



PULSED ELECTRIC FIELD FOR AIR DRYING
INCREASE CAPACITY, ACCELERATE DRYING, SAVE ENERGY,
AND CAPTURE MORE OF THE NATURAL SHAPE, FLAVOUR
AND AROMA OF THE FRESH PRODUCE

www.elea-technology.com



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

1

**Save energy, increase
capacity and reduce
process time**

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

2

**Retain more flavour,
aroma & 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

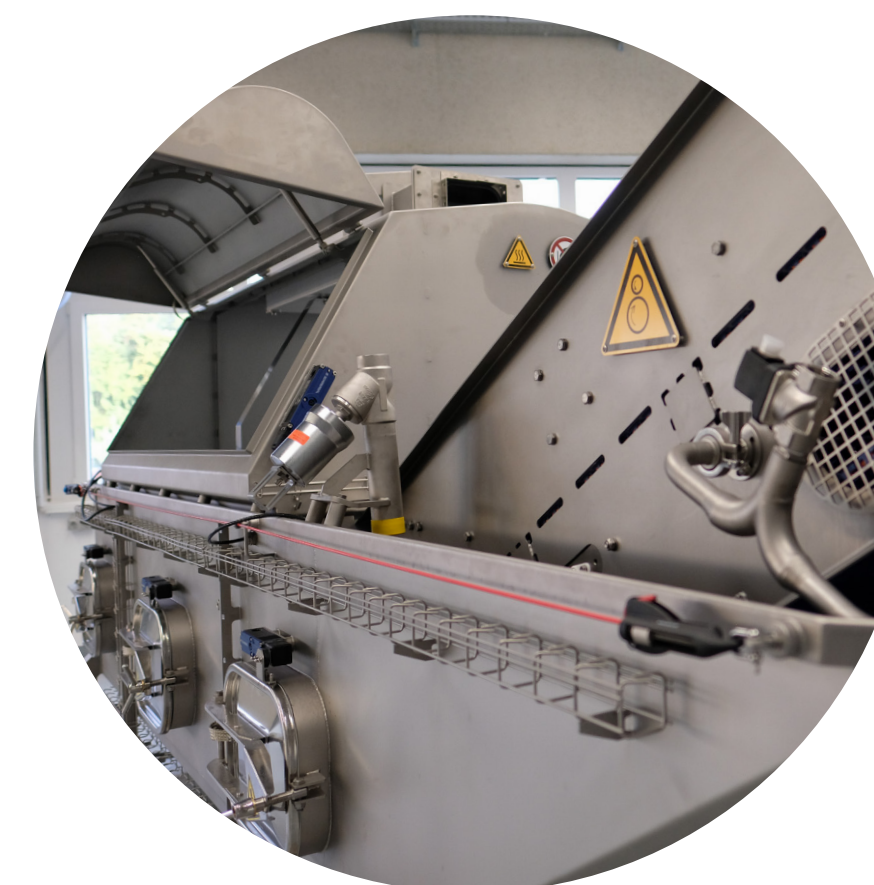
Better rehydration

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

4

Better shape retention

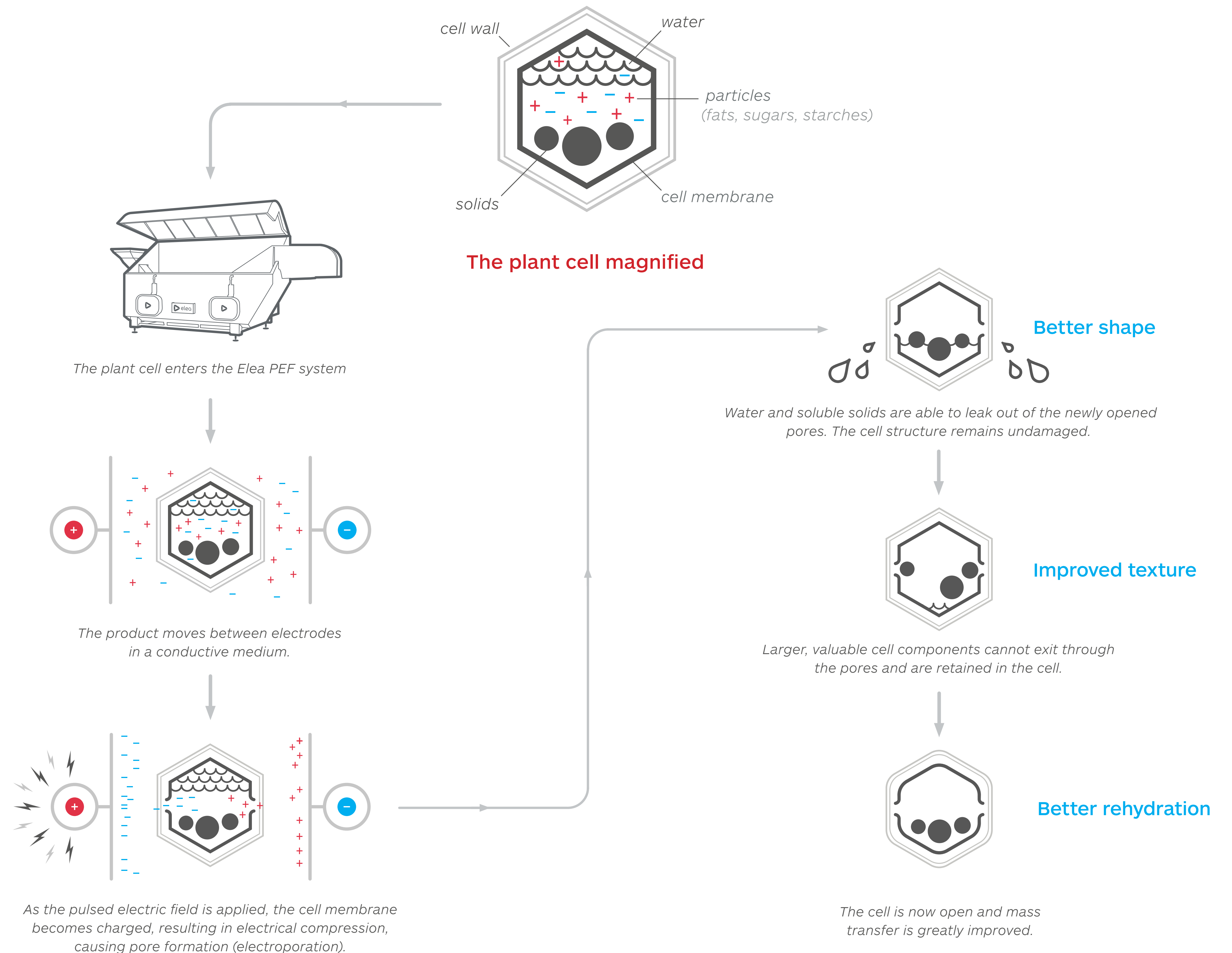
PEF treatment leads to a higher quality product with increased form stability and less shrinkage.





