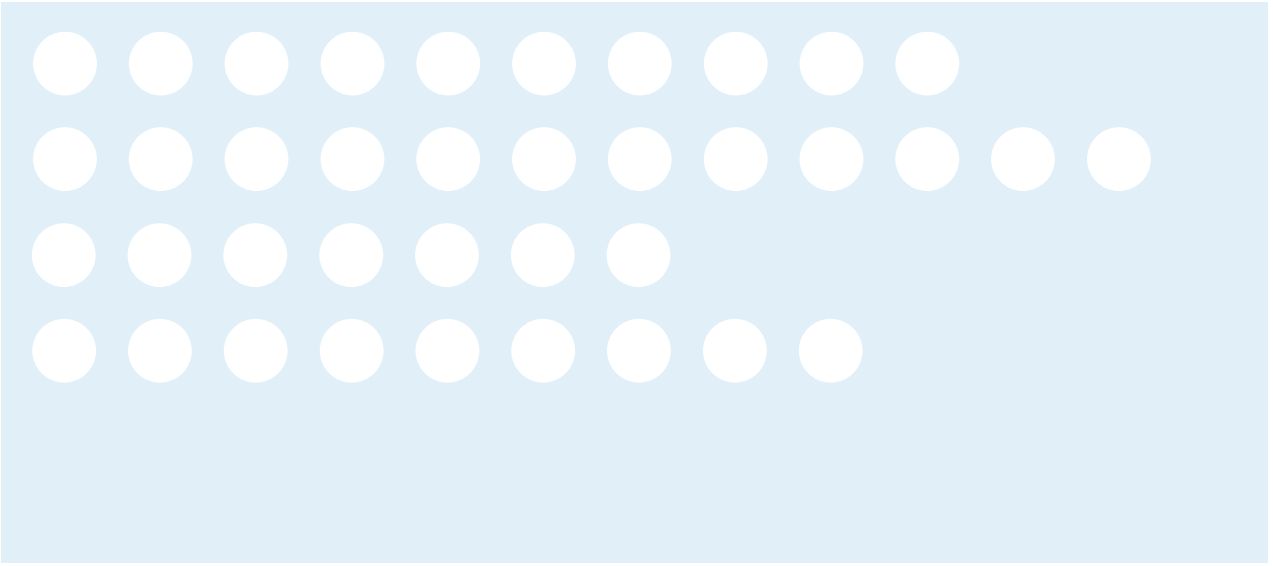


***DUNLOP FOAMS***

**HEALTHCARE SOLUTIONS**

***SPECIALTY HEALTHCARE PRODUCTS BULLETIN  
COST-EFFECTIVE SOLUTIONS BACKED BY TECHNICAL SUPPORT***



#### A RANGE OF FOAMS FOR HEALTHCARE APPLICATIONS

Dunlop Foams has developed a range of foams proven to be appropriate and beneficial for healthcare applications in hospitals, nursing homes, clinics and the home environment. Dunlop foams, used as single grades or in appropriate combinations, provide pressure reduction, comfort and support when used in healthcare mattresses, cushions, wedges, bolsters and other support devices.

Dunlop Foams sales and technical support staff have developed specialist expertise in the healthcare sector and work with industry specialists, consultants and mattress and accessory manufacturers to develop finished products. We have testing facilities and protocols to measure pressure relieving and support properties and have established general guidelines for foam use, appropriate foam combinations and foam profiling. Dunlop Foams supplies foam in blocks or sheets or as fully fabricated mattress, cushion, wedge and other cores.

#### PRESSURE ULCERS AND HEALTHCARE IN AUSTRALIA

Pressure ulcers (decubitus ulcers) are largely preventable hospital-acquired injuries of the skin and underlying tissues of fascia, muscle and bone. In the majority of cases they can be regarded as an adverse outcome of a healthcare admission. Many national and international healthcare agencies acknowledge that pressure ulcers not only affect the health of the individual but also place a significant drain on already stretched health resources.

