

POTENTIAL TEXTURE APPLICATION

BAKERY

Baking Fats

- Comparison of spreadability/firmness of two margarine types by ability to extrude through a 3 mm hole
- Assessment of the work softening of baking fats using the Multiple Extrusion Cell

Biscuits/Cookies

- Comparison of the hardness and fracturability of shortbread and ginger nut biscuits by penetration with a cylinder probe
- Hardness measurement of biscuits by cutting
- Comparison of resistance to cutting of chocolate-coated wafer biscuits by a knife blade from two different manufacturing batches
- Measurement of the hardness and resistance of cookies to bend or snap

Biscuit Dough

- Measurement of the hardness of biscuit dough by penetrating with a cylinder probe

Bread Crumbs

- Firmness measurement of breadcrumbs by compression with a cylinder probe

Bread

- Determination of bread firmness using the AACC (74-09) Standard method

Bread Dough

- Extensibility of dough and measure gluten quality
- Measurement of dough stickiness
- Proving force of dough due to yeast performance using a cylinder probe

Breakfast Toaster Pastries

- Comparison of resistance to cutting of chocolate and strawberry frosted breakfast toaster pastries by a knife blade

Cakes

- Measurement of the firmness and springiness of cakes held for three storage times
- Determination of softness (firmness) of Panetone and Sponge Cake using the AACC (74-09) Standard method (originally developed for bread firmness)

Croissants

- Firmness measurement of croissants by cutting

Croutons

- Assessment of crunchiness of croutons after holding in boiling water for 3 minutes

Gluten

- Extensibility of dough and measure gluten quality

Muffins

- Measurement of the firmness and springiness of muffins

Pancakes

- Comparison of biaxial extensibility of two types of pancakes

Panetone

- Determination of softness (firmness) of Panetone and Sponge Cake using the AACC (74-09) Standard method (originally developed for bread firmness)

Pastry

- Comparison of biaxial extensibility of three types of pastry

Tortillas

- Comparison of uniaxial extensibility of two brands of wheat flour tortillas
- Comparison of biaxial extensibility of two formulations of wheat flour tortillas

Cereal Bars

- Comparison of hardness of cereal bars by shearing
- Comparison of hardness of 'crunchy' vs. 'chewy' cereal bars by shearing

Breakfast Cereal

- Comparison of hardness and crispness of puffed rice cereal by bulk compression
- Comparison of 'bowl life' as indicated by the hardness and crispness of 3 types of breakfast cereals after immersion in milk

CONFECTIONARY

Boiled Sweets

- Measurement of the hardness and fracturability of boiled sweets by penetrating

Caramel

- Measurement of hardness, stickiness and stringiness properties of caramel using a 0.75" spherical probe

Marzipan

- Measurement of the hardness and stickiness of golden marzipan by penetration

Chewy Confectionery

- Measurement of the hardness and stickiness of chewy confectionery by penetration

Chocolate Filled Caramel

- Comparison of hardness of 5 different sample formulations by penetration

Chocolate Spread

- Comparison of spreadability/firmness of chocolate spread at storage temperatures of 5°C and 20°C

Chewing Gum

- Exterior and interior hardness of 3 brands of chewing gum dragees using a craft knife
- Comparison of tensile properties of chewing gum strip tested at different temperatures
- Comparison of the hardness of 2 types of rubber base pellets by penetration with a 2 mm cylinder probe
- Comparison of the hardness of 2 types of chewing gum pellets (with and without coating) by penetration with a 2 mm cylinder probe
- Comparison of uniaxial extensibility of chewing gum bones Measurement of the hardness and resistance of chewing gum sticks to bend/flex

Fondant

- Comparison of the acceptability (firmness) of four fondant batches by penetration

Gummy Confectionery

- To investigate the firmness and springiness of gummy confectionery

Halva

- Measurement of hardness of two types of Halva using a cylinder probe

Lemon Curd

- Comparison of the spreadability/firmness of luxury and economy lemon curd

Marmalade

- Measurement of gel strength, rupture force, brittleness/elasticity and adhesiveness of a marmalade formulation

