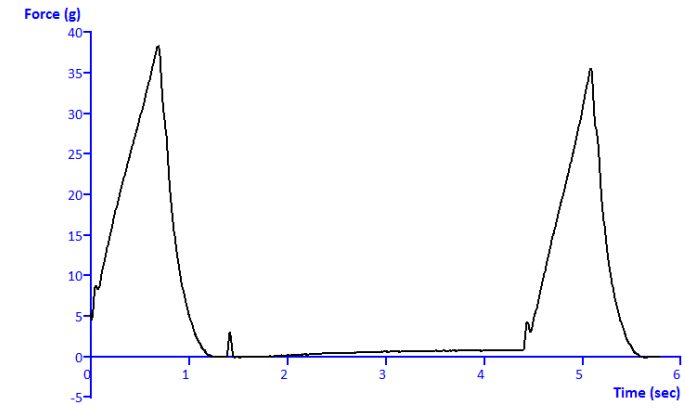
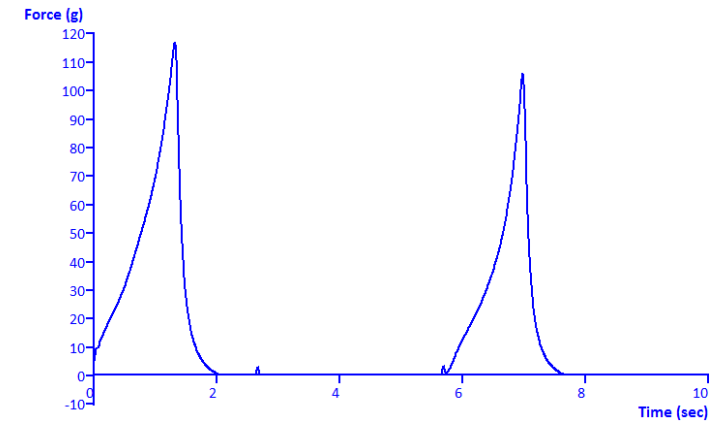




