

### Therapeutic Benefits

The use of orthopaedic bandages and sport supports in the treatment of muscle, ligament and joint strains and the management of long-term chronic conditions is widely recognised throughout sports medicine.

By stimulating the vasodilatation of blood vessels and improving blood flow to the affected area, Stomatex® based materials provide significant advantages over traditional Neoprene-based elasticated supports.

Unlike traditional bandages and supports, Nexus supports made from Stomatex® can simultaneously expel excess perspiration, deliver self-regulated therapeutic heat and optimum compressive support to the injury, allowing them to be worn for extended periods of time.

- Sports injuries
- Back pain Chronic
- Long-term injuries
- Chronic degenerative conditions
- Splints



*Athlete Tessa Sanderson wearing a Stomatex Heat Acclimatisation Suit during Preparation for the Atlanta 1996 Olympic Games*



### Design Benefits

- Due to the wide area that the Nexus Lumbar belt supports, it provides relief from discomfort to numerous lower back pain conditions.
- Unlike many other support belts, the Nexus Lumbar belt is made from a fully breathable Neoprene material (Stomatex®) This allows the body temperature to remain more constant during exercise and rest and eliminates heat build up and the irritation from sweat and moisture retention.
- The belt uses a velcro compatible version of Stomatex to eliminate the need for large areas of velcro loops that reduce the elastic properties of most neoprene belts
- Its lightweight design and breathable soft fabric allow the belt to be worn for far greater periods of time than traditional neoprene belts without any discomfort.
- The simple fold over securing system allows the user to tension the belt to give them the precise level of support to target key points of discomfort.
- The belt is fully washable and can be worn under or over clothing (man made fibres must be used to allow the belt to breath when worn outside of clothing)
- The Nexus Lumbar Support belt comes in one size to suit hip sizes from 60cm to 130cm belt dimensions 110cm x 15cm with soft Jersey cotton lining.

## Material Technology

### What is Stomatex?

Stomatex is the patented physics that replicates the way that the leaves of plants transpire.

Stomatex Neoprene is a high-performance fabric made from a lightweight, ultra-thin, non-porous polyester membrane that is weatherproof and highly breathable. It is currently produced in Stomatex Neoprene, although further advanced polymer foam technologies are under development.

Neoprene (a synthetic rubber) demonstrates superior tensile strength and elasticity, offering significant advantages over plastic foam materials and making Stomatex® ideal for close contour applications where body movement must remain unhindered.

### How does Stomatex work?

Stomatex® uses a pattern of dome-shaped vapour chambers, each with a tiny pore in the centre. While resting, excess body heat and perspiration rise into the dome-shaped chambers and exit through the tiny pores at a controlled rate. The chambers flex and stretch with each movement of the body, causing excess heat and perspiration to be pumped out of the small pores. This also allows cooler, drier air to enter from the outside. The unique pumping action of the vapour chambers increases and decreases with the user's level of physical activity. Stomatex® is truly unique, as it is the only material that can maintain a perfect microclimate between the skin and the fabric at any level of physical activity, allowing it to be worn for long periods of time without overheating.

### What is Stomatex made from?

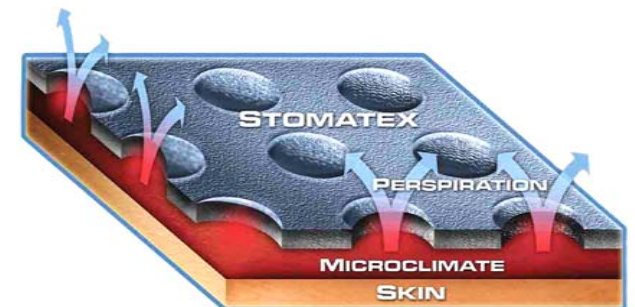
Stomatex® is generally made from thermo-insulating closed-cell foam materials such as Neoprene. It is used in the manufacture of garments and appliances where warmth and/or support may be a deciding factor but where comfort may be compromised by the unacceptable build-up of heat and perspiration in traditional closed-cell foam materials

### What are the benefits of Stomatex?

By imitating the process of transpiration used by leaves, Stomatex® is able to overcome the problems of perspiration and over-heating traditionally associated with the use of closed cell foam materials such as Neoprene. It can therefore ensure that the body heat, blood flow and compression remain consistent during a wide range of activities. Reflecting the rate of physical activity, the chambers create a self-contained microclimate, allowing cooler, drier air to pass through at a controlled rate to keep the skin free of perspiration and maintain an ideal skin temperature over an extended period of time.