SNACKS

Crisps & Chips

- Comparison of textural qualities of crisp samples by bulk compression using an Ottawa cell
- Fracturability of Tortilla Chips
- Measure of fracturability of an extruded snack sample using a 5-bladed Kramer shear cell
- Firmness measurement of chips/french fries with multiple chip rig

Dips

- Comparison of penetration forces and consistency of 3 types of dips using a cylinder probe
- Comparison of the penetration forces and consistency of full-fat and low-fat houmous using a cylinder probe
- Comparison of the penetration forces and consistency of full-fat and low-fat tzatziki using a cylinder probe

Mayonnaise

- Comparison of penetration forces and consistency of full-fat and low-fat mayonnaise using a cylinder probe

Ketchup

- Comparison of consistencies of two brands of tomato ketchup by back extrusion

Nutrition Bars

- Resistance of chocolate nutrition bars to penetration at different shelf life stages

Nuts

- Exterior and interior hardness of almonds using a craft knife

Pickle

- Measurement of the firmness of pickle using a 10-bladed Kramer Shear Cell

Pizza

- Comparison of tensile toughness of oven baked and micro waved pizzas

Popadoms

- Comparison of textural qualities of two brands of mini popadom by bulk compression using an Ottawa cell

Prawn Crackers

- Comparison of textural qualities of two brands of prawn cracker by bulk compression using an Ottawa cell

Pretzels

- Measurement of the hardness and fracturability of pretzel sticks

Spreads

- Comparison of spreadability/firmness of vegetable extract spread
- Comparison of spreadability/firmness of chocolate spread at storage temperatures of 5°C and 20°C
- Comparison of spreadability/firmness of luxury and economy Lemon curd
- Comparison of spreadability/firmness of peanut butter (smooth)
- Measurement of gel strength, rupture force, brittleness/elasticity, and adhesiveness of a marmalade formulation
- Spreadability/Softness of cheese spread

PASTA, NOODLES& RICE

Gnocchi

- Firmness comparison of two brands of gnocchi by compression

Lasagne

- Comparison of breaking stress/strength of 3 types of dry lasagne using a three-point bend test
- Comparison of pasta stickiness cooked in hard and soft water

Noodles

- Comparison of elasticity (or 'tensile strength') of noodles
- Comparison of hardness and adhesiveness of noodles using a cylinder probe

Pasta Shapes

- Comparison of firmness of four pasta types

Rice

- Comparison of hardness and stickiness of four varieties of cooked rice
- Comparison of the firmness of the rice grains of two types of rice puddings

Spaghetti

- Determination of the breaking strength of dry spaghetti using a Spaghetti Flexure Rig
- Determination of pasta firmness using the AACC (16-50) Standard method

DAIRY

Syrup

- Comparison of surface stickiness and stringiness of syrup, honey and treacle

Bakery Fat

- Assessment of the work softening of baking fats using the Multiple Extrusion Cell

Butter & Margarine

- Comparison of cutting force of butter and margarine using the wire cutter
- Measurement of firmness of margarine
- Measurement of firmness of margarine ('Traditional' penetrometer test)
- Comparison of spreadability/firmness of two margarine types by ability to extrude through a 3 mm hole
- Spreadability/Softness of Margarine

Cheese

- Comparison of softness of full-fat and low-fat cream cheese
- Comparison of softness of full-fat and low-fat cream cheese
- Spreadability/Softness of cheese spread
- Comparison of the firmness and stickiness of two brands of cheese spread triangles
- Comparison of hardness and brittleness of four types of hard cheese using the Fracture Wedge Set
- Measurement of cutting force of processed cheddar cheese using the wire cutter
- Comparison of the hardness and stickiness of full-cream spread, cream-cheese spread, cheese triangles and processed cheddar cheese