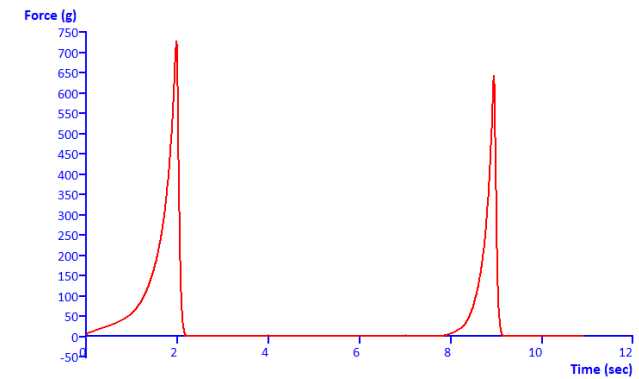
White bread 25%



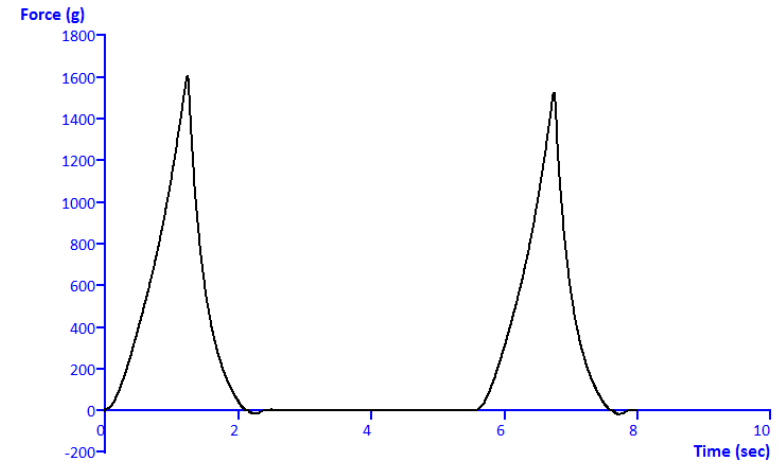
White bread 50%



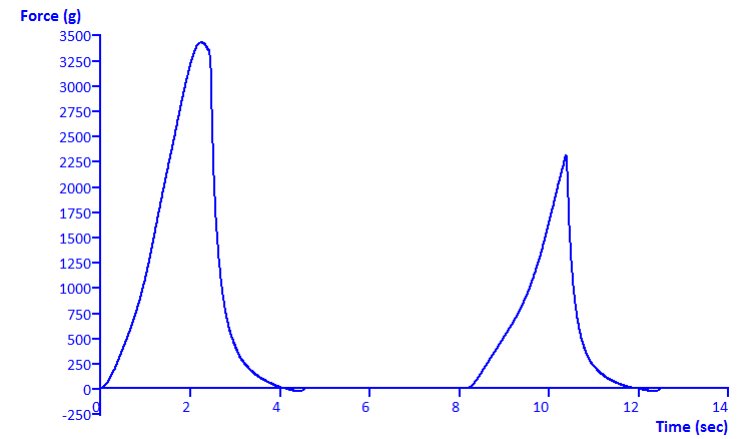
White bread 75%



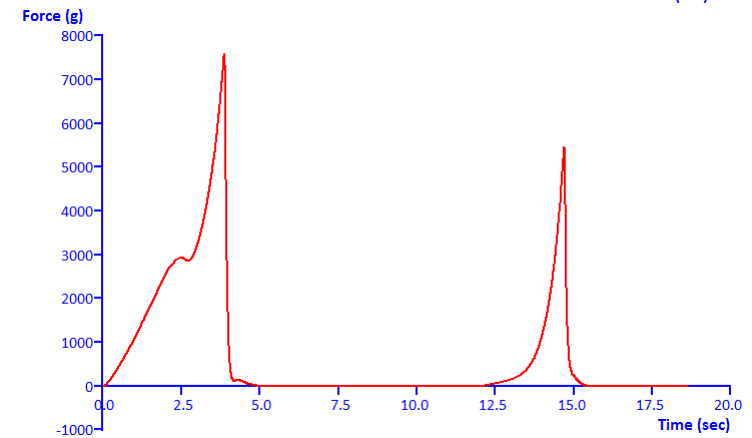
Tofu 25%



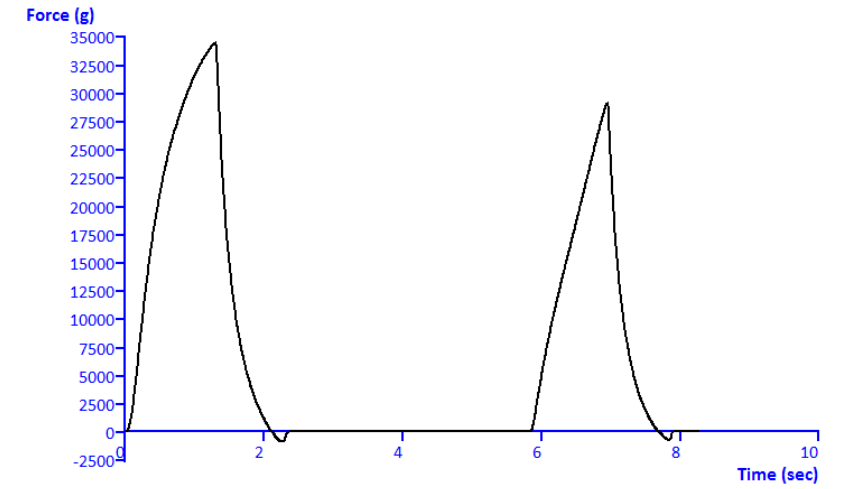
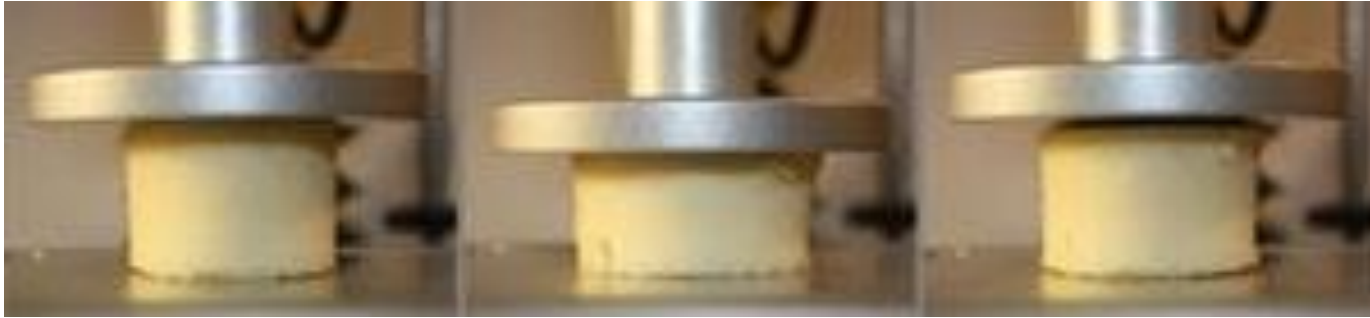
Tofu 50%



