



# NATIONAL LAUNDERER

## LAUNDERING of the new *Australian Medical Sheepskins*

Part 1: Case Study ~ Stericlean Linen Services

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The Australian Medical Sheepskin is a new high performance health-care product that has been clinically proven to prevent pressure ulcers (bed sores). It is fully specified by a new Australian Standard (AS4480.1-1998). This robust product is vastly superior to previous sheepskin products utilised in the hospital system, as it is now more durable to washing and drying, and is capable of withstanding high level thermal disinfection at 80°C. It is an Australian manufactured product made from the unique Australian merino-cross woolskins.

A comprehensive six-month clinical trial has recently been conducted at The Royal Melbourne Hospital (RMH),

further evaluating the efficacy of the sheepskins in the prevention of hospital acquired pressure ulcers. Stericlean Linen Services were contracted to the hospital and provided the commercial laundering of the new sheepskin products as specified in the Australian Standard.

The high level of co-operation and commitment extended by Guy Reeves and his professional team at Stericlean enabled the six-month long study to run without incident. Stericlean were able to facilitate the additional new sheepskin stream, which required



Figure 1: Australian Medical Sheepskin Stamp stating compliance to AS4480.1 and identification of the manufacturer.



separate washing from normal hospital linen. On completion of the trial, Stericlean will continue to launder the medical sheepskins and sheepskin components as part of their ongoing contract with The Royal Melbourne Hospital.

## Overcoming Pre-Existing Perceptions

Many laundries have had experience with earlier sheepskin products and are aware of the potential problems with laundering – most notably due to shrinkage and associated hardening of the leather. Sheepskins have been used in the hospital system since the early 1960's and unfortunately, due to the influx of some poor quality products into the market, commercial laundries are apprehensive about the durability of these products to extended laundering.

## The Australian Medical Sheepskin

The new product, marketed as the **Australian Medical Sheepskin**, was a result of several years of research and development at CSIRO's Leather Research Centre in collaboration with the tanning industry, supported by extensive testing in hospitals and laundries. The new product is superior to previous sheepskin products, and trials conducted by CSIRO have demonstrated that the **Hitemp Australian Medical Sheepskin** could withstand more than 100 wash and dry cycles while still retaining its softness and pressure relieving properties.

## Product fully specified by a new Australian Standard

All sheepskin products claiming compliance to the Standard must have the **Australian Medical Sheepskin** label (Figure 1 on previous page) permanently bonded to the leather backing. The presence of this label indicates that samples of the product have undergone independent testing in an authorised testing laboratory and has passed all of the product specifications as outlined in the Standard.

There are two product types specified in the Australian Standard:

### Hitemp Medical Sheepskin:

- Wool colour green.
- Capable of withstanding thermal disinfection at 80°C
- Designed for hospital use

### Regtemp Medical sheepskin:

- Wool colour blue.
  - Capable of withstanding washing at 60°C
  - Suited for home and nursing home use where risk of cross-infection is low
- Both products are capable of withstanding tumble drying.

\* For effective washing and chemical disinfection, use a suitable non-ionic liquid detergent containing a bacteriostat.

\*\* The drying time of 120min at 60°C is based upon extensive laboratory trials. However, higher temperatures over a shorter time period have been used successfully in commercial laundries fitted with humidity controlled heating. Any variation from the recommended drying temperatures should be tested to ensure there is no deterioration of the sheepskins.

Acetic acid was added to steps 1, 5 & 9 to aid dye fastness properties (pH controlled to 3.8 - 4.2). This modification will be proposed at the next review of AS4480.1.

## Clinically Proven Health-Care Product

The results from the clinical trial at RMH, with a broad patient population, are currently being analysed (funded by the National Health and Medical Research Council). This follows a highly successful study in Western Australia's Fremantle and Hollywood hospitals that proved unequivocally that medical sheepskins are a valuable healthcare product for the prevention of hospital acquired pressure ulcers in elderly orthopaedic patients. Both trials were run by a multidisciplinary team of investigators comprising of physicians and nurses specialising in wound-care management, epidemiologists and scientists.

