PRODUCT QUALITY

Reduce sugar and asparagine levels and achieve significant acrylamide reduction. A smoother chip surface means the chip absorbs less oil, resulting in lower oil content in the finished product.

MINIMISE OR REDUCE BLANCHING

The tissue in the potato becomes more permeable, which reduces the need, or length of time needed to blanch potatoes before cooking.

Meet legislative requirements and create a healthier finished product by reducing acrylamide levels in potatoes and other root vegetables. Increase your output and deliver a more robust potato with less breakage and a cleaner cut.

E-FLO SOLUTIONS FOR POTATO CHIPS



BENEFITS AND ADVANTAGES OF USING E-FLO FOR POTATO CHIP SYSTEMS:

- **Minimise or reduce hot water blanching:** replace or reduce the need for costly blanching systems, resulting in energy savings
- **Improve product quality:** Reduce sugar and asparagine levels and achieve significant acrylamide reduction
- **Textural improvements:** Improve crunch, taste and texture of the end product
- **Yield improvements:** Less downtime for maintenance processing. Increase yield of the slice and achieve longer blade life
- **Reduced footprint & retrofit:** The design is compact for easy integration into existing processing or new lines
- **Reduced oil pick up can be achieved**

End result - Potato Chips are crunchier and healthier

E-FLO SOLUTIONS FOR FRENCH FRIES



BENEFITS AND ADVANTAGES OF USING THE E-FLO FOR FRENCH FRY SYSTEMS:

- **Colour:** A more even and consistent colour
- **Longer fries:** less breakage of the product which allows for longer product with less wastage
- **Yield improvements:** Increase in yield of the cutters and increased life of the cutting blades. Less starch is lost in cutting.
- **Smoother surface:** E-FLO makes the cut surface smoother, with less oil pick-up and a smoother finish without feathering the product
- **Less oil take up**
- **New cuts and shapes available**
- **Water and Energy savings:** Reduces the need for pre-heating the product prior to cutting.
- **Reduce the need for blanching:** Reduces blanching requirements, which also reduces **energy and water usage**, while providing a more consistent finished product colour

E-FLO ELECTROPORATION SYSTEM

Potato Preparation



Applications can include:

- Potato Chips
- French fries
- Sweet Potato
- Taro
- Cassava / Manioc
- Parsnip
- Carrot
- Beetroot
- Dried vegetables
- Others

ScandiNova

Heat and Control partnered with ScandiNova, world-leading provider of solid-state high-power pulse modulators and RF systems to develop the E-FLO Electroporation System.



With thousands of food processing applications worldwide and testing centres to support your requirements, Heat and Control can bring knowledge, experience, and technology to your next project.

© Heat and Control Inc 2020