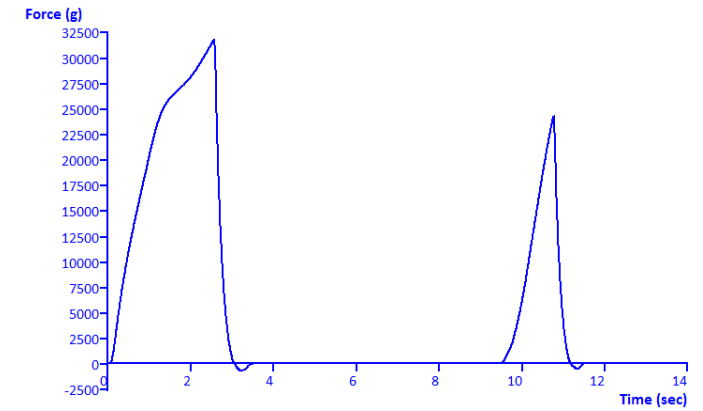
Tofu 75%



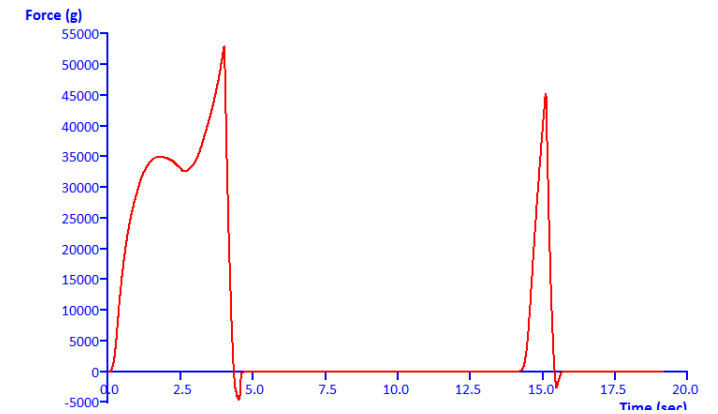
Chedda 25%



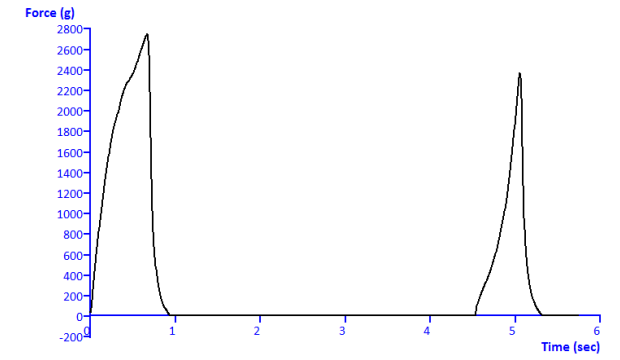
Chedda 50%



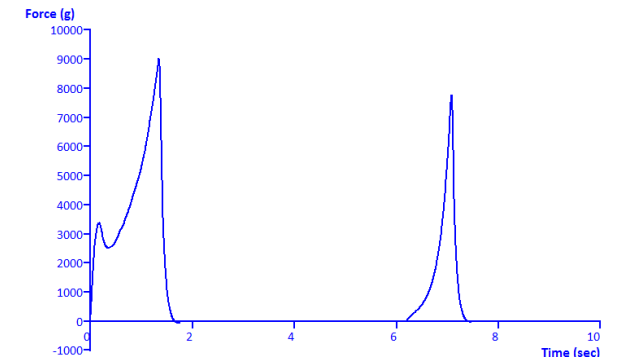
Chedda 75%



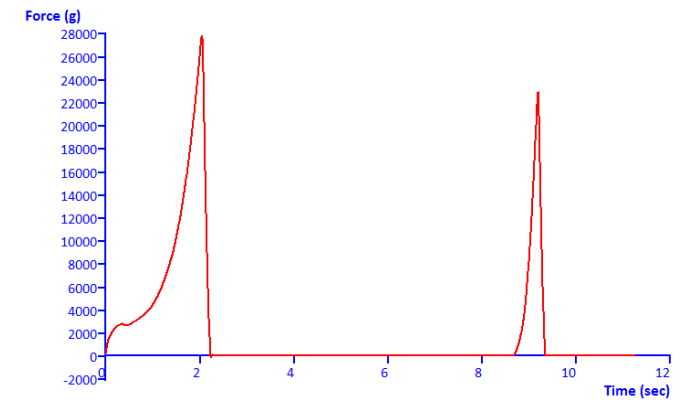
