



Water-Based **Viscoelastic** Pillows, a **Sustainable** Solution.
*Travesseiros **viscoelásticos** base água, uma solução **sustentável**.*

April 2021

Abri! 2021

Huntsman Businesses

Negócios Huntsman

HUNTSMAN

Enriching lives through innovation

Polyurethanes

MDI/Polyols

MDI-based systems

Thermoplastic Polyurethanes (TPUs)

Elastomers

REVENUE
\$3.6B

Performance Products

Specialty Amines

Maleic Anhydride

Alkylene Carbonates

REVENUE
\$1.0B

Advanced Materials

Composites

Adhesives

Resins

REVENUE
\$0.8B

Textile Effects

Dyes

Chemicals

Inks

Apparel

Home & Institutional

Technical Textiles

REVENUE
\$0.6B

Polyurethanes

Global Presence

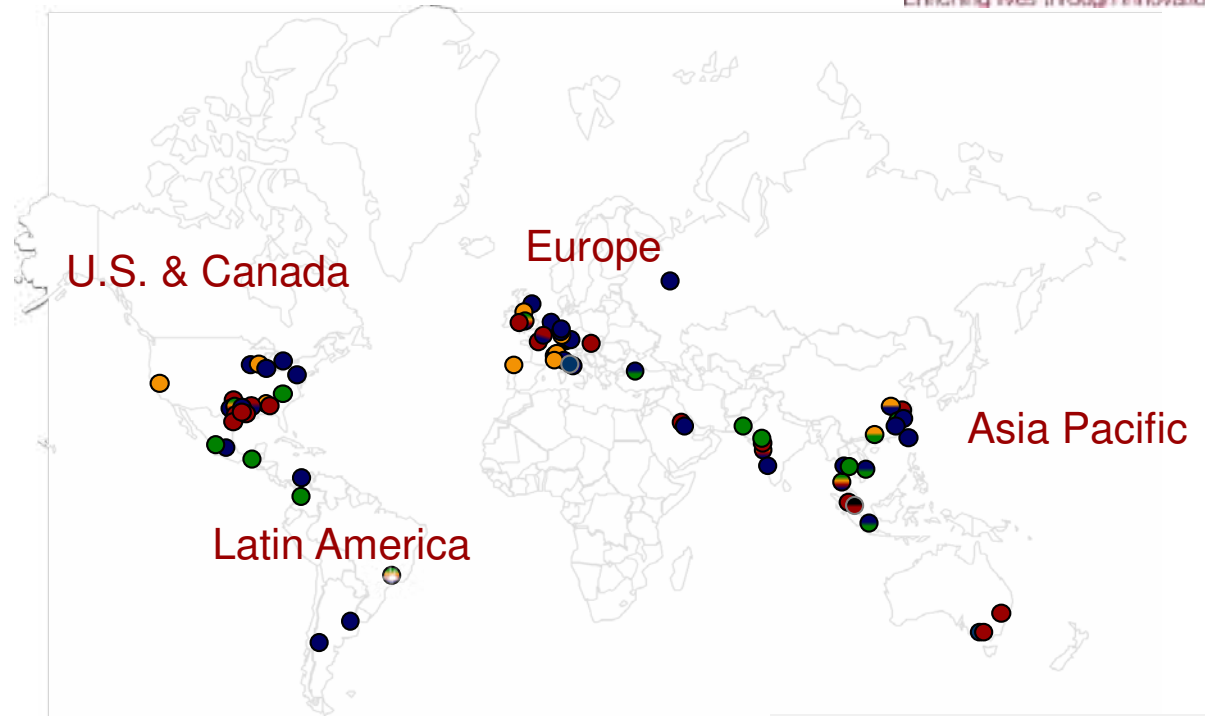
Presença Global

We are everywhere you need us to be

Estamos onde você precisar

Our employees work in approximately 30 countries around the world

Nossos colaboradores trabalham em aproximadamente 30 países ao redor do mundo



110

Global Locations
Localidades Globais

65

Production Locations
Locais de Produção

Map Key

- Polyurethane
- Performance Products
- Advanced Materials
- Textile Effects
- Shared Facility

Who we are: Huntsman Polyurethanes

Quem Somos: Huntsman Poliuretanos



\$3.6bn

2019 revenue

100+

countries

5000+

customers

2500+

products



Extensive global footprint of 30+ downstream systems businesses

Extensa presença Global com + 30 casas de sistemas

Regional manufacturing and application development centers

Produção e Centros Técnicos Regionais

World scale integrated MDI production facilities in each region

Produção de MDI em escala global em cada região



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Abril 2021

Viscoelastic Foam and its Applications

Espuma Viscoelástica e suas aplicações

Viscoelastic foams are special types of flexible polyurethane foams with slow return when compressed and low resilience after deformation, which is the returned energy.

As espumas viscoelásticas são tipos especiais de espumas flexíveis de poliuretano de lento retorno quando comprimida e baixa resiliência após a deformação, que é a energia devolvida.



Applications include:

As aplicações incluem:

Pillows

- *Travesseiros*

Mattresses

- *Colchões*

Furniture

- *Móveis*

Hospital devices

- *Artigos hospitalares*

Sports accessories

- *Acessórios esportivos*

Comfort and Technology

Conforto e tecnologia

HUNTSMAN
Enriching lives through innovation



RUBIFLEX® Polyurethane technology

delivers health and comfort for your viscoelastic foam pillows. We offer a water-based system, which features low density and high compression capacity for viscoelastic polyurethane pillows. Technology that can accommodate all your needs.