Crème Fraiche

- Comparison of consistencies of full-fat, half-fat and organic crème fraiche by back extrusion

Fromage Frais

- Comparison of penetration forces and consistency of three brands of fromage frais using a cylinder probe

Ice Cream

- Comparison of the shearing force of two different brands of ice cream using a knife blade
- Comparison of consistencies of full-fat and low-fat mayonnaise by back extrusion

Mousse

- Comparison of penetration forces and consistency of full-fat and low-fat chocolate mousse using a cylinder probe

Yoghurt

- Comparison of consistencies of full-fat and low-fat yoghurt by back extrusion

INGREDIENTS AND GELS

Gels

- Determination of gel strength by penetration with a cylinder probe (air freshener gel)
- Several characterisation methods for assessing silicone gels

Packaging Film

- Comparison of stiction and friction of two packaging sheet types using a friction rig (based on ASTM D1894)
- Comparison of stick-slip and friction of three foam types using a friction rig

Packaging Seals

- Measurement of seal strength of ribbed heat-sealed foil packaging
- Measurement of peel strength of a container lid seal using a Peel Strength Test Rig

Alginate

- Measurement of the setting time of sodium alginate gel at a constant temperature

Draught Ale

- Comparison of foam strength of three types of draught ale

Gelatine

- British Standard Method for 'Sampling and testing gelatine' (BS757: 1975)
- Determination of bloom strength of gelatine according to the International Standard (ISO 9665 Adhesives - Animal glues - Methods of sampling and testing.)
- Determination of gel strength (Bloom Value) of gelatin according to the Gelatin Manufacturers Institute of America (GMIA) testing standard
- Measurement of the melting temperature of gelatin gel

Gluten

- Extensibility of dough and measure gluten quality

Lactose

- Hardness measurement of lactose agglomerates by compression with a cylinder probe

Pectin

- Comparison of rupture force and brittleness/elasticity of three gel formulations as a means of monitoring effects of quality, concentration, and processing
- Measurement of the setting **temperature of pectin gel on cooling**

MEAT, POULTRY & FISH

Chicken

- Comparison of shearing force of diced vs. sliced chicken breast
- Measurement of the firmness/toughness of chicken nuggets using a 5-bladed Kramer Shear Cell

Ham

- Comparison of shearing force of canned formed vs. reformed ham using a 5-bladed Kramer Shear Cell

Pate

- Comparison of firmness of full-fat and reduced-fat pate

Prawns

- Measurement of the firmness of prawns using a 5-bladed Kramer Shear Cell

Sausages

- Cutting force of hot dogs using a Warner-Bratzler Blade
- Comparison of cutting force of frankfurters vs. chorizo sausage using a Warner-Bratzler Blade

Surimi

- Comparison of the cutting strength of two different types of surimi using a knife blade
- Comparison of the firmness of different types of surimi using a spherical probe

PET FOODS

Dehydrated Cat food Pellets

- Comparison of hardness of pellets by compression

Dog Dentasticks

- Measurement of the hardness and resistance of dog 'dentastix' to bend or snap

Wet Cat food

- Measurement of extrusion force of cat food as indication of firmness/toughness

FRUIT & VEGETABLES

Apples

- Measurement of the bruising potential of apples by continual static compression

Beans

- Comparison of firmness and total extrusion force of baked bean by bulk compression

Corn

- Comparison of two varieties of canned sweetcorn by shearing
- Firmness of hydrated sweetcorn

Grapes

- Measurement of skin puncture strength of grapes by penetrating with a 2 mm cylinder probe

Olives

- Measurement of firmness of olives by bulk shearing using a Kramer Shear Cell

Peaches

- Measurement of the firmness of peaches by shearing

Peas

- Measurement of the firmness of peas
- Comparison of two varieties of canned peas by shearing

