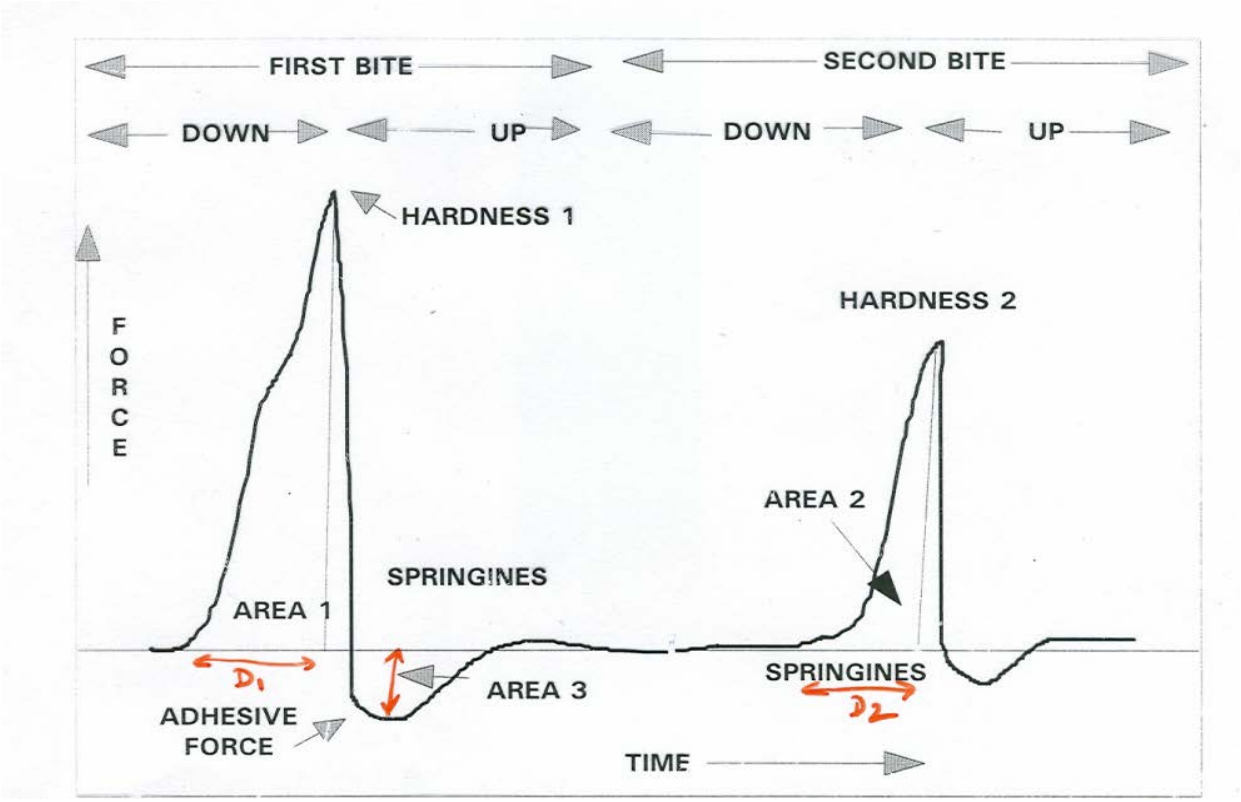
FREQUENTLY ASKED QUESTIONS

1. Explain Texture profile analysis with a diagram?

Ans: Fractionability is defined as the force at the first significant break in the first positive bite area(A1).
Hardness is defined as the peak force during the first compression cycle (Ht. of 1st Peak (A1)).
Cohesiveness is defined as the ratio of the positive force area during the second compression cycle to the positive force area during the first compression cycle (A_2/A_1).
Adhesiveness (Stickiness) is defined as the negative force area for the first bite representing the work required to pull the plunger away from the food sample(Area of -ve peak)
Gumminess is defined as the product of hardness and cohesiveness (Hardness X Cohesiveness).
Chewiness is defined as the product of gumminess and springiness (Gumminess X Springiness).
Springiness is defined as the height to which the food recovers during the time that elapses between the end of the first bite and the start of second bite(D_2/D_1).