It is anticipated that as the results from both of the recent clinical trials become available to the healthcare network, the demand for the **Australian Medical Sheepskin** will increase. As hospitals begin to increase the usage of medical sheepskins, it will be important for the laundries to introduce the Standard washing procedure to ensure prolonged durability of the product.

## Case-Study: Stericlean Linen Service

Stericlean successfully integrated the separate sheepskin stream into their normal laundry production.

To minimise the risk of sheepskins being laundered with the normal hospital linen, a



**Figure 2: Hitemp Laundering Procedure**

**Washing instructions for Hitemp Medical Sheepskins to meet thermal disinfection requirements. The washing machine should be loaded to half capacity.**

OPERATION	WATER LEVEL	TEMPERATURE °C	TIME, MIN	WASHING AGENT
1 Wash	High	Cold	3	Detergent* 3.5-4.5 mL/kg of sheepskin
2 Drain	–	–	1	
3 Rinse	High	40	2	
4 Drain	–	–	1	
5 Wash	High	60	4	Detergent* 3.5-4.5 mL/kg of sheepskin
6 Drain	–	–	1	
7 Rinse	High	60	2	
8 Drain	–	–	1	
9 Thermal	High	80	8	
10 Drain	–	–	1	
11 Rinse	High	Cold	2	
12 Drain	–	–	1	
13 Extract			9	
14 Dry**	–	60 max.	120	

system was put in place that allowed the sheepskins to be segregated at the ward level in the soiled linen room prior to dispensing down the laundry chutes. The use of a distinctive coloured (orange) linen bag for soiled sheepskins and the unique green colour of Hitemp sheepskins minimised the sorting time at the laundry and greatly reduced the risk of the sheepskins following the regular linen stream.

To ensure that the supply of medical sheepskins and components were maintained at ward levels, it was necessary to have a streamlined process for dispatching soiled skins and the replenishment of freshly laundered skins in a tight time frame (*Figure 3, page 32*). The Stericlean linen room at RMH co-ordinated the delivery of freshly laundered medical sheepskins to the research team for use in the clinical study.

### **Advice for Laundering of Australian Medical sheepskins**

Sheepskins consist of the natural wool attached to the tanned leather backing. The sheepskin must be carefully laundered to ensure that the leather is not damaged. There is a temperature at which leather will shrink irreversibly and this temperature must never be exceeded. Some laundry chemicals destabilise the leather structure and should not be used.

There have been no instances of the Hitemp medical sheepskin failing due to shrinkage when the correct laundering procedure has been followed.

The two greatest risks to the medical sheepskin during laundering are:

✗ exposure to excessively high temperatures  
**Hitemp Sheepskins:** water temperature must never exceed 80°C.

**Regtemp Sheepskins:** water temperature must never exceed 60°C

✗ laundering with incorrect chemicals

**Laundering chemicals that are known to be detrimental to the leather and must not be used:**

- Enzymes
- Phosphates
- Peroxide

- Alkali
- Bleach
- Triethanolamine
- Sequestering Agents
- Phosphoric acid

Further recommendations for successful laundering:

- ✓ Soiled (urine) sheepskins are ideally rinsed in cold water as soon as possible
- ✓ Separate sheepskins from regular linen at hospital ward level by using distinctive linen bags
- ✓ Track wash numbers per sheepskin and invoicing with the use of a transponder system (refer

Part 2: Use of Identipak Transponder System in the April 2001 issue of the 'National'.)

## Acknowledgements

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- Project staff at RMH and Jacinta Wassenberg (CSIRO)

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## Further Information

Further information about Australian Medical Sheepskins and details of the clinical trials can be obtained from:

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**Figure 3:**  
 Stericlean  
 Sheepskin  
 Flow Path