Pears

- Firmness or 'Bio yield Point' measurement of pears by probing

Peppers

- Skin puncture strength of different coloured peppers using a cylinder probe

Potatoes

- Shearing force of potato after different cooking times using a knife blade

- Comparison of total extrusion force of four potato salad varieties by bulk compression
- Measurement of firmness and total extrusion force of instant mashed potato by bulk compression
- Firmness measurement of Chips/French Fries with multiple chip rig

Raspberries

- Comparison of firmness and total extrusion force of fresh and 'quick frozen' Raspberries by bulk compression

Strawberries

- Comparison of firmness and total extrusion force of fresh and tinned strawberries by bulk compression

Tofu

- Comparison of the shearing force of four different kinds of tofu using a guillotine blade

Tomatoes

- Comparison of firmness of 5 types of diced tomatoes canned in calcium/water using a Kramer Shear cell

PHARMACEUTICALS

Compressed Face Powders

- Comparison of hardness or 'cake strength' of two eye shadows

Deodorant

- Comparison of hardness of two different formulations of deodorants by penetration with a 2 mm cylinder probe

Gel Capsules

- Comparison of rupture force and elasticity of four gel capsule types by penetration with a 2 mm cylinder probe

Hair Gel

- Comparison of consistencies of two types of hair gel by back extrusion

Hypodermic Needles

- Comparison of sharpness of hypodermic needles by penetration through a rubber stopper

Lipstick

- Comparison of hardness of two different lipstick batches by penetration with a 2 mm needle probe - according to ASTM Standard method D 1321-95

- Comparison of bending force of lipsticks at 2 storage temperatures using a Cantilever Test
- Comparison of hardness of two different lipstick batches by penetration with a 2 mm needle probe- an adaptation of ASTM Standard method D 1321-95

Medical Adhesive Tape

- Comparison of adhesiveness of medical adhesive tapes by testing with a ball probe through a multi-hole indexing system

Moisturising Cream

- Comparison of consistencies of three moisturising creams by back extrusion

Petroleum Jelly

- Spreadability/Softness of petroleum jelly stored at 5°C and 25°C

Shampoo

- Comparison of consistencies of two shampoos by back extrusion

Soap

- Comparison of hardness of two different types of soap bars by penetration with a 2 mm probe

Tablets

- Failure behaviour of tablets due to diametric compression using a cylinder probe
- Measurement of tablet coating adhesion force

Tablet Granules

- Compressibility of tablet granules using a cylinder probe

Toothpaste

- Comparison of toothpaste firmness / 'force to extrude' of two toothpaste formulations

Transdermal Delivery Systems

- An investigation into the adhesiveness of transdermal delivery patches by probing with a ball probe through a holed plate

Wax

- Comparison of hardness of two wax types by penetration with a cone probe - according to ASTM Standard method D937-92
- Comparison of stickiness properties of two types of soft moulding hair wax using a 1" ball probe
- Measurement of the stickiness properties of hair removal wax with a spherical probe

INDUSTRIAL MATERIALS

Adhesives

- Hardness and stickiness measurement of adhesive gum by penetrating with a cylinder
- Hardness and stickiness measurement of adhesive gum by penetrating with a cone
- Stickiness measurement of adhesive gum with the use of a cylinder probe
- Comparison of adhesiveness and stringiness measurements of two carpet tile adhesives using a cylinder probe
- Comparison of extrusion forces of three tubed sealants
- Comparison of stickiness properties of standard and extra strong wallpaper pastes with the use of a spherical probe

Adhesive Tapes

- Comparison of adhesiveness of PSA tapes by probing with a ball probe through a multi-hole indexing system
- Comparison of peel properties of adhesive tapes using the loop method (according to FINAT test method no. 9 - 'Quick-Stick' tack measurement)
- Comparison of adhesive properties of adhesive tapes using a 1-ball probe (Avery Adhesive Test)
- Comparison of adhesiveness of medical adhesive tapes by probing with a spherical probe through a multi-hole indexing system