### What are Stomatex's advantages over ventilated Neoprene?

Neoprene which has holes punched through it has been employed in many applications over the years, primarily because until now there has not been a better alternative. While it has advantages over traditional Neoprene in certain circumstances, the size and formation of the holes significantly reduce the insulation value resulting in condensation of sweat and cooling of the skin. It also causes significant changes in the material's compressive and elastic qualities.



### Material Applications

#### Thermal Protection

Extreme weather sports and expeditions demand high performance clothing that is lightweight, rugged and comfortable. As well as providing freedom of movement, insulation and protection against extreme cold weather conditions.

By exploiting the superb thermal insulating material qualities of Neoprene and counteracting the discomfort traditionally caused by sweat and overheating, Stomatex® manages the body's natural moisture, regulates optimum temperature and provides protection from severe wind, rain, sleet and snow.

#### Active Lifestyle

By balancing thermal comfort and water protection during extended periods of strenuous physical activity, Stomatex® responds to the individual needs of the wearer by regulating temperature control and absorbing, storing and releasing excess body heat and perspiration as required.

And for those operating in adverse and extreme wet environments including full immersion, Stomatex® offers unparalleled performance, working as hard as you to provide the necessary standards of insulation, water-resistance, safety and comfort.

#### Sport and Recreation

The unique strength, flexibility and insulation of Neoprene make Stomatex® an ideal component in the design and manufacture of contour garments and apparel where close fit and efficient thermal insulation is essential. It is used in water sports as a full wetsuit, balancing heat retention by creating a thermal underwear comfort zone within the suit which prevents overheating when out of the water and keeping the wearer warm when immersed. Stomatex® is widely used in acclimatisation suits, allowing athletes to prepare efficiently and comfortably in hot and humid climates. These suits provide artificial physiological conditions to promote improved cardio-vascular activity and consequent improved conditioning of the athlete.

#### Healthcare

If not monitored effectively, long-term patient care can be seriously compromised through the tissue damage caused by compression during long periods of inactivity. Stomatex® can be used in seating and bedding to reduce the discomfort often experienced by those who are incapacitated whether in a bed or wheelchair. The unique design and physical properties of Stomatex® can promote improved blood circulation, while allowing excess perspiration to be removed and keeping pressure against the patient's skin at a level below capillary occlusion. This helps to prevent the formation of bedsores, accelerates the healing of existing wounds and allows care to be provided without the need to sacrifice one therapy for another.

#### Research & Development

A number of other areas and uses are currently under development or being researched. These include:

- A fitness suit which carries in-built adjustable weights to replicate the principles of resistance training for the treatment of osteoporosis in post-menopausal women.
- A range of magnotherapy shoe insoles.
- A coat to keep pigs protected and comfortable in adverse weather conditions.



*Stomatex in constant wear survival suits*



*Stomatex in arctic combat wear*



*2 Piece Stomatex camouflage suit*



## Testimonials



*Daley Thompson, Former World Champion and World Record Holder.*

'Success at the top can only be achieved when all the elements of preparation come together as one, and at the right moment. Stomatex® Support Garments offer the best opportunity for complete preparation and ultimate performance, guaranteed comfort and extended wear, providing protection and support, just when and where you need it.'

*Alan Watson M.C.S.P. S.R.P., BiMAL Medical and Sports Rehabilitation Clinic.*

'We have found the Stomatex® supports to have several advantages over conventional neoprene supports, in that they cause less skin abrasion, increased thermal response with significantly less surface sweating. This has the beneficial effect of increasing the comfort aspect of wearing a brace and also the duration which the user can utilise the garment, thus increasing the desired therapeutic effect over a more sustainable period.'

*Grant Downie, Head Physiotherapist, Glasgow Rangers Football Club*

'We use Stomatex® Support garments as a form of compression following soft tissue injuries to both muscle and joint. They are very useful during on-going rehabilitation as a means of compression and retaining heat whilst the patient is resting. We have also used the garments as a form of compressional support whilst the players are undertaking training sessions.'



*Dr Paul Danford D.C., Kew Chiropractic Clinic.*

'Stomatex® supports are undoubtedly the best I have seen. They represent a significant breakthrough in the design of this type of appliance. I feel confident in prescribing them as an adjunct to the treatment of Musculo Skeletal conditions and I believe that the most significant factor is that the patient is able to wear the supports for extended periods of time comfortably.'