How PEF works for drying

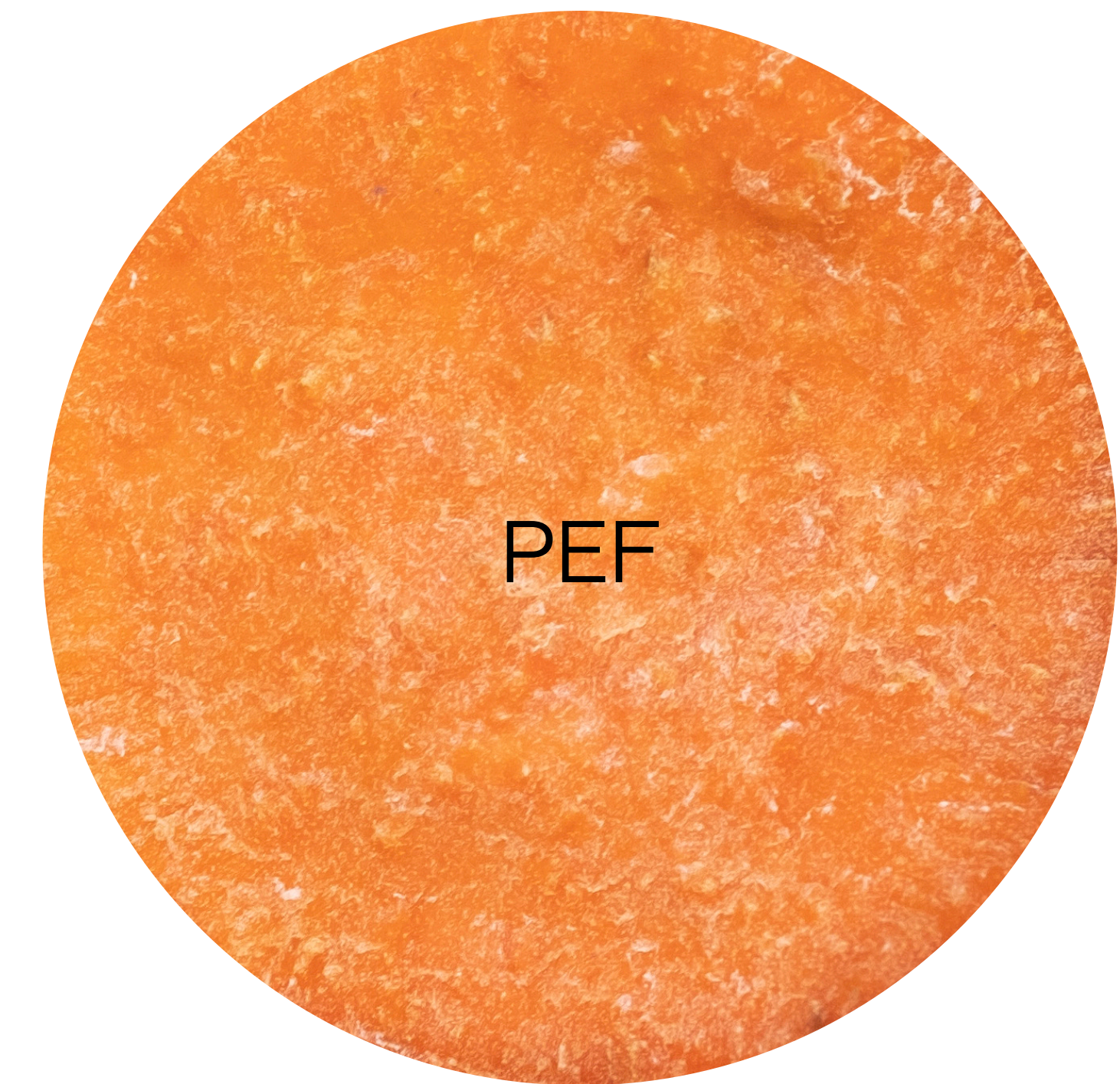
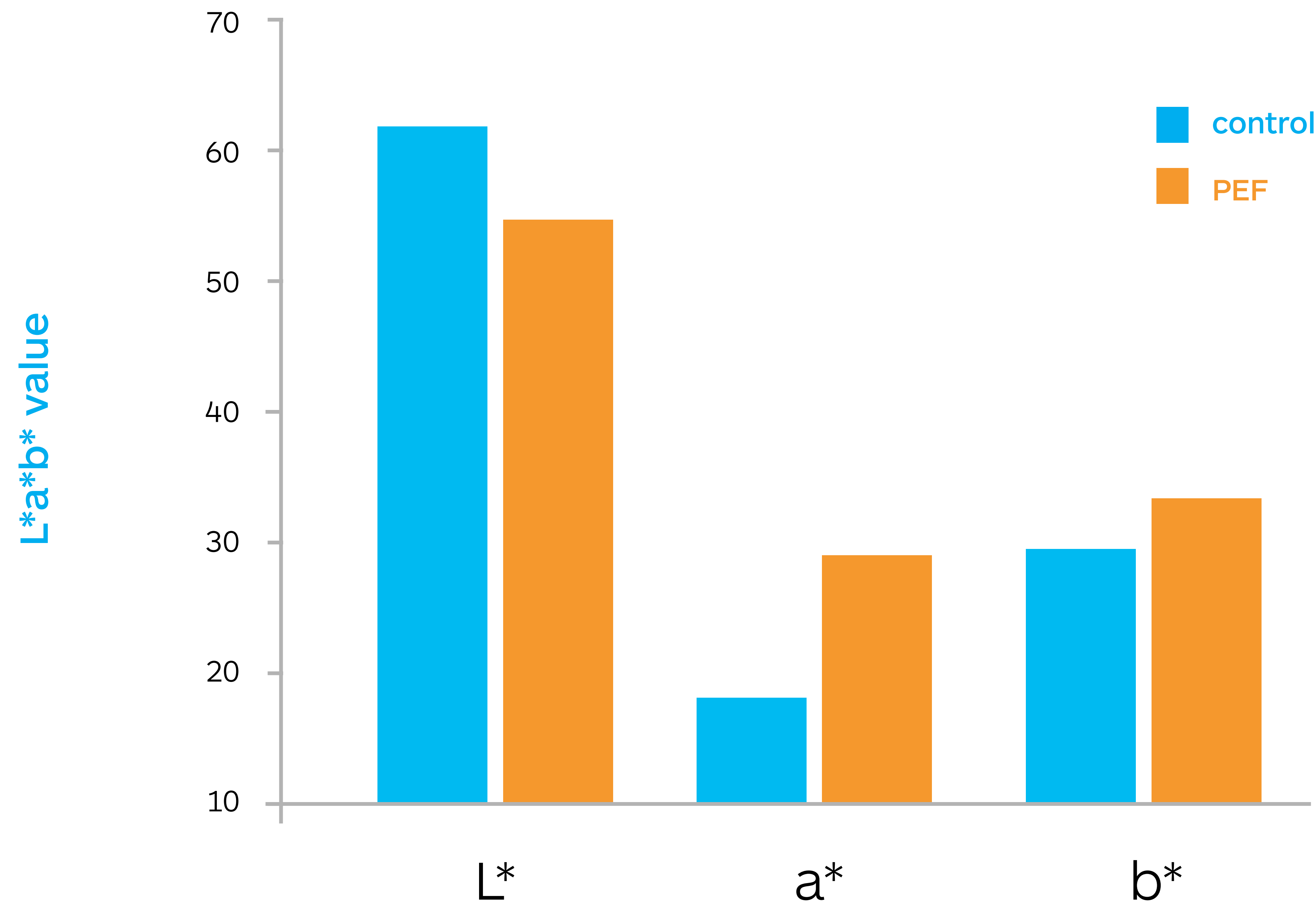
PEF induces electroporation which opens cell membranes in the treated product. This increases the internal diffusion resulting in improved mass transfer of all drying processes.



