

APPENDIX I

Australian standardised definitions and terminology for texture-modified foods and fluids

The following fluid thickness and food texture grading scales provide terms for and descriptions of fluid and food texture modification for individuals with dysphagia (disordered swallowing).

The scales have been developed by a consultation process with dietitians and speech pathologists across Australia. The scales are a consensus standard agreed to by Speech Pathology Australia and the Dietitians Association of Australia and are encouraged for use around Australia. It is hoped that these standards will facilitate the development of the limited evidence base in this area of practice.

This project did not address:

- Nutritional or hydration adequacy of texture-modified diets, for example whether supplementary fluids may be required for individuals on thickened fluids
- Development of guidelines for clinical application or outcomes
- Client acceptability of modified foods/fluids
- Reliability of the consistency of thickened fluids

The scales have been developed to encourage standardisation of definitions and terminology across Australia. The standards are intended to be applied within the policies, procedures and capacities of individual institutions under the direction of dietitians and speech pathologists.

In Australia, speech pathologists establish dysphagia severity and determine the level of food and fluid texture modification required. Dietitians ensure that individuals who require texture-modified diets are able to meet their nutrition and hydration needs.

Four levels of texture modification have been identified for fluids and foods—unmodified plus three modified levels. Each modified level has a dual label, for example Texture A—Soft or Level 150—Mildly Thick. It is strongly encouraged that both labels be used.

The Fluid Scale has three different colours to denote the three different modified levels. These colours are a recommendation and may be used at the discretion of individual institutions or commercial companies to help identify more clearly the different levels of fluid thickness.

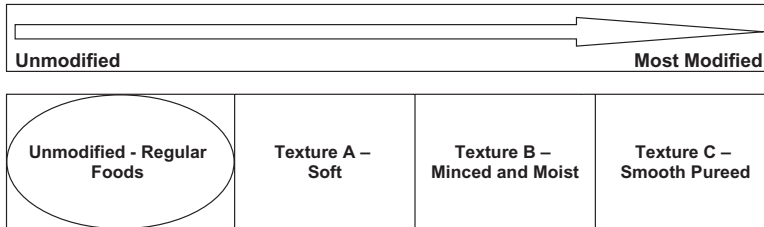
The levels noted in these scales occur on a continuum from unmodified to most modified. The scales do not relate to a scale across which an individual should travel or progress, but rather a scale across which a fluid or food item might travel as it becomes more modified.

It is important to note that speech pathologists and dietitians and the institutions in which they work should only use the levels they deem appropriate for their setting and client demographic. There is no requirement for facilities to use all of the levels and conversely there are some clinicians who will choose to add extra levels to the scales. To ensure consistency, it would be appropriate that any extra levels be referenced against the standard scale presented.

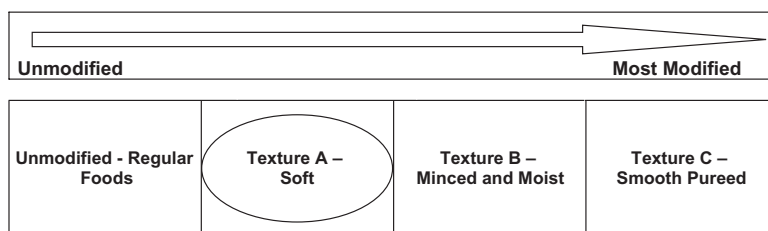
The following scales provide:

- The number of levels of food texture modification and fluid thicknesses
- The names of the levels (and for fluids a corresponding suggested colour to facilitate communication)
- A description of the levels
- Characteristics of the food or fluids that would be appropriate for that level
- Testing information—this is provided as a guide only. It is included for use in food service quality assurance activities
- Examples of *recommended foods* and *foods to avoid* for each food texture level. This list is not exhaustive and simply provides general direction

Food texture modification grading scale for the clinical management of dysphagia



NAME	UNMODIFIED – REGULAR
Description	<ul style="list-style-type: none"> • These are everyday foods
Characteristics	<ul style="list-style-type: none"> • There are various textures of regular foods. Some are hard and crunchy, others are naturally soft
Food inclusions and exclusions	<ul style="list-style-type: none"> • By definition all food and textures can be included