Chedda 25%



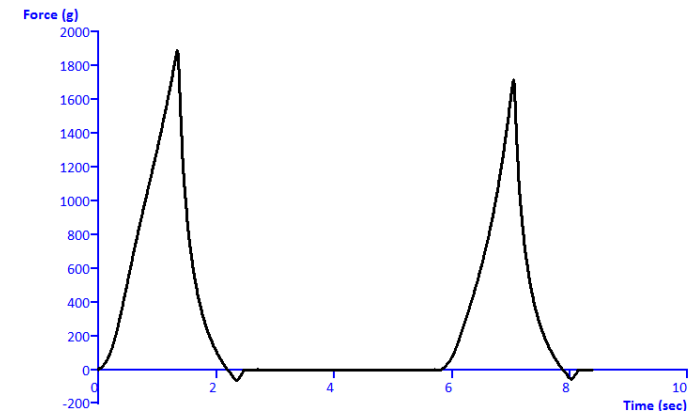
Chedda 50%



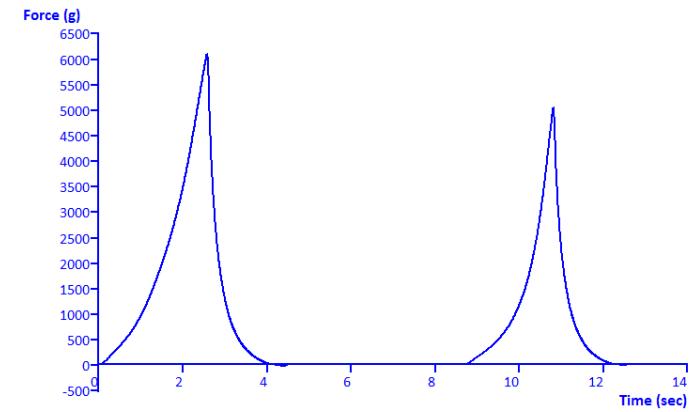
Chedda 75%



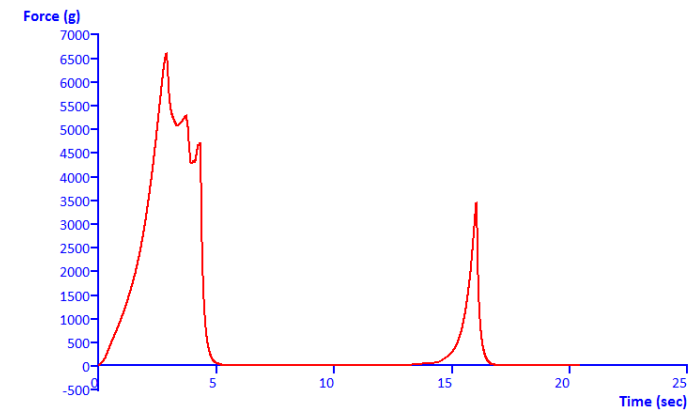
Hotdog 25%



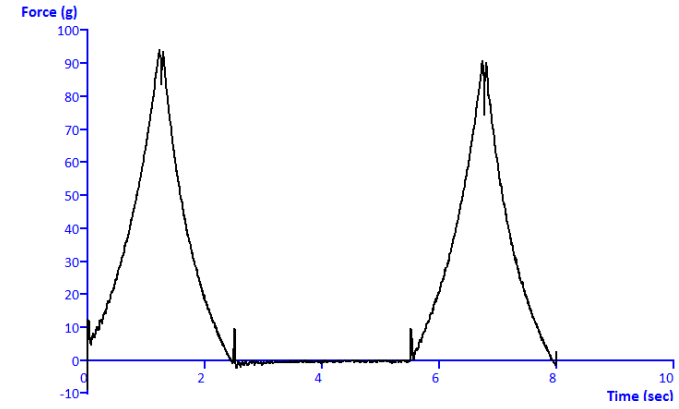
Hotdog 50%



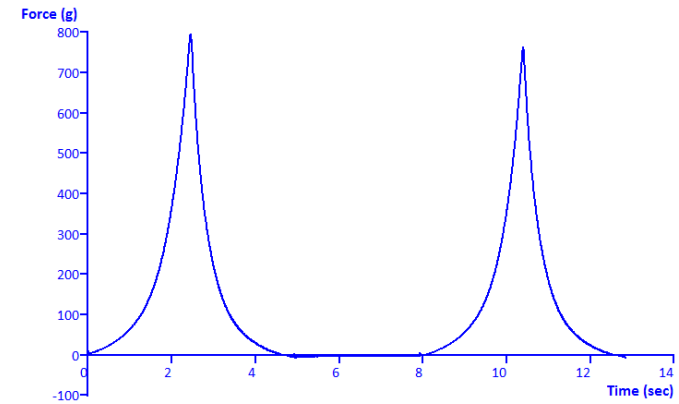
