



PULSED ELECTRIC FIELD FOR FREEZE DRYING

**CAPTURE MORE OF THE NATURAL SHAPE,**

**FLAVOUR AND AROMA OF THE FRESH**

**PRODUCE & SAVE ENERGY**

[www.elea-technology.com](http://www.elea-technology.com)





**PEF captures more  
of the natural shape,  
flavour, aroma and colour  
of the fresh produce  
and saves energy**

**1**

**Better shape retention**

PEF treatment leads to a higher quality product with increased form stability and less shrinkage.



**2**

**Retain more flavour,  
aroma and colour**

Shorter drying times and better process control enabled by PEF mean that the raw product retains more of its original colour, shape and flavour.

**3**

**Better rehydration**

Better shape preservation with PEF treatment produces a more open product structure, enhancing rehydration.



**4**

**Potential energy savings,  
increase capacity and  
reduce process time**

The production process becomes more sustainable with shorter process times, providing energy savings and an increase in capacity.

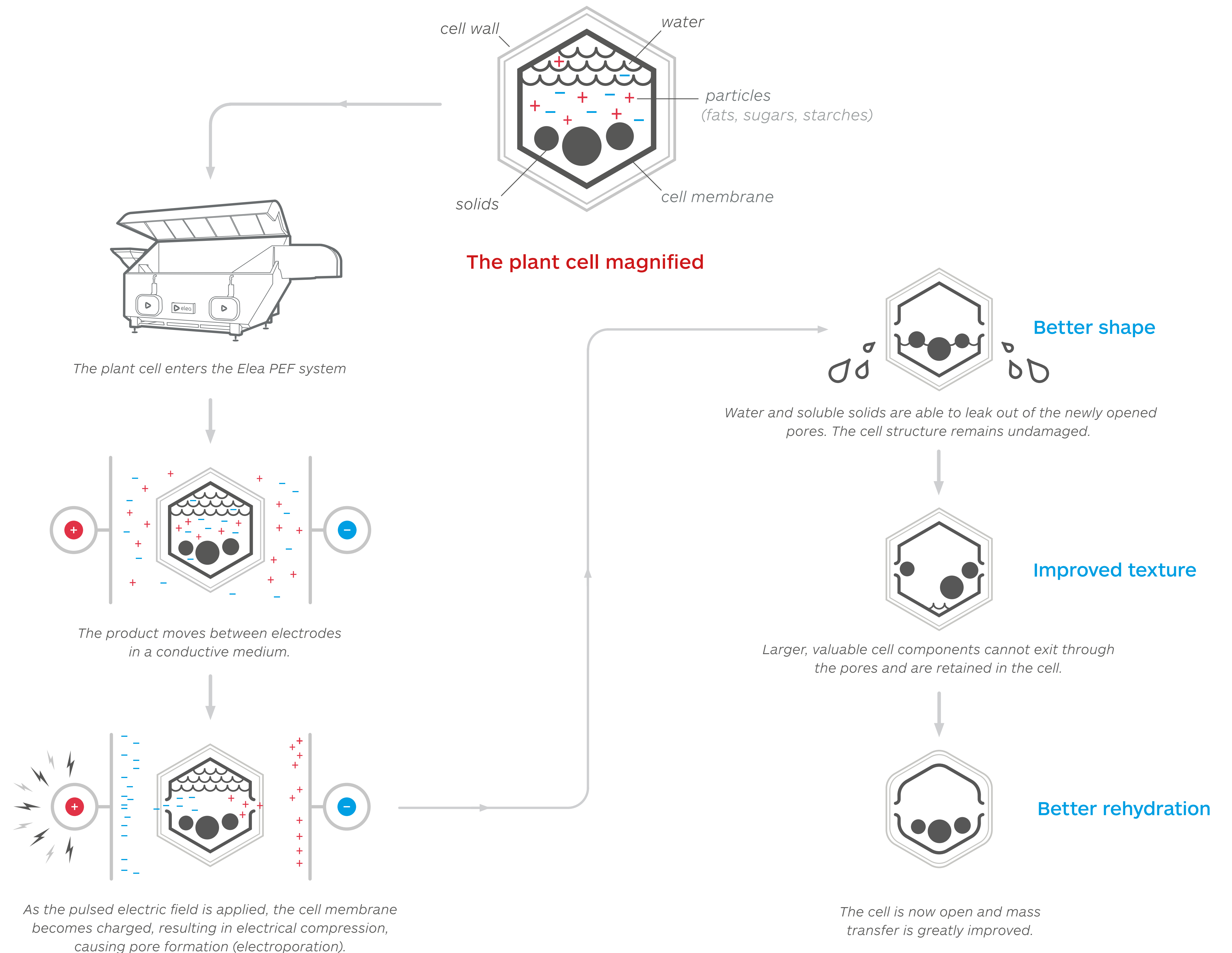




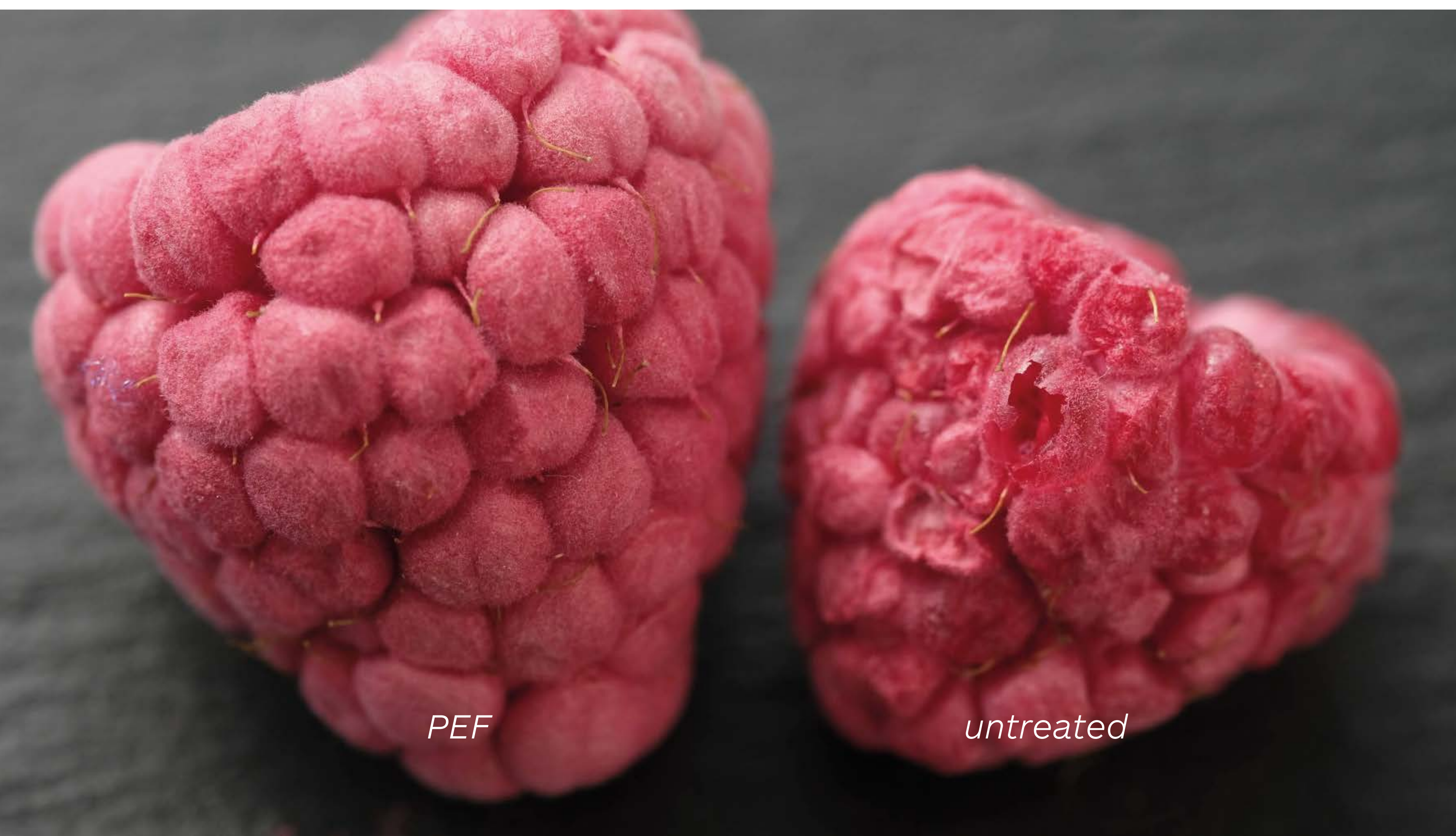


## How PEF works for drying

PEF induces electroporation which opens cell membranes in the treated product. This increases the internal diffusion resulting in improved mass transfer of all drying processes.

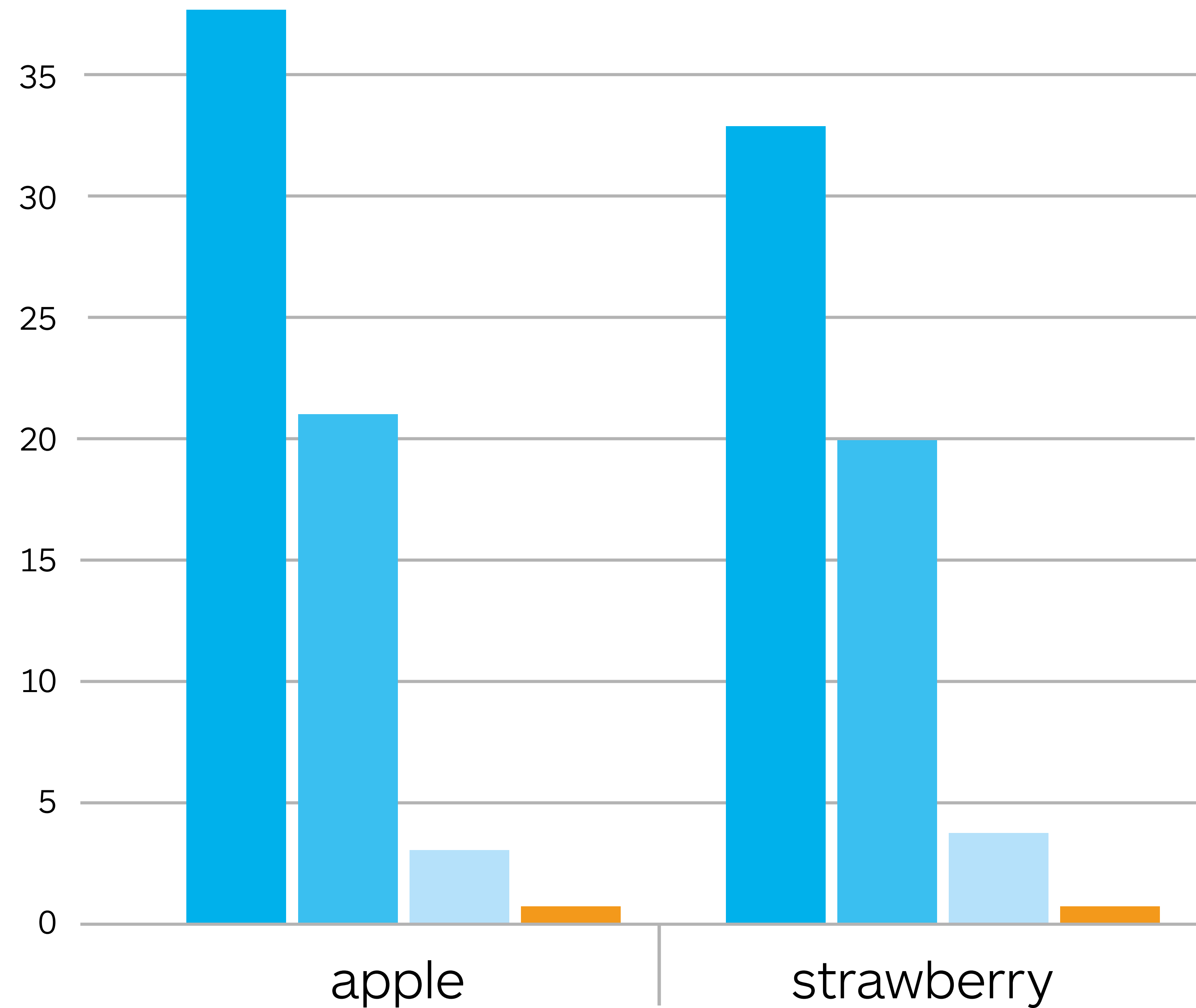








energy consumed during  
operation [MJ]