NAME	TEXTURE A – SOFT
Description	<ul style="list-style-type: none"> • Food in this category may be naturally soft (eg ripe banana), or may be cooked or cut to alter its texture
Characteristics	<ul style="list-style-type: none"> • Soft foods can be chewed but not necessarily bitten • Minimal cutting required – easily broken up with a fork • Food should be moist or served with a sauce or gravy to increase moisture content (NB: Sauces and gravies should be served at the required thickness level) • Refer to <i>Special Notes (page S72)</i>
Testing Information	<ul style="list-style-type: none"> • Targeted particle size for infants and children = less than half that for adults and children over 5 years or equal to 0.8 cm (based on tracheal size)²⁸ • Targeted particle size for children over 5 years and adults = 1.5 × 1.5 cm^{10,27,30}

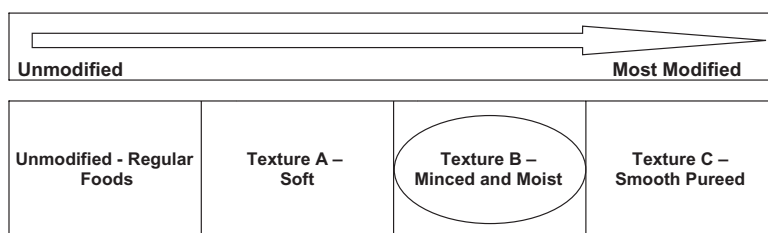
Texture A—Soft

Recommended foods and those to avoid (examples only)

	<i>Recommended foods</i>	<i>Avoid</i>
Bread, cereals, rice, pasta, noodles	<ul style="list-style-type: none"> • Soft sandwiches^(a) with very moist fillings, for example egg and mayonnaise, hummus (remove crusts and avoid breads with seeds and grains) • Breakfast cereals well moistened with milk^(b) • Soft pasta^(a) and noodles • Rice (well cooked) • Soft pastry, for example quiche with a pastry base • Other, soft, cooked grains 	<ul style="list-style-type: none"> • Dry or crusty breads, breads with hard seeds or grains, hard pastry, pizza • Sandwiches that are not thoroughly moist • Course or hard breakfast cereals that do not moisten easily, for example toasted muesli, bran cereals • Cereals with nuts, seeds and dried fruit
Vegetables, legumes	<ul style="list-style-type: none"> • Well cooked vegetables^(a) served in small pieces or soft enough to be mashed or broken up with a fork • Soft canned vegetables, for example peas • Well cooked legumes (the outer skin must be soft), for example baked beans 	<ul style="list-style-type: none"> • All raw vegetables (including chopped and shredded) • Hard, fibrous or stringy vegetables and legumes, for example sweet corn, broccoli stalks
Fruit	<ul style="list-style-type: none"> • Fresh fruit pieces that are naturally soft, for example banana, well-ripened pawpaw • Stewed and canned fruits in small pieces • Pureed fruit • Fruit juice^(b) 	<ul style="list-style-type: none"> • Large/round fruit pieces that pose a choking risk, for example whole grapes, cherries • Dried fruit, seeds and fruit peel • Fibrous fruits, for example pineapple
Milk, yoghurt, cheese	<ul style="list-style-type: none"> • Milk, milkshakes, smoothies^(b) • Yoghurt (may contain soft fruit)^(b) • Soft cheeses,^(a) for example Camembert, ricotta 	<ul style="list-style-type: none"> • Yoghurt with seeds, nuts, muesli or hard pieces of fruit • Hard cheeses, for example cheddar and hardened/crispy cooked cheese
Meat, fish, poultry, eggs, nuts, legumes	<ul style="list-style-type: none"> • Casseroles with small pieces of tender meat^(a) • Moist fish (easily broken up with the edge of a fork) • Eggs^(a) (all types except fried) • Well cooked legumes (the outer skin must be soft), for example baked beans • Soft tofu, for example small pieces, crumbled 	<ul style="list-style-type: none"> • Dry, tough, chewy, or crispy meats • Meat with gristle • Fried eggs • Hard or fibrous legumes • Pizza
Desserts	<ul style="list-style-type: none"> • Puddings, dairy desserts,^(b) custards,^(b) yoghurt^(b) and ice-cream^(b) (may have pieces of soft fruit) • Moist cakes (extra moisture, e.g. custard may be required) • Soft fruit-based desserts without hard bases, crumbly or flaky pastry or coconut, for example apple crumble • Creamed rice, moist bread and butter pudding 	<ul style="list-style-type: none"> • Dry cakes, pastry, nuts, seeds, coconut, dried fruit, pineapple
Miscellaneous	<ul style="list-style-type: none"> • Soup^(b)—(may contain small soft lumps, e.g. pasta) • Soft fruit jellies or non-chewy lollies^(a) • Soft, smooth, chocolate • Jams and condiments without seeds or dried fruit 	<ul style="list-style-type: none"> • Soups with large pieces of meats or vegetables, corn, or rice • Sticky or chewy foods, for example toffee • Popcorn, chips, biscuits, crackers, nuts, edible seeds