Hotdog 75%



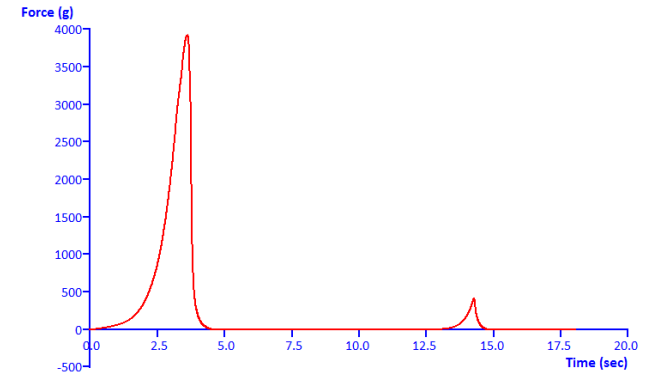
Jello 25%



Jello 50%

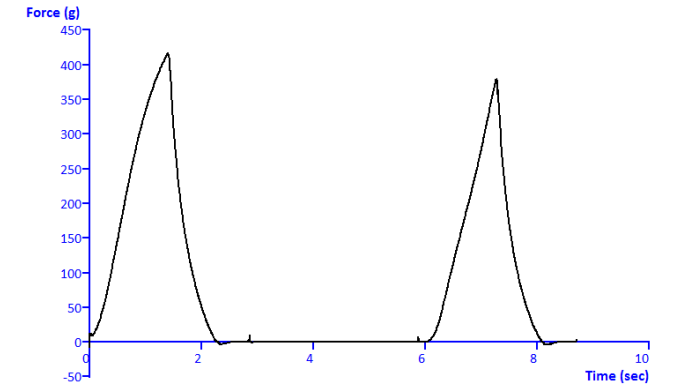
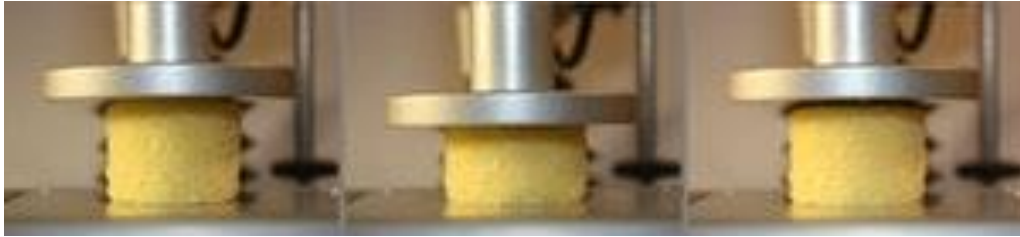


Jello 75%

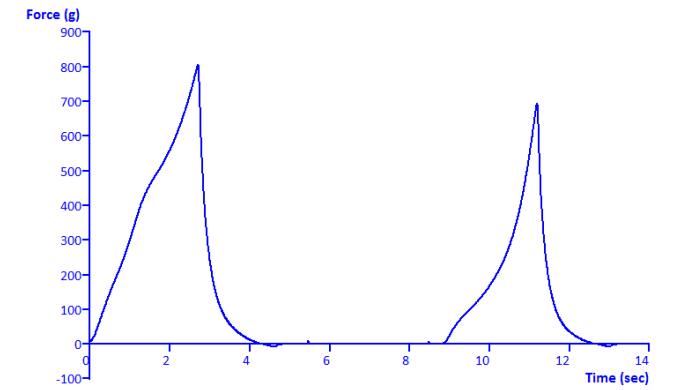
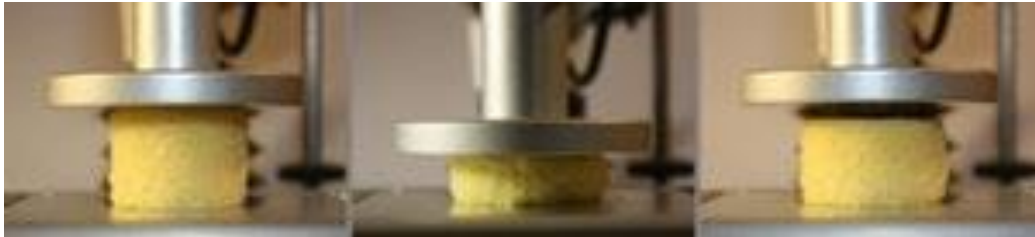