Key data relating to the prevalence and impact of pressure ulcers in Australia are listed below:

- ▶ FOR THE PERIOD 1997-2000, ABS RECORDED THAT 1,293 PEOPLE HAD DIED WITH PRESSURE ULCERS IDENTIFIED AS EITHER THE PRIMARY OR SECONDARY CAUSE OF DEATH
- ▶ IN 1999, PRESSURE ULCER MORBIDITY WAS ESTIMATED TO AFFECT 60,000 PEOPLE PER ANNUM
- ▶ IN 1997, PRESSURE ULCERS WERE REPORTED BY THE FEDERAL MINISTER OF HEALTH TO COST \$350M PER ANNUM
- ▶ THE MEAN PREVALENCE OF PRESSURE ULCERS IDENTIFIED IN VICTORIA THROUGH THE COMPREHENSIVE VQC PUPPS SURVEY WAS ESTABLISHED AT 26.5%, WITH HOSPITAL-ACQUIRED PRESSURE ULCERS ACCOUNTING FOR 68% OF ULCERS IDENTIFIED

(The above text and data are derived from the Victorian Quality Council (VQC) Pressure Ulcer Point Prevalence Survey (PUPPS) – 2003).

#### USE AND REQUIREMENTS FOR PRESSURE-RELIEVING MATTRESSES, CUSHIONS AND WEDGES

Pressure-relieving mattresses, cushions and wedges play a major role in providing patient comfort and support and reducing the risk and severity of acquiring pressure sores.

The United Kingdom National Health Service (NHS) National Institute of Clinical Excellence (NICE) have recently produced clinical guidelines for pressure ulcer prevention (CG7 – Oct 2003) which include the following provisions:

- ▶ ALL INDIVIDUALS ASSESSED AS BEING VULNERABLE TO PRESSURE ULCERS SHOULD, AS A MINIMUM PROVISION, BE PLACED ON A HIGH-SPECIFICATION FOAM MATTRESS WITH PRESSURE-RELIEVING PROPERTIES
- ▶ ALL INDIVIDUALS ASSESSED AS BEING VULNERABLE TO PRESSURE ULCERS UNDERGOING SURGERY SHOULD, AS A MINIMUM, BE PLACED ON EITHER A HIGH-SPECIFICATION FOAM THEATRE MATTRESS OR OTHER PRESSURE-REDISTRIBUTING SURFACE

The VQC PUPPS Report – 2003 made the following recommendations regarding pressure care mattresses:

All health services should upgrade their standard hospital mattresses, including those on emergency department trolleys and operating theatre tables. Standards for selecting pressure reduction foam mattresses for Victorian public hospitals need to be set. A minimum foam mattress standard should be developed to comply with the following basic requirements:

*CLASSIFICATION: H/HR (HEAVY DUTY/HIGH RESILIENCE)*

*DENSITY/HARDNESS: 35/130*

*SUPPORT FACTOR: 1.6-2.6*

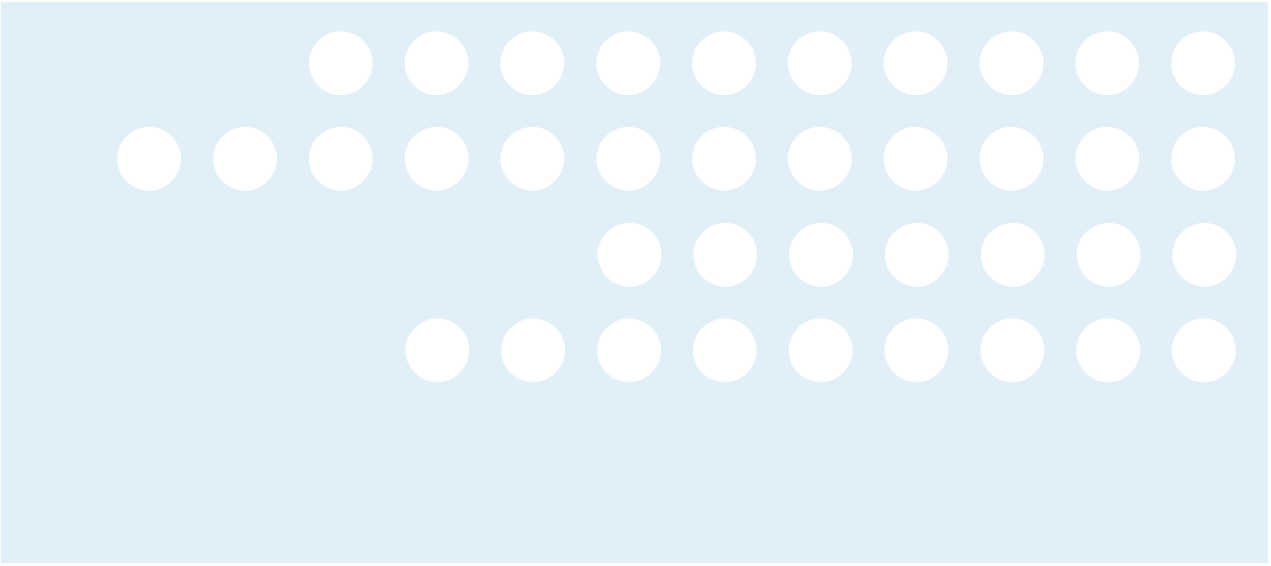
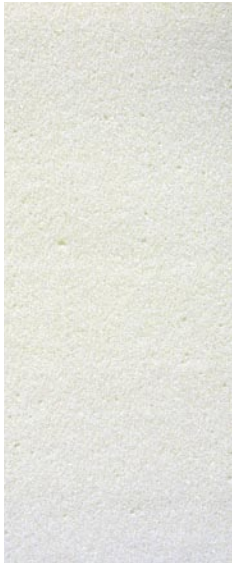
*DEPTH: 150mm*

*INTERFACE PRESSURE: 30-50mmHg*

Covers should be 2-way stretch MVTR (moisture vapour transmission rate) 450-500g per 24 hrs.

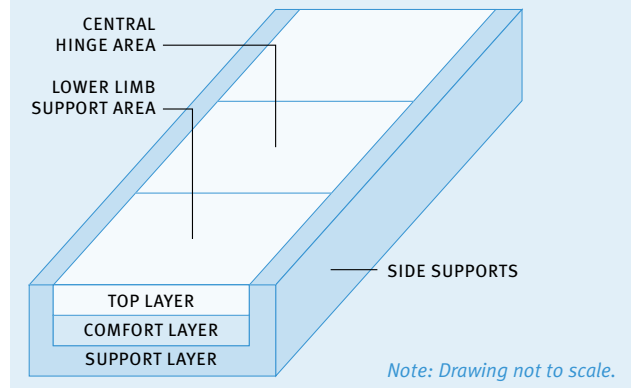
Other factors to take into consideration: side walls 5cm wide which allow increased firmness aiding bed mobility and transfers; fire retardant properties of the covers; hinging systems which make mattresses compatible with profiling beds; castellations and multi-layering of foam.

An annual program of appropriate replacement for standard mattresses and other pressure relieving devices should also be developed.



**DESIGN AND SUPPLY OF HEALTHCARE MATTRESS, WEDGE AND CUSHION CORES**

Healthcare mattress, wedge and cushion cores can be made up of either single grades of foam or a composite of a mix of grades. Mattress and cushion cores can be designed for reversible or single sided use. Healthcare mattresses, for example, can be made up of multi-layers, including a top layer for pressure relieving properties, a comfort layer and a support layer to avoid bottoming out. Side supports can be included and alternative profiling or foam grades used in the central hinge and support area and in the delicate lower limb area, to provide improved comfort and functionality.