^(a) These foods require case-by-case consideration.

^(b) These foods may need modification for individuals requiring thickened fluids.



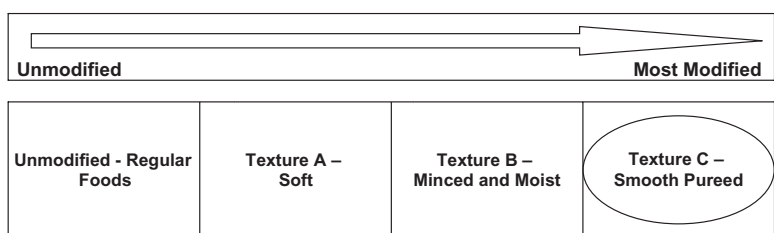
NAME	TEXTURE B – MINCED AND MOIST
Description	<ul style="list-style-type: none"> • Food in this category is soft and moist and should easily form into a ball
Characteristics	<ul style="list-style-type: none"> • Individual uses tongue rather than teeth to break the small lumps in this texture • Food is soft and moist and should easily form into a ball • Food should be easily mashed with a fork • May be presented as a thick puree with obvious lumps in it • Lumps are soft and rounded (no hard or sharp lumps) • Refer to <i>Special Notes (page S72)</i>
Testing Information	<ul style="list-style-type: none"> • Recommended particle size for infants and children = 0.2–0.5 cm (based on tracheal size)²⁸ • Recommended particle size for children over 5 years and adults = 0.5 cm^{10,29}

Texture B—Minced and moist

Recommended foods and those to avoid (examples only)