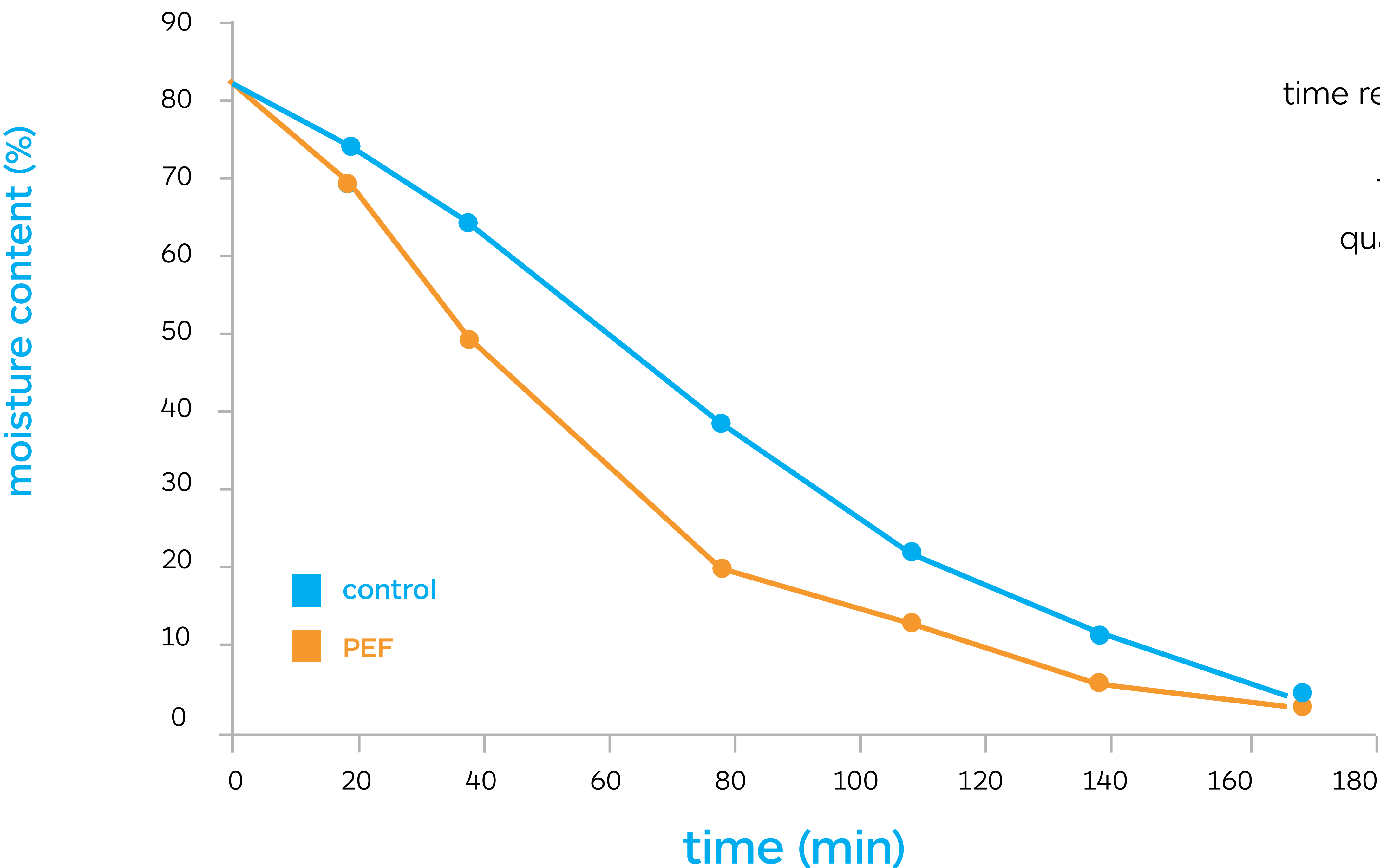


L*a*b* colour difference for sweet potato

Brighter and more intense colour with PEF



Drying kinetics of control and PEF-treated yellow onions

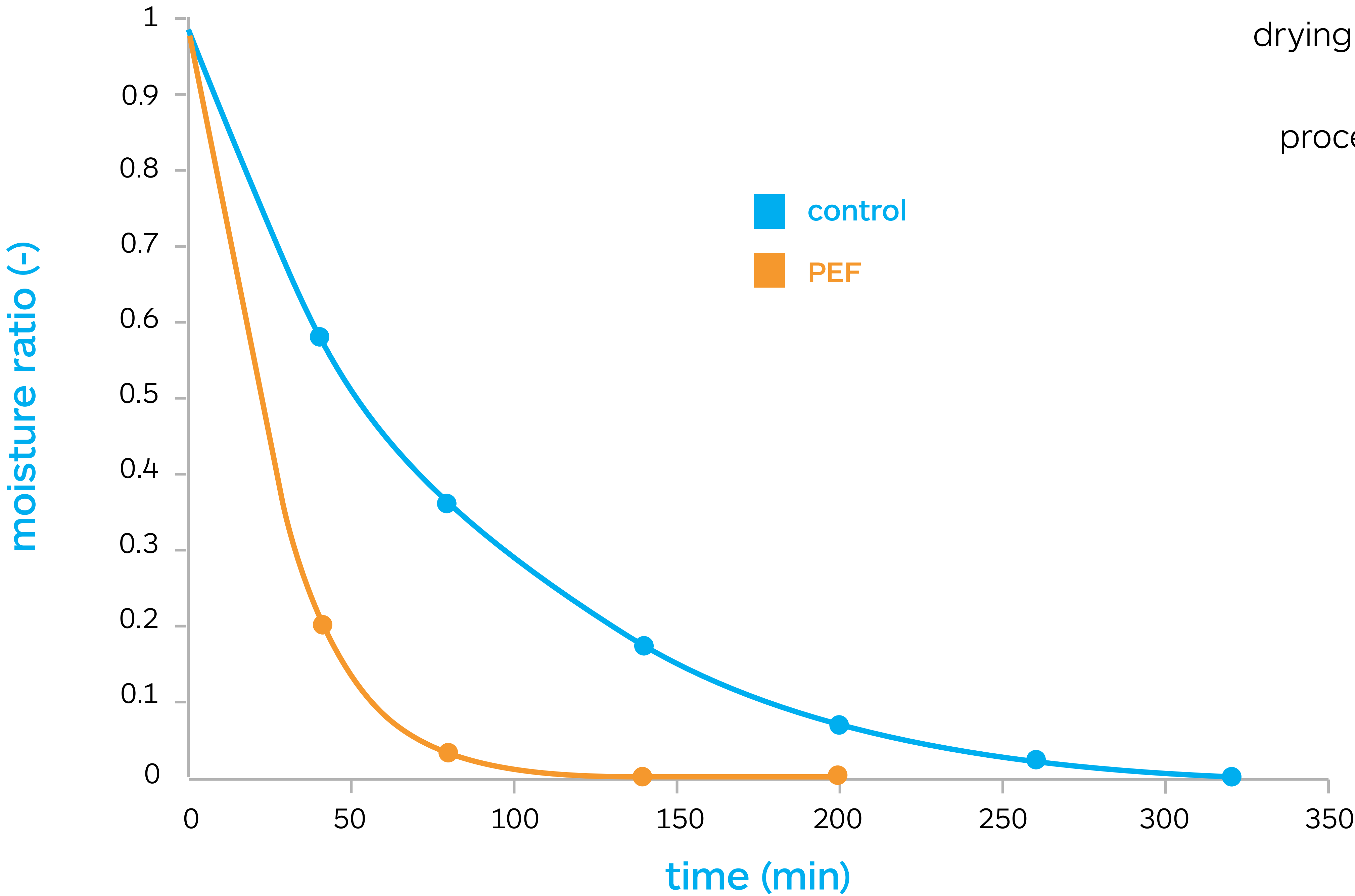


At 75°C the drying time decreases from 218 (untreated) to 151 min (PEF), a decrease of 30.7%. At 85°C a drying time reduction of 27.6% from 152 to 110 min.

This allows a gentle drying, with fewer quality losses at 75°C after applying PEF, having nearly the same drying time in comparison to an untreated sample dried at 85°C.