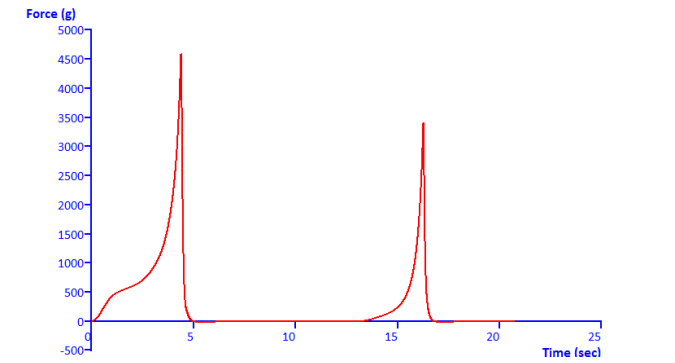
PoundCake 25%



PoundCake 50%

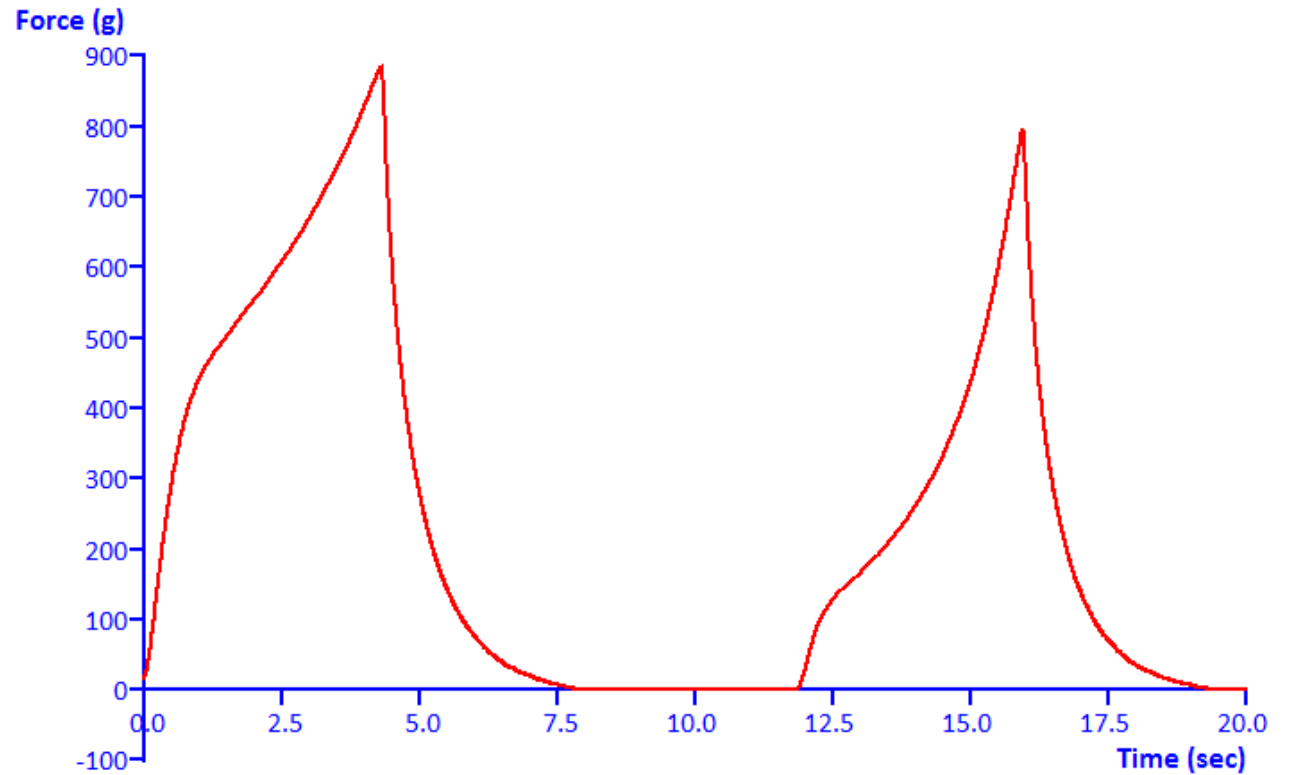


PoundCake 75%

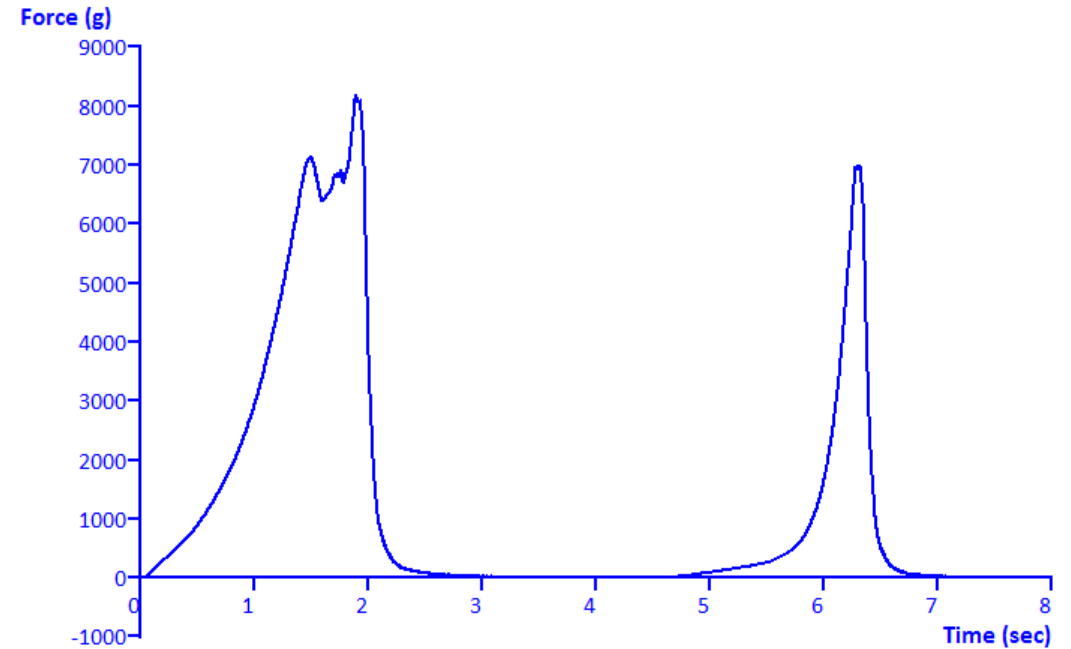


Typical TPA plots

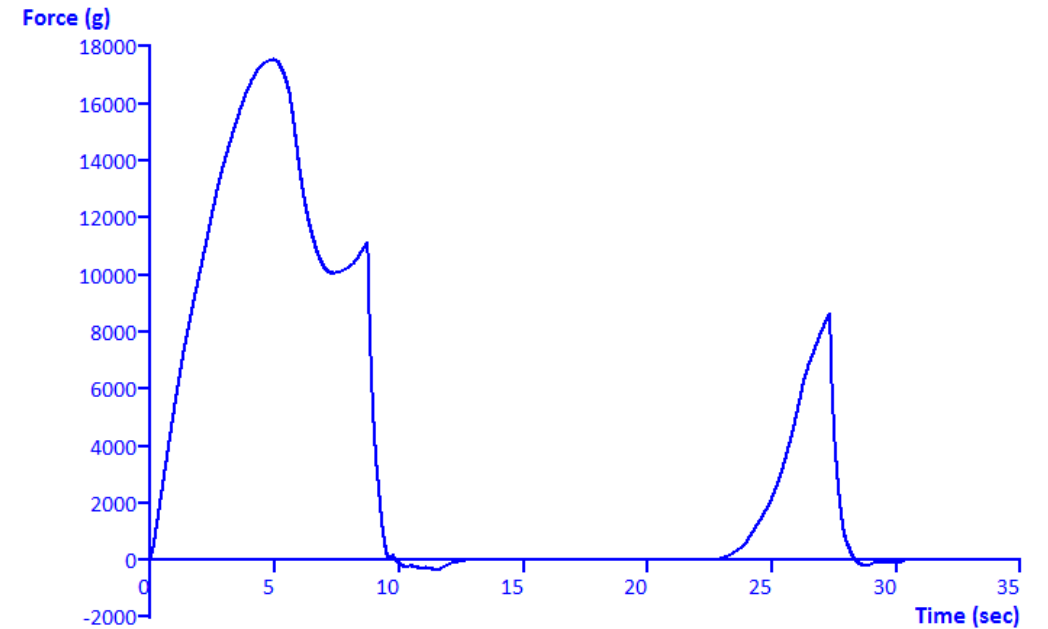
- **Hard Wheat Bread TPA Classic** bread TPA graph on two slices of a very firm wheat bread with a significant yield point as the cells are initially compressed. Note that the second stroke has a substantially lower yield point and the second area of much less than the first compression, indicating moderate cohesiveness.