	<i>Recommended foods</i>	<i>Avoid (in addition to the Foods to Avoid listed for Texture A—Soft)</i>
Bread, cereals, rice, pasta, noodles	<ul style="list-style-type: none"> • Breakfast cereal with small moist lumps, for example porridge or wheat flake biscuits soaked in milk • Gelled bread • Small, moist pieces of soft pasta, for example moist macaroni cheese (some pasta dishes may require blending or mashing) 	<ul style="list-style-type: none"> • All breads, sandwiches, pastries, crackers, and dry biscuits • Gelled breads that are not soaked through the entire food portion • Rice that does not hold together, for example parboiled, long-grain, basmati • Crispy or dry pasta, for example edges of a pasta bake or lasagne
Vegetables, legumes	<ul style="list-style-type: none"> • Tender cooked vegetables that are easily mashed with a fork • Well cooked legumes (partially mashed or blended) 	<ul style="list-style-type: none"> • Vegetable pieces larger than 0.5 cm or too hard to be mashed with a fork • Fibrous vegetables that require chewing, for example peas
Fruit	<ul style="list-style-type: none"> • Mashed soft fresh fruits, for example banana, mango • Finely diced soft pieces of canned or stewed fruit • Pureed fruit • Fruit juice^(a) 	<ul style="list-style-type: none"> • Fruit pieces larger than 0.5 cm • Fruit that is too hard to be mashed with a fork
Milk, yoghurt, cheese	<ul style="list-style-type: none"> • Milk, milkshakes, smoothies^(a) • Yoghurt^(a) (may have small soft fruit pieces) • Very soft cheeses with small lumps, for example cottage cheese 	<ul style="list-style-type: none"> • Soft cheese that is sticky or chewy, for example Camembert
Meat, fish, poultry, eggs, nuts, legumes	<ul style="list-style-type: none"> • Coarsely minced, tender, meats with a sauce. Casseroles dishes may be blended to reduce the particle size • Coarsely blended or mashed fish with a sauce • Very soft and moist egg dishes, for example scrambled eggs, soft quiches • Well cooked legumes (partially mashed or blended) • Soft tofu, for example small soft pieces or crumbled 	<ul style="list-style-type: none"> • Casserole or mince dishes with hard or fibrous particles, for example peas, onion • Dry, tough, chewy, or crispy egg dishes or those that cannot be easily mashed
Desserts	<ul style="list-style-type: none"> • Smooth puddings, dairy desserts,^(a) custards,^(a) yoghurt^(a) and ice-cream^(a) (may have small pieces of soft fruit) • Soft moist sponge cake desserts with lots of custard, cream or ice-cream, for example trifle, tiramisu • Soft fruit-based desserts <i>without</i> hard bases, crumbly or flaky pastry or coconut, for example apple crumble with custard • Creamed rice 	<ul style="list-style-type: none"> • Desserts with large, hard or fibrous fruit particles (e.g. sultanas, seeds or coconut) • Pastry and hard crumble • Bread-based puddings
Miscellaneous	<ul style="list-style-type: none"> • Soup^(a)—(may contain small soft lumps, e.g. pasta) • Plain biscuits dunked in hot tea or coffee and completely saturated • Salsa's, sauces and dips with small soft lumps • Very soft, smooth, chocolate • Jams and condiments without seeds or dried fruit 	<ul style="list-style-type: none"> • Soups with large pieces of meats or vegetables, corn, or rice • Lollies including fruit jellies and marshmallow

^(a) These foods may require modification for individuals requiring thickened fluids.



NAME	TEXTURE C – SMOOTH PUREED
Description	<ul style="list-style-type: none"> • Food in this category is smooth and lump free. It is similar to the consistency of commercial pudding. At times, smooth pureed food may have a grainy quality, but should not contain lumps. • Refer to <i>Special Notes</i> (page S72)
Characteristics	<ul style="list-style-type: none"> • Smooth and lump free but may have a grainy quality • Moist and cohesive enough to hold its shape on a spoon (i.e. when placed side by side on a plate these consistencies would maintain their position without 'bleeding' into one another) • Food could be moulded, layered or piped
Testing information	<ul style="list-style-type: none"> • Cohesive enough to hold its shape on a spoon (i.e. when placed side by side on a plate these consistencies would maintain their position <i>without</i> 'bleeding' into one another)
Special Note	<ul style="list-style-type: none"> • Some individuals may benefit from the use of a <i>runny pureed</i> texture. This texture would be prescribed on a case by case basis. (Runny pureed textures do not hold their shape; they bleed into one another when placed side by side on a plate).