Moisture rate versus time for grass drying

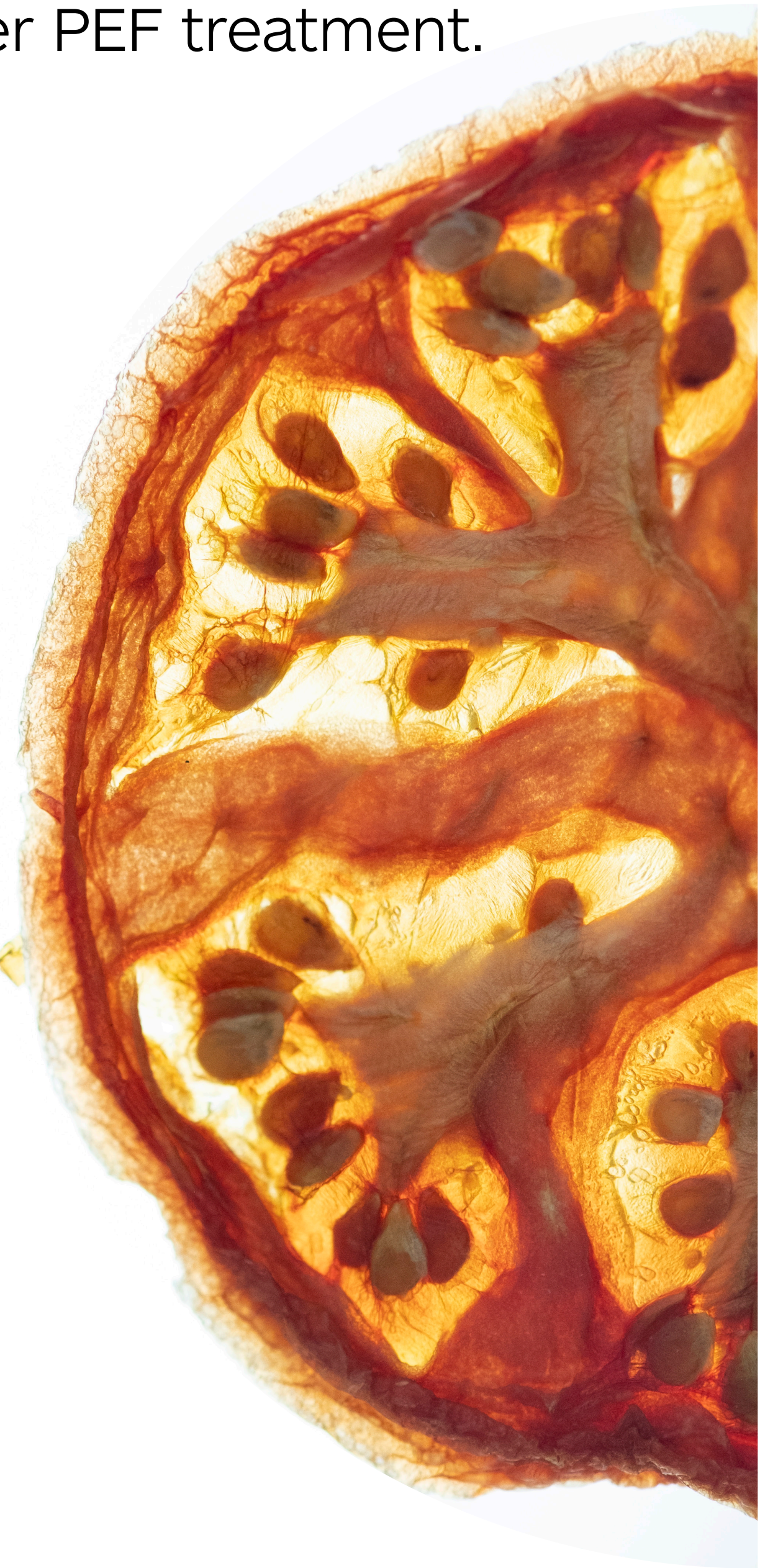
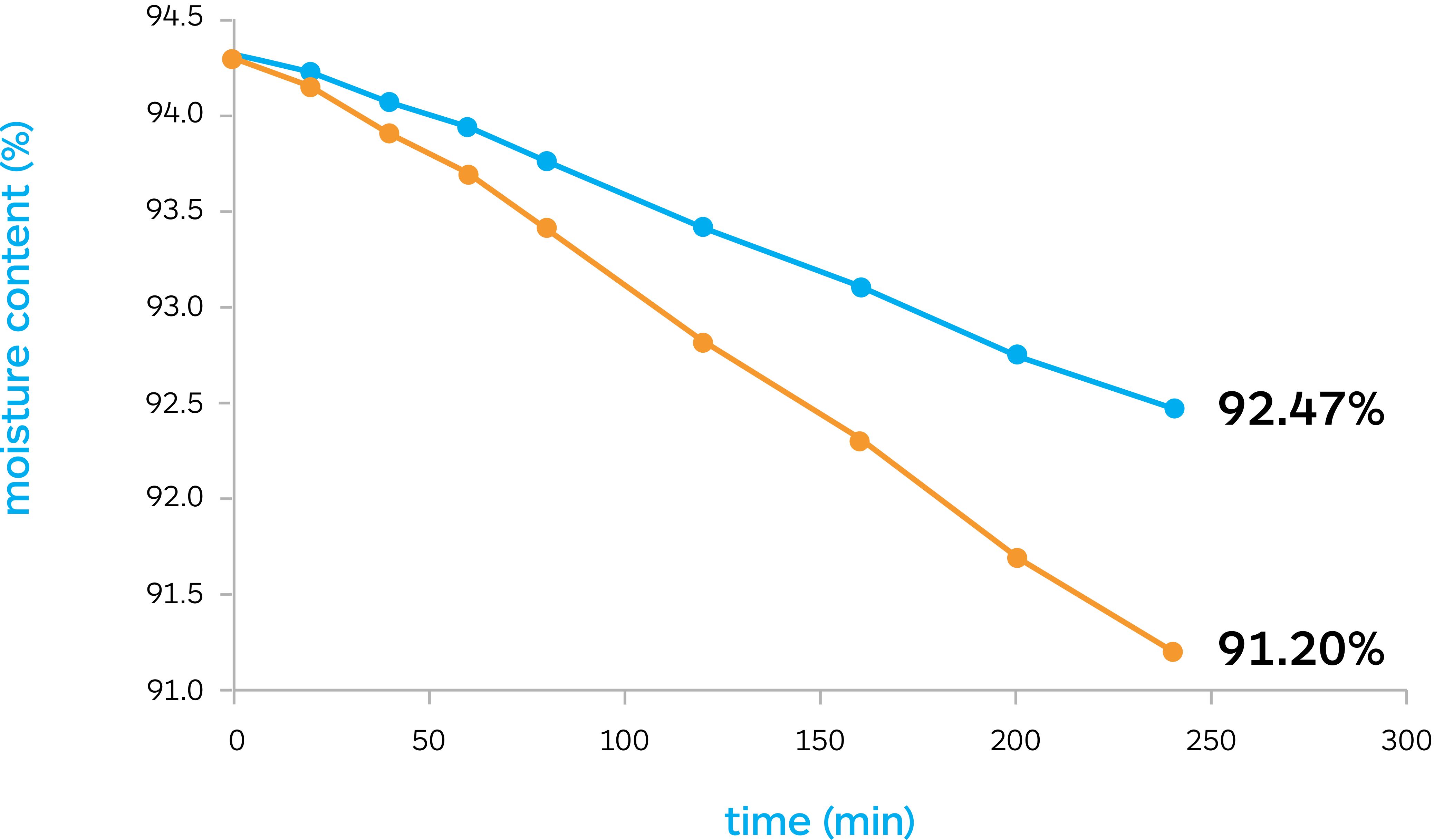


The open structure induced by PEF allows faster drying of leafy material, such as grass or spinach. Increased water removal results in shorter processing times, higher quality, brighter colour and more nutritional value.

