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# CHILLED AUSTRALIAN BEEF SHELF LIFE

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## VACUUM- PACKAGED BONELESS BEEF

Extensive commercial and scientific studies indicate that chilled, vacuum-packaged, Australian boneless beef achieves a storage life of at least 12 weeks and up to 20 weeks under optimal storage conditions. Optimal storage conditions is when vacuum integrity is ensured, product is stored at -1°C without freezing, and when this temperature is maintained through the cold chain from processing to retail<sup>1</sup>.

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<sup>1</sup> MLA publication "Shelf life of Australian red meat"



## AGEING AND PACKAGING

### CONTROL THROUGH THE SUPPLY CHAIN

Shelf life is dependent upon the initial quality of the meat (pH, colour, and microbiological quality), as well as adequate vacuum packing and temperature control through the supply chain. Careful control of these factors by processors and distributors results in consistent and superior quality even after long storage times.

### PROVEN OVER TIME

Years of research have led to process guidelines for Australian exporters of vacuum-packaged beef.

One study, conducted in 2008 by Food Science Australia (FSA)<sup>2</sup>, on primal cuts of beef destined for the export market, along with national surveys of the microbiological status of Australian beef undertaken in 2011, found the microbiological count at the time of vacuum packaging on the primals was very low. Further, when the test packs were stored at the recommended temperature for transport and storage (-0.5°C +/- 0.5°C), even at 20 weeks the product assessed by trained meat panellists still rated highly with good bloom and low confinement odour. It was concluded from this study that shelf life of the packs can extend up to 20 weeks.



## COLOUR AND APPEARANCE

### MEETING CONSUMER DEMAND

The ageing of meat occurs as the muscle fibres are slowly broken down by naturally-occurring enzymes. As a result of these weakened fibres, aged beef tends to be more tender and achieves a better eating quality. This ageing process does not affect the appearance of beef, as the muscle fibre breakdown happens on a microscopic level with no visible change in the product.

## TAKING CONTROL AT EVERY STAGE

### TEMPERATURE

The storage temperature used for vacuum-packaged meat should be as low as practical and as a good guideline, about -1°C is optimal provided freezing of the packs is avoided.

This recommendation is based on keeping the growth rates of microorganisms on meat at a minimum. Research suggests by maintaining temperatures of between 0° to +1°C results in about half the microbiological activity compared with meat stored at +5°C. Further microbiological activity reductions are achieved as the temperature falls.

Under normal commercial conditions, product is exported at -1.5°C to -0.5°C and should be stored on arrival at -0.5°C to +0.5°C. This temperature stability is important for ageing beef.

## GAS ATMOSPHERE

The basis of effective vacuum packaging which prevents spoilage and prolongs the storage life of meat is the oxygen-free environment. This inhibits the growth of spoilage bacteria, while allowing the natural enzymatic tenderising process of ageing to continue.



## AUSTRALIAN FOOD SAFETY PROGRAMS

Additionally, Australian beef is able to obtain optimum shelf life due to:

- the cleanliness of the livestock prior to slaughter
- decreased processing speeds which results in enhanced hygiene
- audited HACCP procedures
- high food safety and hygiene standards during processing
- Australian Government audits.

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<sup>2</sup> [http://www.meatupdate.csiro.au/data/MEAT\\_TECHNOLOGY\\_UPDATE\\_09-6.pdf](http://www.meatupdate.csiro.au/data/MEAT_TECHNOLOGY_UPDATE_09-6.pdf)