Texture C—Smooth pureed

Recommended foods and those to avoid (examples only)

	<i>Recommended foods</i>	<i>Avoid (in addition to the Foods to Avoid listed for Texture B—Minced and Moist)</i>
Bread, cereals, rice, pasta, noodles	<ul style="list-style-type: none"> • Smooth lump-free breakfast cereals, for example semolina, pureed porridge • Gelled bread • Pureed pasta or noodles • Pureed rice 	<ul style="list-style-type: none"> • Cereals with course lumps or fibrous particles, for example all dry cereals, porridge • Gelled breads that are not soaked through the entire food portion
Vegetables, legumes	<ul style="list-style-type: none"> • Pureed vegetables • Mashed potato • Pureed legumes, for example baked beans (ensuring no husks in final puree) • Vegetable soups that have been blended or strained to remove lumps^(a) 	<ul style="list-style-type: none"> • Coarsely mashed vegetables • Particles of vegetable fibre or hard skin
Fruit	<ul style="list-style-type: none"> • Pureed fruits, for example commercial pureed fruits, vitamised fresh fruits • Well mashed banana • Fruit Juice^(a) without pulp 	<ul style="list-style-type: none"> • Pureed fruit with visible lumps
Milk, yoghurt, cheese	<ul style="list-style-type: none"> • Milk, milkshakes, smoothies^(a) • Yoghurt^(a) (lump-free), for example plain or vanilla • Smooth cheese pastes, for example smooth ricotta • Cheese and milk-based sauces^(a) 	<ul style="list-style-type: none"> • All solid and semi-solid cheese including cottage cheese
Meat, fish, poultry, eggs, nuts, legumes	<ul style="list-style-type: none"> • Pureed meat/fish (pureed with sauce/gravy to achieve a thick moist texture) • Soufflés and mousses, for example salmon mousse • Pureed legumes, hummus • Soft silken tofu • Pureed scrambled eggs 	<ul style="list-style-type: none"> • Minced or partially pureed meats • Scrambled eggs that have not been pureed • Sticky or very cohesive foods, for example peanut butter
Desserts	<ul style="list-style-type: none"> • Smooth puddings, dairy desserts,^(a) custards,^(a) yoghurt^(a) and ice-cream^(a) • Gelled cakes or cake slurry, for example fine sponge cake saturated with jelly • Soft meringue • Cream^(a), syrup dessert toppings^(a) 	<ul style="list-style-type: none"> • Desserts with fruit pieces, seeds, nuts, crumble, pastry or non-pureed garnishes • Gelled cakes or cake slurries that are not soaked through the entire food portion
Miscellaneous	<ul style="list-style-type: none"> • Soup^(a)—vitamised or strained to remove lumps • Smooth jams, condiments and sauces 	<ul style="list-style-type: none"> • Soup with lumps • Jams and condiments with seeds, pulps or lumps

^(a) These foods may require modification for individuals requiring thickened fluids.

SPECIAL NOTES

Foods and other items requiring special consideration for individuals with dysphagia

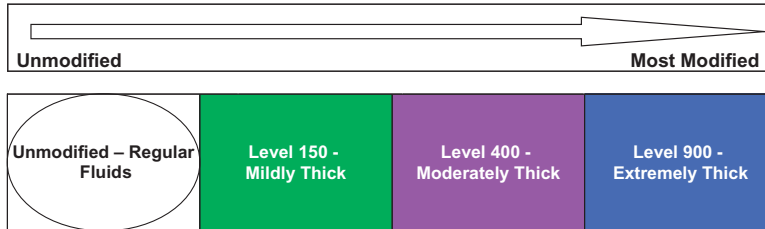
The following foods were identified as requiring emphasis.