**FOAM GRADES RECOMMENDED FOR HEALTHCARE APPLICATIONS**

GRADE	COLOUR	NOMINAL DENSITY kg/m <sup>3</sup>	NOMINAL HARDNESS IFD 40%N	TYPICAL USES
VF52-40	White	52	40	Pressure relieving top layer
VF52-60	Yellow	52	60	Pressure relieving top layer
LR38-40	White	38	40	Pressure relieving top layer
LR48-90	Yellow	48	90	Pressure relieving top layer
HG39-115	Orange	39	115	Comfort layer, full foam mattress
HG39-140	Aqua	39	140	Comfort layer, full foam mattress
OP50-120	White	50	120	Comfort layer
ST35-200	Grey	35	200	Support layer and edge support

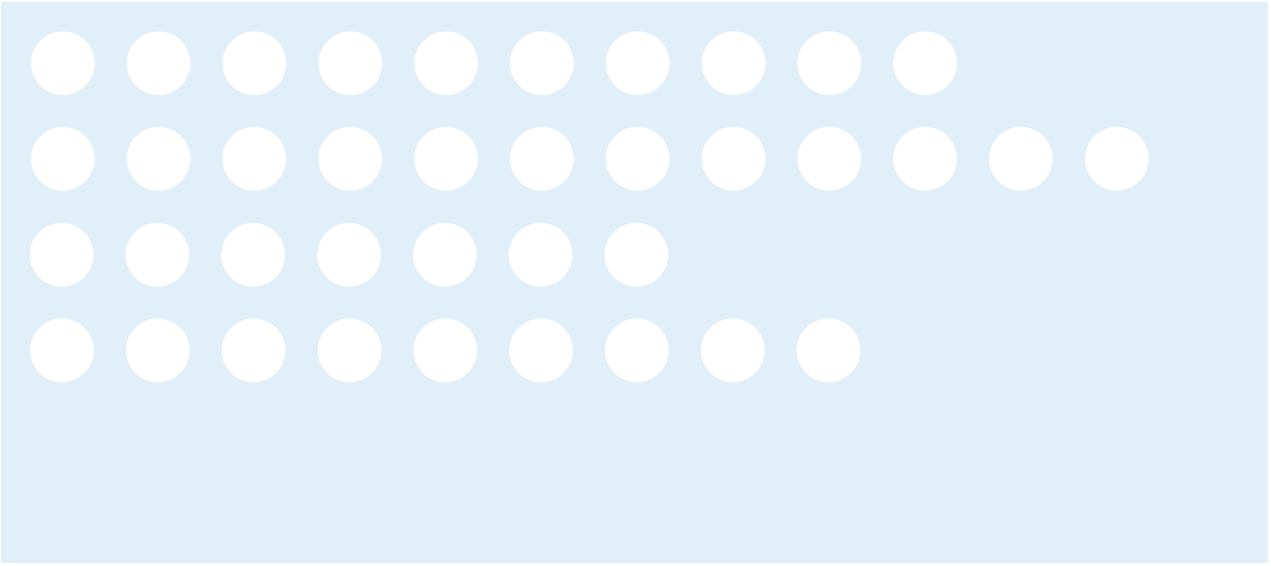
*Selected Dunlop Enduro® and ester foam grades can be used in cushions, wedges and other support devices.*

**FLAMMABILITY STANDARDS MET BY DUNLOP FOAMS GRADES USED IN HEALTHCARE APPLICATIONS**

STANDARD	GRADES	DESCRIPTION	RESULT
AS/NZS 4088.1 (INT):1993	HG39-115 HG39-140 ST35-200	Mock-up cushion with standard fabric subjected to gas flame as in BS5852/Source 2	PASS

Note: These test results alone do not assess the fire hazard of the material or the product made from this material under actual fire conditions.