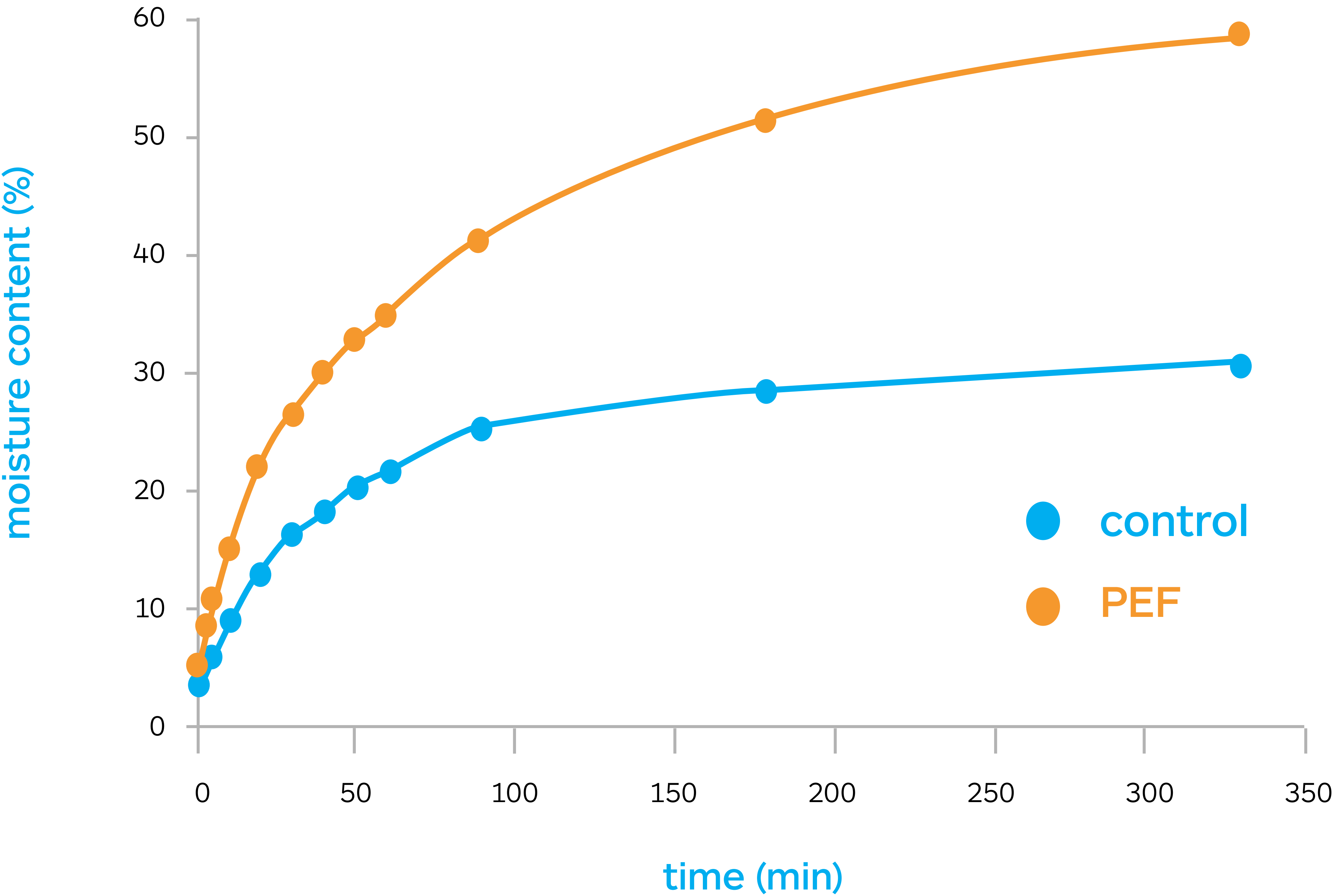


Drying kinetics of control and PEF-treated tomatoes

In this example, tomato slices were dried at 50°C. A noticeable difference in moisture content over time was observed, demonstrating a shorter drying time after PEF treatment.



Improved rehydration of yellow onions with PEF



The open cell structure caused by PEF improves rehydration.

In this example the final water uptake for the PEF-treated sample is with 66.8% nearly twice as high as for the untreated sample with 35.1%.



PEF



untreated



PEF



untreated



PEF



untreated



Get the right Elea PEF Advantage system for your air 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
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already installed globally

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