

# FOOD SAFETY ISSUES FOR HANDLING & PROCESSING OF DAIRY FOODS

## BLENDING YOGHURT

*This Fact Sheet has been prepared to provide food safety information to businesses that buy in pre-made yoghurt and blend it with ingredients such as fruit for retail sale for immediate consumption.*

### Introduction

Yoghurt has a good reputation for safety in Australia. The reason for this is two-fold. First, and more importantly, the lactic acid bacteria that turn milk into yoghurt increase the acidity of the yoghurt to the point that organisms that cause food borne illness do not grow and in fact, over time, may die off. Second, the low temperature at which yoghurt is stored slows the growth of bacteria, including those that could cause illness, if there is a problem with the acidity.

With sale for immediate consumption there should be no margin for temperature abuse by the consumer, which further adds to the inherent safety of the product. Nonetheless some consumers will take the product home for later consumption and it is prudent to take this behaviour into account.

### Yoghurt Acidity and pH

pH is a means of measuring acidity and it has a scale of 1-14. A pH of 7, which is about the pH of water, is neutral. A pH above 7 is alkaline and below 7 is acidic. Each unit of the pH scale represents a factor of 10 (this is called a logarithmic scale) so that, compared to a pH of 6, a pH of 5 is ten times as acidic and a pH of 4 is 100 times as acidic.

The Australia New Zealand Food Standards Code requires, to ensure safety, yoghurt to have a pH of 4.5 or less.

### Yoghurt Storage Temperature

Because of the acidity, properly made yoghurt will not support the growth of dangerous bacteria and accordingly it is not a requirement of law to store it at a particular temperature for food safety reasons. Nonetheless it makes sense to store yoghurt at 5°C or less. Storing at the recommended temperature ensures that the yoghurt remains fresh over the course of its storage life and guards against the growth of acid-tolerant micro-organisms that, while they are unlikely to cause illness, can cause the yoghurt to develop off-flavours or go mouldy and spoil.

### **Adding Fruits to Yoghurt**

Adding fruit pulp or pieces to yoghurt has the potential to add micro-organisms that could cause illness or spoil the yoghurt, especially through the addition of moulds. Commercially most fruit for blending with yoghurt is supplied in pasteurised sealed bags and should be free of dangerous bacteria and moulds. Typically, packs should come with a certificate of analysis to confirm the absence of coliform bacteria and moulds.

Fortunately too most fruits are acidic with a pH of 4.5 or less so their addition should not affect the safety of the product. Melons and guava however may have a pH above 4.5 and theoretically could increase the pH of the yoghurt/fruit blend or result in low acid “patches” in the yoghurt which could support the growth of dangerous bacteria, should any find their way into the blended yoghurt. Accordingly melon and guava fruits may need to be acidified by the manufacturer before pasteurising and packing to ensure their safety.

### **Adding other Foods to Yoghurt**

Chocolate and confectionery and nuts are very dry foods and do not support the growth of micro-organisms. Nuts are a potential source of moulds and could, particularly if the storage temperature is not maintained, reduce the shelf life of the yoghurt. The presence of each nut variety added to a blend must be clearly declared to assist people who may have a nut allergy. Care must be taken with cleaning and with handling equipment such as ladles to ensure that nut residues do not find their way into blends that are not meant to contain nuts.

Flavouring such as chocolate, strawberry or vanilla should not impact on the safety or shelf life of the product.

### **Good Manufacturing Practices**

Despite the acidity in yoghurt contributing to its safety good manufacturing practices (GMP) must be observed to control the risk of micro-organisms getting into a blend and reducing its shelf life. There is also the risk that if bacteria like *Salmonella* find their way into the blend they may cause serious illness. This is because the infectious dose of *Salmonella* is very low and, even though they can't grow in yoghurt, if any are present there is a chance that they could cause illness.

In particular, yoghurt blenders should pay attention to the following GMP principles:

- Staff suffering with an upset stomach, especially if there is vomiting or diarrhoea, which might be the result of a food borne illness should not be handling food.
- Food contact surfaces should be cleaned and sanitised before use.
- Clothing and hair covering should guard against physical contaminants offending consumers.