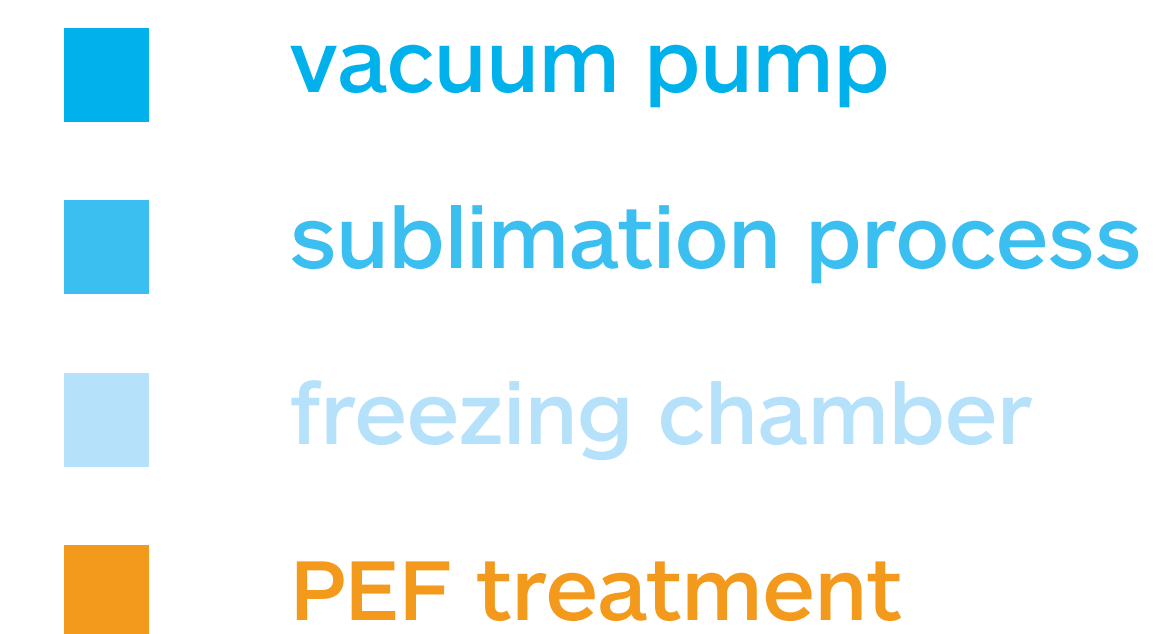
## Energy consumption