Bread	<ul style="list-style-type: none"> Bread requires an ability to both bite and chew. Chewing stress required for bread is similar to that of raw apple. The muscle activity required for each chew of bread is similar to that required to chew peanuts.³⁵ For this reason, individuals who fatigue easily may find bread difficult to chew Bread requires moistening with saliva for effective mastication. Bread does not dissolve when wet; it clumps. It poses a choking risk if it adheres to the roof of the mouth, pockets in the cheeks or if swallowed in a large clump. This is similar to the noted choking effect of 'chunks' of peanut butter³⁶
Ice-cream	<ul style="list-style-type: none"> Ice-cream is often excluded on diets for individuals who require thickened fluids. This is because ice-cream melts and becomes like a thin liquid at room temperature or within the oral cavity
Jelly	<ul style="list-style-type: none"> Jelly may be excluded from diets for individuals who require thickened fluids. This is because jelly particulates in the mouth if not swallowed promptly
Soup	<ul style="list-style-type: none"> Individuals who require thickened fluids will require their soups thickened to the same consistency as their fluids unless otherwise advised by a speech pathologist
'Mixed' or 'dual' consistencies	<ul style="list-style-type: none"> These textures are difficult for people with poor oral control to safely contain and manipulate within the mouth These are consistencies where there is a solid as well as a liquid present in the same mouthful Examples include individual cereal pieces in milk (e.g. cornflakes in milk), fruit punch, minestrone soup, commercial diced fruit in juice, watermelon
Special occasion foods or fluids	<ul style="list-style-type: none"> Special occasion foods (e.g. chocolates, birthday cake) should be well planned to ensure that they are appropriate for individuals requiring texture-modified foods and/or thickened fluids
Nutritional supplements	<ul style="list-style-type: none"> For individuals who also required thickened fluids, nutritional supplements may require thickening to the same level of thickness
Medication	<ul style="list-style-type: none"> Individuals on Texture C—Smooth Pureed are unsuitable for oral administration of whole tablets or capsules. Consult with medical and pharmaceutical staff Individuals requiring any form of texture-modified food or fluids may have difficulty swallowing medications. Seek advice if in doubt

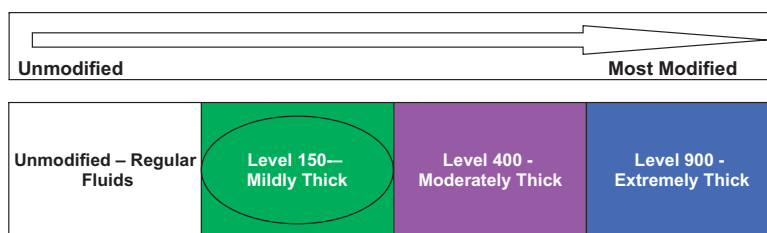
Characteristics of foods that pose a choking risk

Stringy	Rhubarb, beans Celery is considered a choking risk until three years of age ^{37,38}
Crunchy	Popcorn, toast, dry biscuits, chips/crisps ³⁹
Crumbly	Dry cakes or biscuits ³⁹
Hard or dry foods	Nuts, raw broccoli, raw cauliflower, apple, crackling, hard crusted rolls/breads, seeds Raw carrots are considered a choking risk until three years of age ^{37–41}
Floppy textures	Lettuce, cucumber, uncooked baby spinach leaves (adheres to mucosa when moist—conforming material) ⁴²
Fibrous or 'tough' foods	Steak, pineapple ³⁹
Skins and outer shells	Corn, peas, apple with peel, grapes ^{38,40,41}
Round or long shaped	Whole grapes, whole cherries, raisins, hot dogs, sausages ^{40,41}
Chewy or sticky	Lollies (adhere to mucosa); cheese chunks, fruit roll-ups, gummy lollies, marshmallows, chewing gum, sticky mashed potato, dried fruits ^{36,41–43}
Husks	Corn, bread with grains, shredded wheat, bran ^{38,41}
'Mixed' or 'dual' consistencies	Foods that retain solids within a liquid base (e.g. minestrone soup, breakfast cereal, e.g. cornflakes with milk); watermelon ⁴⁴

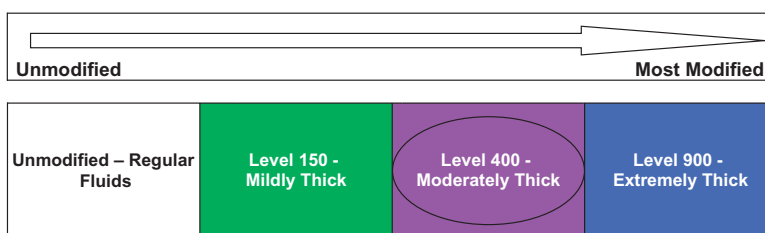
Fluid thickness grading scale for the clinical management of dysphagia



