

In New Zealand milk can be purchased in a number of different ways...

[1] ...It can be purchased fresh (raw). This is milk that is unmodified ie not treated in any way. It is seen to have lots of health benefits, as it is not treated to kill bacteria and other beneficial enzymes. However, the Ministry of Primary Industries (MPI) documentation states that it could possibly contain Salmonella, E. coli O157, Campylobacter and Listeria monocytogenes, which can cause severe illness. There have been disease outbreaks in NZ. Because it is fresh, it needs extra care eg with cleaning the udder, careful testing of milk etc. It can be stored for 7 to 14 days, as long as it does not get warm - it should be refrigerated at less than 4 degrees. Currently in New Zealand, it is only available for sale at the farm gate...

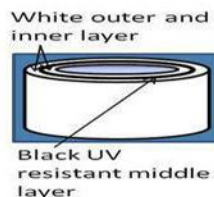
[2] ...Milk is generally pasteurised. This is done to reduce pathogens. It kills harmful bacteria. The advocates of raw milk state that it also destroys beneficial bacteria and enzymes. MPI states that "pasteurisation has minimal effect on milk fat and protein composition. It does not affect mineral stability, milk mineral content, or mineral bioavailability. Vitamins present in milk in high levels (riboflavin, B6 and B12) are reasonably heat stable. Folate utilisation is not reduced in pasteurised milk. There is 10% loss of vitamin C due to pasteurisation, but milk is not a significant dietary source of the vitamin. While it is true that the heating process can inactivate some enzymes important for human health in milk, the pasteurisation process adopted in New Zealand (72oC for 15 sec) has minimal effect on enzymatic activity."

One of the reasons for pasteurisation is to make it last longer. It gets handled a lot in the national market, and making it last longer helps to ensure profitability and safety. It also enables the milk to maintain that 'same taste', that consumers demand

Milk is stored into a cold storage room and packed into a refrigerated truck...

[3] Milk can be bought in tetra packs. These are cardboard boxes with polyethylene layers on the inside and outside. They are easy to distribute as they pack tight. They are wood based- so renewable and recyclable. But they do let in up to 25% of light—that effects the taste. Light damage interferes with frothing (because of increased levels of free fatty acids).

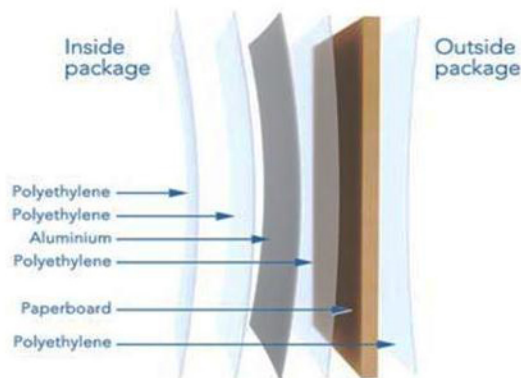
[4] The latest form of packaging for milk is light proof bottles. These are made from high grade, recyclable HDPE plastic (the same as other milk bottles - a recyclable product). They have screw-on induction foiled sealed caps - which keeps light out of the bottleneck. There are 3 light protective layers - a black layer between 2 whites. This guarantees that no light will get into the milk (compared to the tetra packs and other plastic bottles, where up to 25% of the light can get through). Light damages vitamins eg A, B2, D...



[5] ...Ultra high temperature (UHT) pasteurization completely sterilizes the product. In UHT pasteurization, the temperature of the milk is raised to about 135 - 150 degrees C for a few seconds. It has a shelf life of 3-9 months. Some nutritional loss can occur but others will argue that the quality is higher than plain old pasteurised - because the raw milk has to adhere to higher quality standards and because higher temperatures eliminate all micro-organisms....

UHT milk is used in places where, for example, there is poor or a lack of refrigeration (e.g. camping), or where the business does not want to be constantly changing the milk (eg hotels), or in places where there is a high cost of refrigerated transport, or for emergency food supplies (eg in case of earthquake). Some like it for cooking as it is already at room temperature. UHT milk is dearer to buy, but is compensated with convenience, that it is safe to consume and that it allows for individual portions (ie the pottles). The milk is protected from the light and oxygen and microbiological contamination until opened. However the packaging is not recyclable. Most consumers do not like the taste, there is some debate about loss of vitamins and generally consumers are not prepared to pay this price for every day milk. Some consumers also nervous about it not being kept under refrigeration...

[6] UHT milk requires triple layer pre-sterilised tetra packaging (to avoid recontamination) - aluminium foil as a middle layer and polyethylene coated cardboard on either side. Generally you push open the gables to make an easy pour spout (that's why it is called gable top). This packaging is not easily recyclable. However, the packaging helps protect the milk from light, oxygen and germs. To compensate, there is a reduced carbon footprint because of the lack of it needing to be refrigerated and because there can be less wastage (in comparison to pasteurised or fresh milk, which can go off before being consumed)...



[7] A food label must be in English. In general, the label must show:

- the name of the food
- the lot identification. This includes the premises where the food was packaged and/or prepared and the batch it came from. This is in case it needs to be recalled (this may also be the date mark)
- Contact details for the supplier and business in New Zealand who can be contacted if more information is needed
- mandatory warning statements, advisory statements and declarations to identify certain ingredients/substances that may trigger allergies or be of concern
- ingredient list in descending order of in-going weight including any food additives, such as preservatives, flavours and colours, which are identified by their function and name or code number. This is a check for consumers who may have allergies or don't consume certain ingredients for religious reasons etc.
- date marking is needed for most packaged food with a shelf life of less than two years, most commonly these are 'Use By' (after that date, the food may have spoiled and be a health or safety risk) and 'Best Before' dates (still safe, but lost some quality)
- directions for use and storage (where needed) to ensure the food will keep for the period indicated by the date mark, and/or how you should store the food to stop it spoiling or reduce the growth of pathogens that may cause illness
- Nutrition Information Panel to allow you to compare the quantities of seven key nutrients per serving and per 100g or 100ml of liquid
- percentage labelling of characterising ingredient
- net weight or volume. This helps consumers compare the value of different products.



[8] Milk packaging is colour code to show the different types of milk:

- purple - full fat. Appeals to cream lovers or those who like the thought of milk straight from the cow
- dark blue - standard fat. This is good for children under 2 years old.
- light blue - light fat. This can be introduced to children as they get older.
- dark green - trim (semi skimmed)
- light green - trim (fully skimmed). This is good for those who are watching their weight.
- yellow - trim (fully skimmed with added calcium). This is a good milk for those who are diet conscious but need extra calcium eg women who might be susceptible to osteoporosis. Also good for toddlers with high calcium requirements.
- red - cream



This makes it easier for the consumer to identify what milk they want to buy.

Milk labelling is also intended to humanise the product. For example, often the colour blue is used to depict the quality of freshness (Blue often associated with sterility). The word blue is often more prominent than the word milk—as it is the colour that people are looking for.