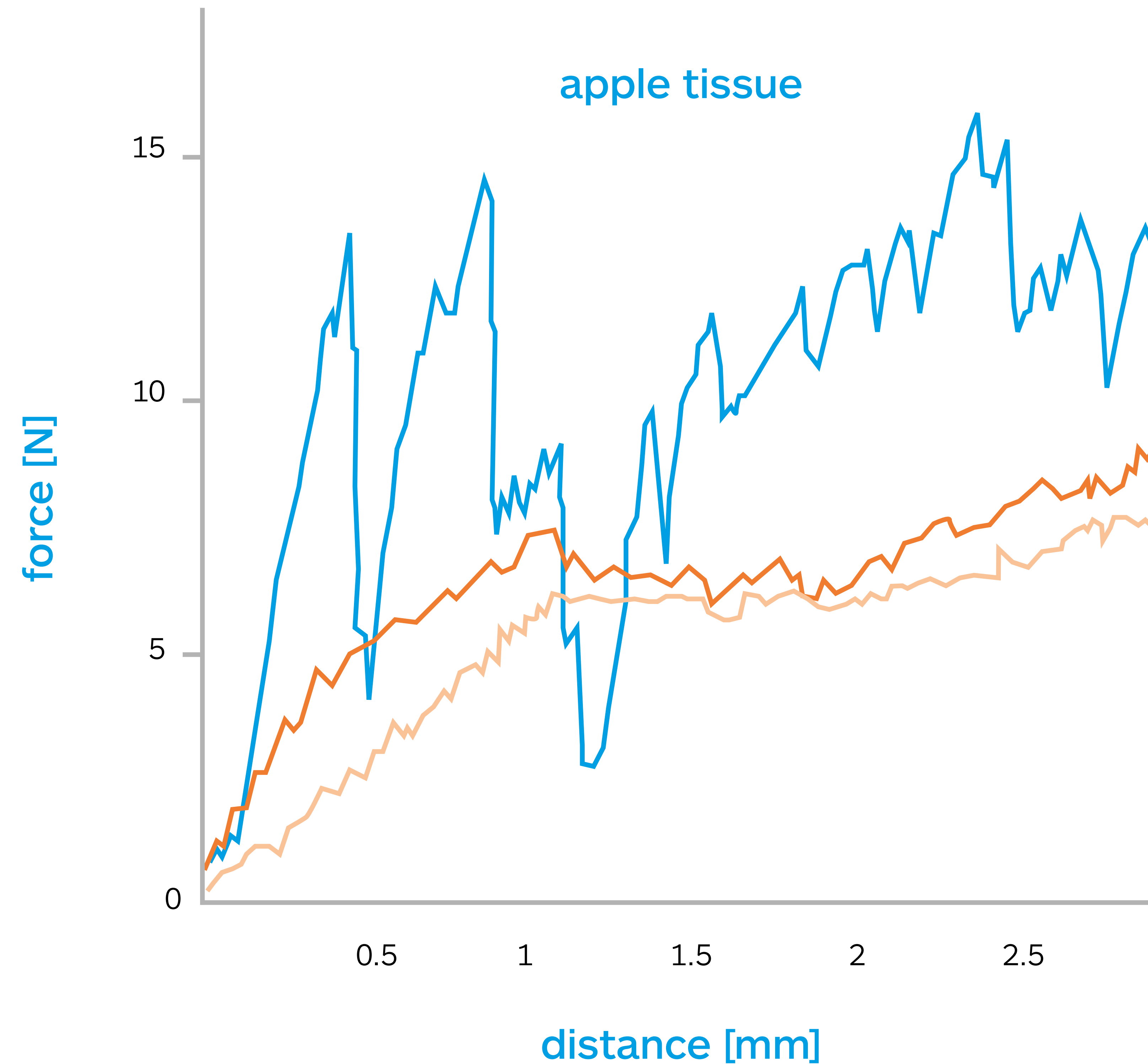
Share on energy consumption:

**PEF:** 0.75 %

**Freezing:** 5.49 %

**Drying:** 93.76 %





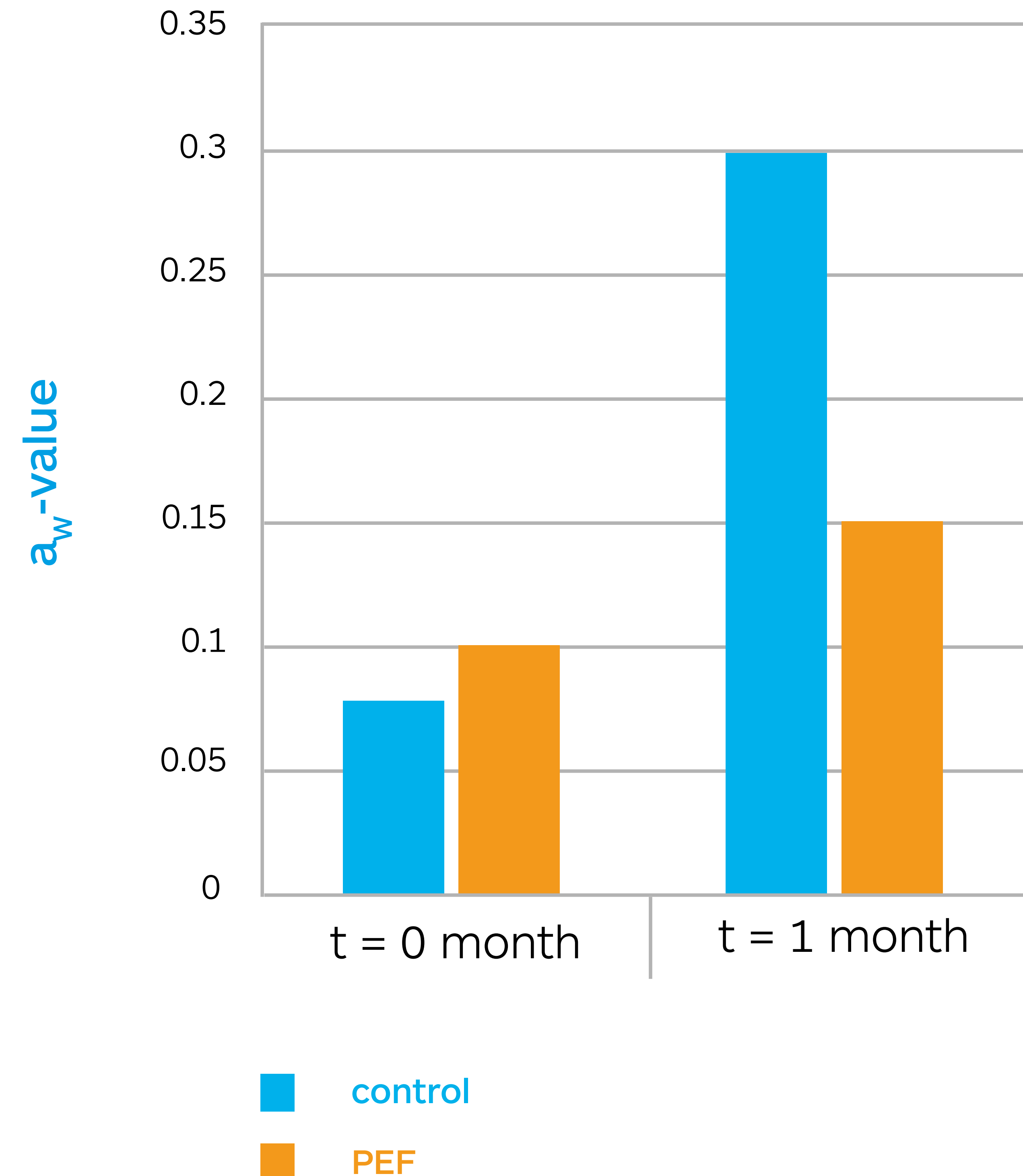
## Improved texture and mouthfeel

Increased crunchiness index by up to

**59%**

## Water activity in apple tissue

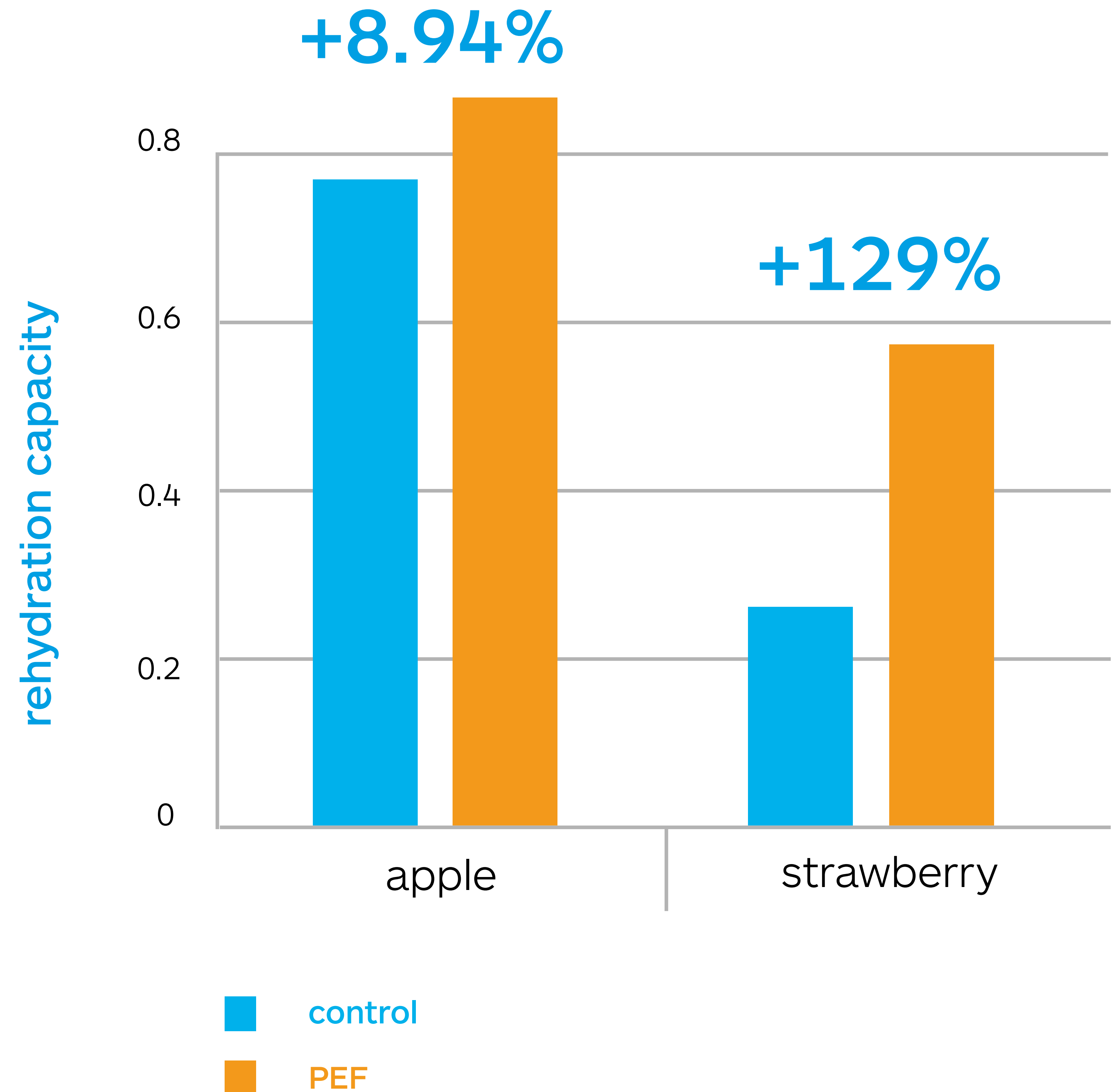
A more stable  $a_w$  – value a more stable shelf-life of the product





## Improve rehydration capacity

PEF enhanced rehydration retains more of the natural taste and aroma of fresh fruit.











## Get the right Elea PEF Advantage system for your freeze drying line

We offer a range of different sized PEF belt systems with varying line capacities. In addition, we provide a design and build service to customise Elea PEF technology to your specific requirements. All of our systems share the same 24/7 production capability and are designed to operate under extreme conditions. Designed to be easily and fully integrated into your existing production line with minimal disruption.



### PEF Advantage B 1 & B 1 mini

The compact industrial scale systems for treatment of vegetables and tubers. The PEF Advantage B1 & B1 mini systems are built as a single unit including pulse generator, treatment belt and vessel.

The B1 is designed for standard line capacities with up to 7.5t per hour.

The B1 mini is especially engineered for smaller lines with capacities of up to 3t per hour, with an option to upgrade to B1 capacity if required.



### PEF Advantage B 1, 10, 100, 1000

The industrial scale solution for the treatment of tubers, roots, vegetables and fruits.

Our PEF Advantage Belt system is available in a range of four models: the PEF Advantage B1, 10, 100 & 1000. Each option is fully customisable to your requirements.

Up to 100 t per hour processing capacity, quick start-up, low energy & water consumption







We are the world's leading  
manufacturer of Pulsed  
Electric Field solutions  
with more than 250 Elea  
PEF Advantage systems  
already installed globally

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