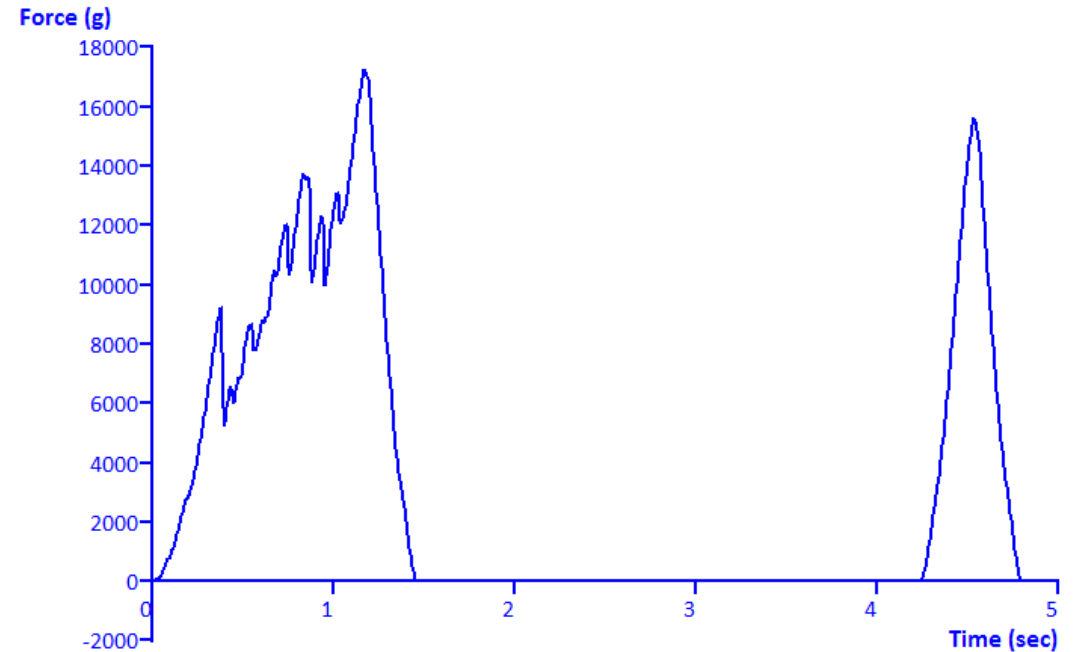
- **Stiff Hot Dog TPA** Classic TPA graph with a mostly single substantial fracture. Note the long tails on the withdrawal and second compression which indicates that the hot dog exhibited far more springiness than it did resilience.
- Many products do not exhibit the classic shape TPA curve and users should not be surprised that their plots do not follow the idealized model. Outlined below are graphs which do not follow the standard model, along with a few short annotations.