2. Positive correlation between instrumental and sensory textural parameters are always required to draw meaningful conclusions?

Ans: Yes, meaningful correlation for the study can be drawn if there is positive correlation between instrumental data and sensory data.

Eg: If the sensory data says the chocolate in hard and the instrumental peak force also shows high newton value for hardness will be ending with a positive correlation.

3. What are the textural parameters can be measured using Texture Analyzer?

Ans: The different textural parameters which can be measured using texture analyser are:

Hardness, cohesiveness, gumminess adhesiveness, springiness, chewiness, breaking strength, extrusion properties for jam and jellies, dough consistency, crispiness(by shearing), penetration for fruit and vegetable tenderness.

4. How do you define texture?

Ans: The attribute of a substance resulting from a combination of physical properties and perceived by the senses of touch (including kinaesthesisa and mouthfeel), sight and hearing.

5. Explain Newtonian and Non-Newtonian behavior of fluids?

Ans: Fluids that do not follow Newtonian behavior are called non-Newtonian fluids. The flow properties of non-Newtonian fluids are influened by the shear rate. Apparent viscocity is defined as ratio of the shear stress to shear rate.

Non Newtonian foods can be divided into two categories: *time-independent and time-dependent.* At a constant temperature, apparent viscosity for the former depends only on the shear rate. A large number of non-newtonian fluid foods exhibit pseudoplastic behavior, and these foods are melted chocolate wheat flour suspension concentrated fruit juices, fruit and vegetable puries and gum solution. Several instruments are used to measure flow properties-rheometers are used to get information on rheological parameters such as those related to viscoelastic behavior

6.Can texture be determined by sensory evaluation?

Ans: Yes, texture can be determined by sensory evaluation among trained panelists

7.Whether food acceptance depends on textural attributes specific to the product?

Ans: Yes, food acceptance depends on texture which is specific to the product.

8.Whether food texture will be changed during storage?

Ans: Yes, during storage food texture can be changed due to moisture pick up and due to physico-chemical and microbiological reactions.

9. What is the texture difference between dalda and refined vegetable oils?

Ans: Dalda is hard in texture and oil is liquid in consistency

10. Difference between the body of fresh orange juice and mango juice?

Ans: Fresh orange juice has thin consistency where as mango juice has thicker consistency.

11. Explain Texture classification?

Ans: Szczesniak in as early as 1963 published a classification of textural terms, which are still in widely use in their original or modified forms. These are the three major classifications:

- Mechanical Characteristics relating to the reaction of food to stress.

Primary – Hardness : force to attain a given deformation. Hard boiled candies, Cohesiveness: degree to which sample deforms. –toffees

Secondary – Adhesiveness: force required to remove sample from a given place. Chewiness, Brittleness

- Geometrical Characteristics – relating to size (Smooth, Powdery, Mealy), shape and orientation of the particles with the food (Flaky, Spongy)
- Other Characteristics – relating to moisture and fat contents of food: Eg : juiciness, creaminess.

The mechanical characteristics have been subdivided into primary parameters of hardness, cohesiveness, viscosity, elasticity and adhesiveness: and secondary parameters of brittleness,chewiness and gumminess. Further to this Jowitt(1974) proposed a glossary of textural terms arranged into four main categories viz

1.General –structure, texture, consistency

2.Terms relating to the behavior of materials under stress e.g. firm, soft, sticky, crisp, and thick.
3.Terms relating to the structure of the material.
(i)Relating to particle size and shape e.g. smooth, powdery, gritty, and meal
(ii)Relating to shape and arrangement of structural elements e.g.flaky, fibrous, spongy.
4.Terms relating to mouthfeel characteristics e.g.juicy, greasy, and creamy.

12. Difference between viscosity and consistency?

Ans: Viscosity refers to homogenous or Newtonian liquids

Eg Water and beer

Consistency refers to rate of flow of liquids which is non-newtonian or heterogeneous liquids

Eg: Sauces, syrups etc