

Food Shelf Life Testing

There are three types of date markings on food products in Australia; the 'use by' date, 'best before' date and 'baked on' or 'baked for' date. With 'use by' and 'best before' dates it is important that the time period only applies if the food has been stored as per the conditions stated on the packaging.

A 'use by' must be used on food where consumption prior to the 'use by' is essential to guarantee the food safety. Foods such as prepared meals, raw meat, poultry, eggs and milk are examples of products which have 'use by' dates.

A 'best before' date is used on foods which will still be safe after the date but are likely to have deteriorated in quality. Biscuits, cereal, cakes and flour are examples of food products which have best before date marking.

The only food permitted to have 'baked on' or 'baked for' date markings is bread and this is only allowable if the shelf life is less than seven days.

When performing a microbial shelf life trial to validate the 'use by' date marking, you must validate the safety of the product for a longer period than that to be stated as the shelf life period. It is reasonable to validate the product for a period 25% longer than that to be used for labelling purposes. This allows for the fact that customers will often consume a food product after its 'use by' date and also allows for some temperature abuse in the storage of the product. Temperature abuse will often result in an acceleration of microbial growth that would not have occurred had the product be stored as per the packaging directions.

All shelf life validations require a separate packaged sample for each round of testing. There should always be a Day Zero or Day One sample for all spoilage, indicator and pathogen testing. If any of these analyses show a fail then the shelf life trial is immediately abandoned. Our recommendation is that the full list of applicable spoilage, indicator and pathogen testing also be performed on the last sample, which is at 25% past the expiry period. At all the other testing rounds we recommend only testing for spoilage and indicator bacteria. This keeps costs to a minimum.

An explanation of indicator organisms and pathogens is detailed in the Biotech Laboratories' document - Food Safety Program Validation.

The number of samples required to validate a shelf life will depend on the time period to be achieved. For a very short shelf such as one week, only three samples are required. If a six-month period is being validated then five samples would be required.

The microorganisms to be tested are based on the Food Standards Australia and New Zealand (FSANZ) Food Standards Code (FSC) "Schedule 27 – Microbiological limits in food" and/or "Compendium of Microbiological Criteria for Food – October 2016". In some cases, such as raw meat and poultry, there are no criteria for microbial testing and therefore shelf life testing of the food safety program is not warranted.

Biotech Laboratories' staff can assist you in the selection of applicable spoilage, indicator and pathogenic bacteria that need to be evaluated to validate shelf life.