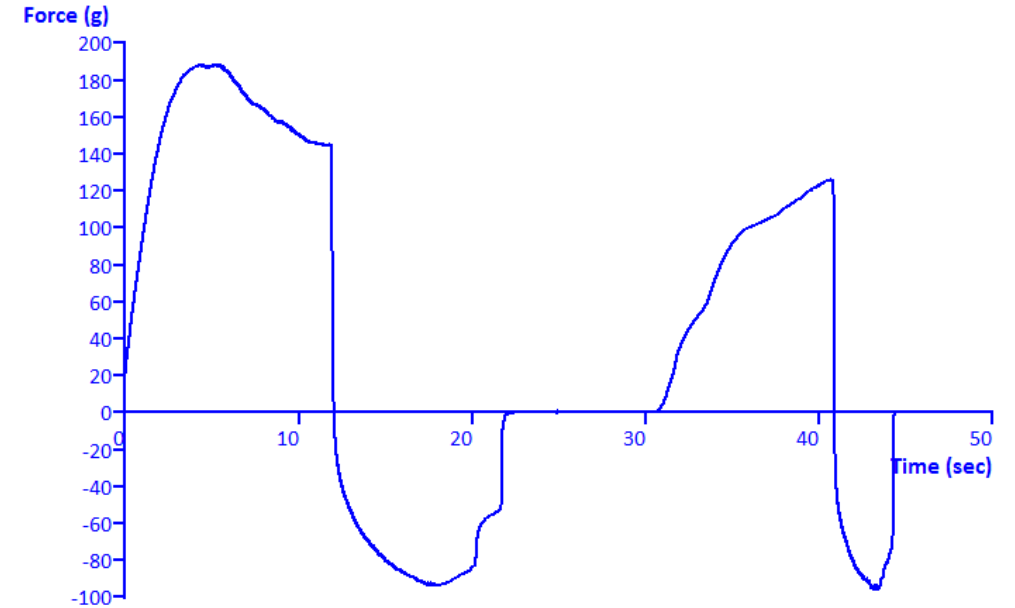
- **Hard Cheddar Cheese TPA** Note that the fracture point is a plastic, not brittle failure and which is the same value is the hardest point on the curve. Thus this curve has a single point which serves as both the Fracturability and the Hardness values.



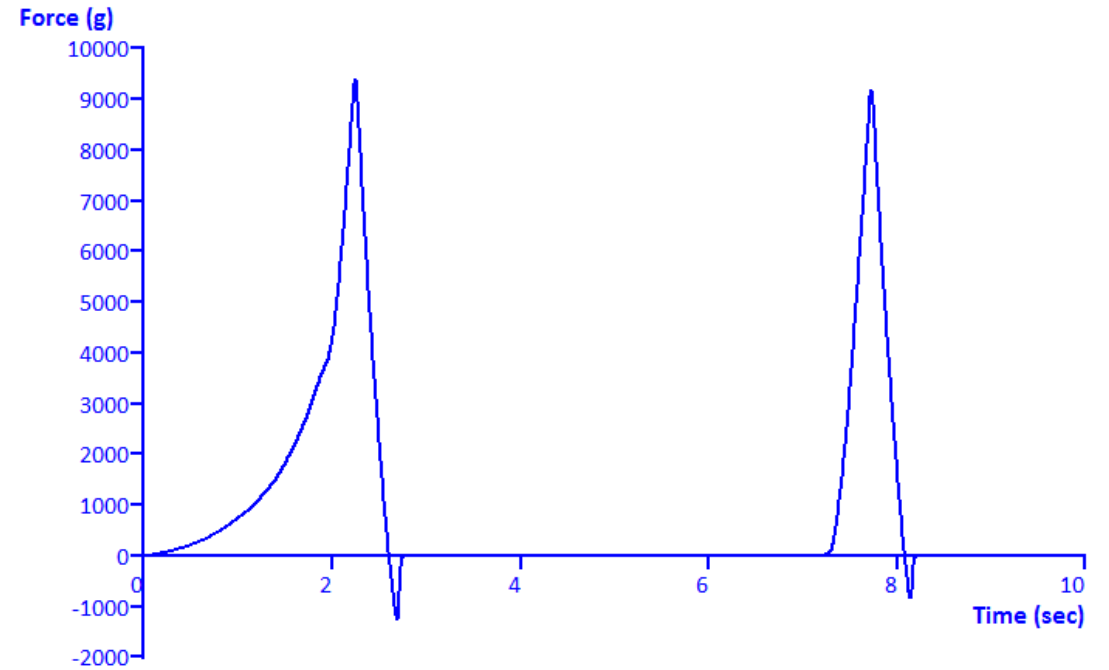
- **Hard Extruded Product TPA** This product fractured many times as it was compressed. The first instance occurred at approximately 9,250 grams and 0.385 seconds (0.959 mm). TPA's single fracture value does not adequately describe the nature of this highly brittle product and its fracture mechanics. The fracture did follow a typical pattern where the hardest point on the curve occurred at the deepest compression. Given its brittle nature (suggesting low moisture content) it is not surprising that the product had no adhesion between the two compressive strokes.



- **Firm Dough TPA** This is a very stiff dough-like product whose fracture/yield is a classic example where the hardness of the product does NOT occur at the deepest compression. Note that the material is extremely adhesive.



- **Cooked Pasta TPA** Notice how the shape of this force curve is concave, which indicates that the product is being compressed.





- **Silicon Gel TPA** This hard elastic gel is a typical fully recoverable product with relatively high springiness, cohesiveness and resilience characteristics. Note how the product expands/continues to rebound during the 1 second hold time. This creates an opportunity for the analysis of springiness to be slightly overstated.

