# APPLICATION**SHEET**

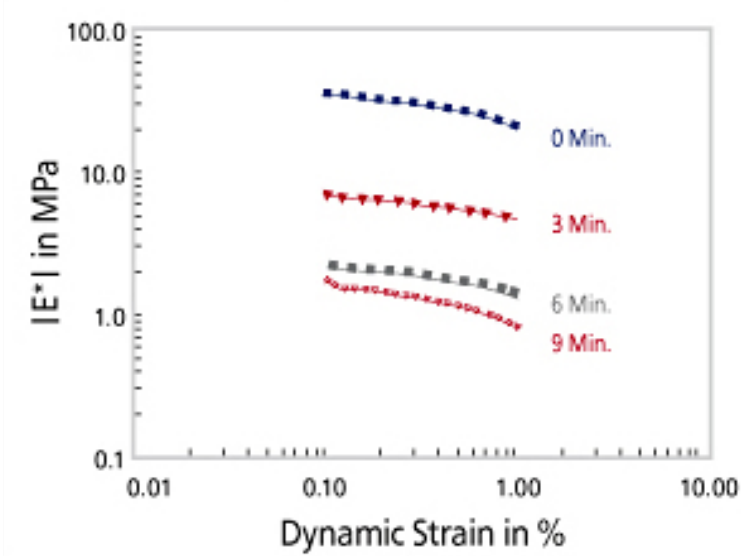
## Foods – DMA EPLEXOR®

### Cooking Behavior of Potatoes

Rectangular potato pieces (dimensions: thickness approx. 3 mm, cross-section 10 mm x 15 mm) were cooked in boiling water at different cooking times. The potato pieces had nearly identical sizes and were cooked for 3 min, 6 min and 9 min. A raw potato piece (cooking time: 0 min) was used for reference purposes.

The cubic shaped-potato slices were tested at room temperature in uniaxial dynamic compression mode by applying a static pre-strain of 10% (approx. 200 to 300 µm) of the sample's height (approx. 2 to 3 mm). Thereafter, a dynamic strain sweep at an interval from 0.1% to 1% of the initial height was carried out (test frequency: 20 Hz). The superimposed dynamic amplitudes correspond to mechanical deformations of approx. 2 up to 20 µm.

A decrease in storage modulus E' with increasing dynamic strain amplitude could be observed. As expected, the raw potato yields the highest E' modulus. E' decreases with increasing cooking times since the potato gets softer.

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# APPLICATION**SHEET**

## Foods – DMA EPLEXOR®

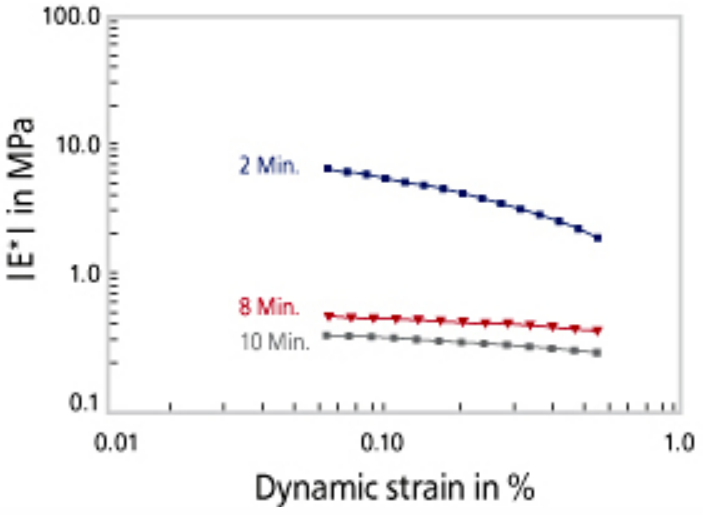
### Cooking Behavior of Noodles

Three different cubic samples, 5 mm wide and 7 mm long, were cut from a ribbon noodle made of durum wheat. In the uncooked state, the noodle was 1.5 mm thick. The prepared noodles were then cooked for 2 min, 8 min and 10 min. Thereupon, an uniaxial dynamic compression test was carried out on the noodle pieces.

The cubic noodle pieces were placed between 2 parallel compression plates and were imposed to a static pre-compression of 10% (approx. 150 to 250 µm) in relation to the sample's thickness. Swelling of the noodle is automatically taken into consideration by the DMA and included in the analysis.

Thereafter, the dynamic load amplitude was systematically increased from 0.06% to 0.5% of the initial length. The dynamic deformation was imposed by a test frequency of 20 Hz. The resulting amplitudes for the imposed dynamic deformations range from approx. 1 µm to 100 µm. These investigations were carried out on the cold noodle at ambient temperature.

With rising dynamic amplitude, storage modulus E' decreases. As expected, the sample cooked for only 2 min is the hardest one. Consequently, E* (or hardness) shows the highest absolute values and decreases with increasing cooking time.

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