Foam materials should be kept away from sparks, smokers' materials, open flame and from excessive heat. Smoking should be forbidden in areas where foam materials are stored or processed. Foam may burn rapidly with high heat and evolution of black smoke.



**REDUCING CONTACT PRESSURES  
IN HEALTHCARE PRODUCTS**

Dunlop low resilience (LR) foams have visco-elastic or 'memory' properties which help to reduce the interface pressures that cause pressure sores. Dunlop Viscoflex® foams are a special class of low resilience foams with slow recovery times and are particularly suited for this purpose.

Using advanced pressure mapping technology, Dunlop Foams specialists can assist in the design of healthcare products. As indicated in the images below, incorporation of low resilience (LR) foams in the top layer helps to reduce peak contact pressures.

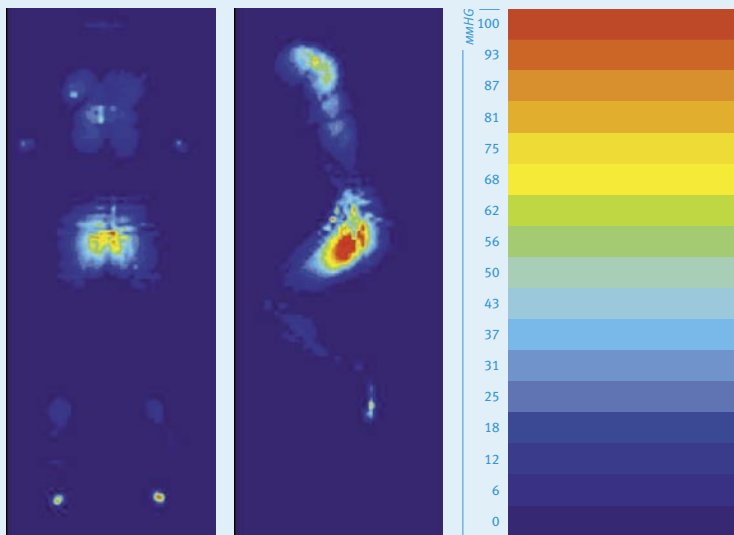


Fig A. Pressure mapping of a standard mattress showing high pressure points

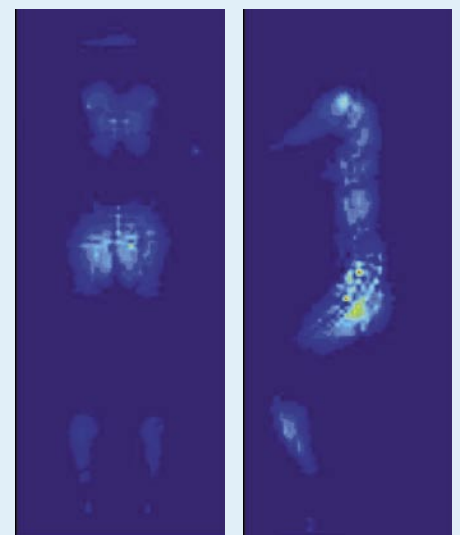


Fig B. Pressure mapping of a pressure-reducing mattress incorporating Dunlop low resilience foam

**ANTIMICROBIAL PROTECTION**

All Dunlop Foams used in healthcare products have the built in protection of Ultra-Fresh, an antimicrobial compound that inhibits the growth of a wide spectrum of bacteria, fungi, mould and mildew.

*All references to the properties of the products listed are typical property values and not specifications. The information is given in good faith and to the best of our knowledge. No warranty of whatever nature is given or implied.*

**COST-EFFECTIVE SOLUTIONS BACKED BY TECHNICAL SUPPORT ARE JUST A PHONE CALL AWAY**

Dunlop offers a wide range of foams specially designed for use in healthcare applications. Our products are backed with expert technical support and we can design and supply healthcare foam grades and products from all of our ISO9000 accredited branches.

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