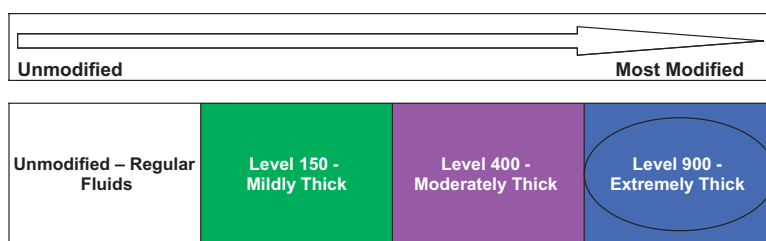
NAME	UNMODIFIED – REGULAR FLUIDS
	<ul style="list-style-type: none"> • There are various thickness levels in unmodified fluids. Some are thinner (eg water, and breast milk) and some are thicker (eg fruit nectar) • Unmodified - Regular fluids do not have thickening agents added to them
Flow rate	<ul style="list-style-type: none"> • ‘Very fast - fast flow’
Characteristics	<ul style="list-style-type: none"> • Drink through any type of teat, cup or straw as appropriate for age and skills
Testing information	<ul style="list-style-type: none"> • N/A



NAME	LEVEL 150 – MILDLY THICK
	<p>Level 150 – Mildly Thick is <i>thicker than</i> naturally thick fluids such as fruit nectars, but for example, not as thick as a thickshake</p>
Flow rate	<ul style="list-style-type: none"> Steady, fast flow
Characteristics	<ul style="list-style-type: none"> Pours quickly from a cup but slower than regular, unmodified fluids May leave a coating film of residue in the cup after being poured Drink this fluid thickness from a cup Effort required to take this thickness via a standard bore straw
Testing information	<ul style="list-style-type: none"> Subjectively, fluids at this thickness run fast through the prongs of a fork, but leave a mild coating on the prongs Testing scales for viscosity exist but are not formalised or standardised, and therefore are not included
Special Note	<ul style="list-style-type: none"> Breast milk or infant formula may be thickened for the therapeutic treatment of dysphagia in infants. This fluid thickness is <i>thinner</i> than Level 150 – Mildly Thick. However, it is thicker than unmodified breast milk or infant formula. It is the same thickness as commercially available ‘Anti-regurgitation’ (AR) formula. Consideration should be given to flow through a teat as determined on a case-by-case basis



NAME	LEVEL 400 – MODERATELY THICK Level 400 – Moderately Thick is similar to the thickness of room temperature honey or a thickshake
Flow rate	<ul style="list-style-type: none"> • ‘Slow flow’
Characteristics	<ul style="list-style-type: none"> • Cohesive and pours slowly • Possible to drink directly from a cup although fluid flows very slowly • Difficult to drink using a straw, even if using a wide bore straw • Spooning this fluid into the mouth may be the best way of taking this fluid
Testing information	<ul style="list-style-type: none"> • Subjectively, fluids at this thickness slowly drip in dollops through the prongs of a fork • Testing scales for viscosity exist but are not formalised or standardised, and therefore are not included



NAME	LEVEL 900 – EXTREMELY THICK Level 900 – Extremely Thick is similar to the thickness of pudding or mousse
Flow rate	<ul style="list-style-type: none"> • ‘No flow’
Characteristics	<ul style="list-style-type: none"> • Cohesive and holds its shape on a spoon • It is <i>not</i> possible to pour this type of fluid from a cup into the mouth • It is <i>not</i> possible to drink this thickness using a straw. • Spoon is the optimal method for taking this type of fluid. • This fluid is <i>too thick</i> if the spoon is able to stand upright in it unsupported
Testing information	<ul style="list-style-type: none"> • Subjectively, fluids at this thickness sit on and do not flow through the prongs of a fork • Testing scales for viscosity exist but are not formalised or standardised, and therefore are not included

Reference numbers throughout the Appendix refer to references contained in The Australian Standardized Terminology and Definitions for Texture Modified Foods and Fluids. *Nutrition & Dietetics* 2007; 64 (Suppl. 2): S53–S76.