A Tecnologia de poliuretano RUBIFLEX® proporciona saúde e conforto para o seu travesseiro de espuma viscoelástica. Oferecemos um sistema à base de água que confere baixa densidade e baixa deformação permanente aos travesseiros de poliuretano viscoelásticos. A tecnologia que acomoda todas as suas necessidades.

Optimal comfort for Viscoelastic Foam

Conforto ideal em Espuma Viscoelástica

RUBIFLEX® memory foam technology

Tecnologia RUBIFLEX® com efeito memória

Excellent recovery after compression

Excelente retorno após compressão

Differentiated soft touch

Suavidade no toque

Higher durability

Maior durabilidade

Low room temperature influence

Baixa influência da temperatura ambiente



Typical Properties

Propriedades típicas

Typical Properties – RUBIFLEX® polyurethane foam

SS 32056 / SS 32103 e SUPRASEC® 1056

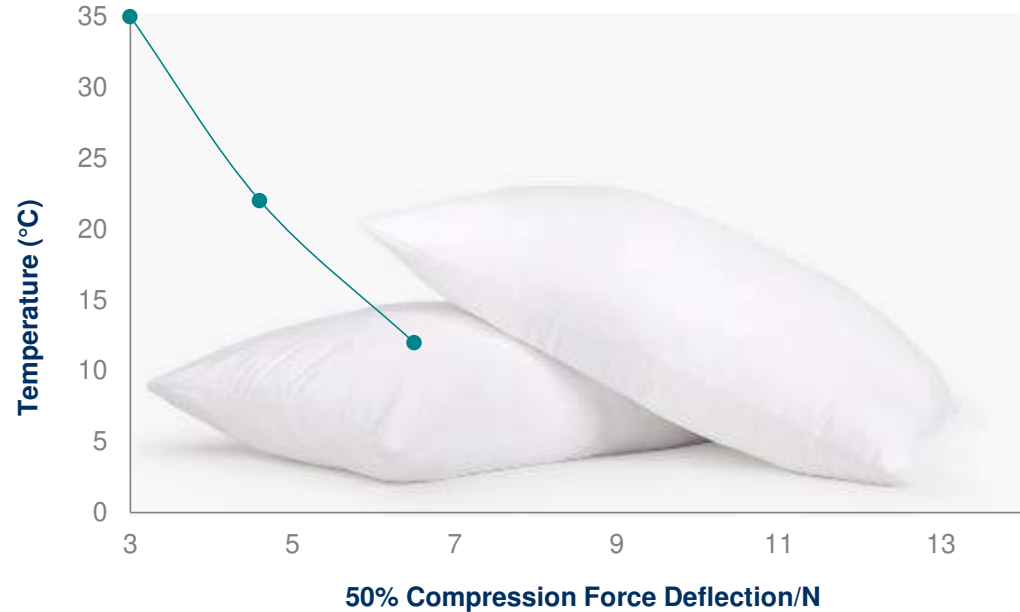
Version	Original	Low density	Low viscosity
Density (kg/m ³), ASTM D 3574	30 - 50	26 – 40	30 - 40
<i>Densidade (kg/m³), ASTM D 3574</i>			
Recovery time(s)	8-10	8-10	7-9
<i>Tempo de retorno (s)</i>			

Typical Properties

Propriedades típicas

Low ambient temperature influence on pillows' comfort

Baixa influência da temperatura ambiente na força de compressão do travesseiro



Processing Properties

Propriedades de processo



Process Conditions

Condições de processo

High pressure machine

Máquina de alta pressão

Low pressure machine

Máquina de baixa pressão

Hand mix

Mistura Manual



Injection pro

Processo de in



Rolled Pillow

Travesseiros em rolo

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Excellent compression set

Baixa deformação permanente

Lower transportation cost

Menor custo de transporte

Reduced shelf space

Espaços menores

Smaller packaging

Embalagens menores





Water-based system

Sistema Base Água

- **Adjustable density, from very low to low and medium density** *Densidade ajustável, de muito baixa, baixa e média densidade*
- **Water based system with water level flexibility** *Sistema base água com flexibilidade no nível de água*
- **No flammable physical blowing agents – safety and cost saving** *Sem agentes expansores físicos inflamáveis segurança e economia*

No flammable blowing agent

Agente expansor Não inflamável



- **Excellent compression set** *Baixa deformação permanente*
 - **Smaller packaging** *Embalagens menores*
 - **Reduced shelf space** *Menos espaço para armazenagem*
 - **Lower transportation cost** *Menor custo de transporte*
- **Odorless material from blowing agents** *Material sem odor de agentes expansores*

Sustainability Goals

Objetivos de Sustentabilidade



All 17 UN Sustainable Development Goals are important to our business – with three of particular relevance to our work in the bedding sector.

Todos os 17 Objetivos são importantes para os nossos negócios – sendo três de particular relevância para este setor.

Improve sleeping comfort, health and well-being

Melhorar o conforto, a saúde e o bem-estar do sono



Enable higher productivity and formulation rationalization

Permite maior produtividade e racionalização da formulação



Optimal use of natural resources for high performance and transportation efficiency

Uso ideal de recursos naturais para alto desempenho e eficiência de transporte



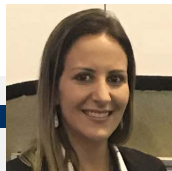
RUBIFLEX® Polyurethane Technology
Health and comfort **AT SLEEP TIME**

*Tecnologia de Poliuretano RUBIFLEX®,
Saúde e conforto **NA HORA DE DORMIR***



Huntsman

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Hazards, toxicity and behaviour of the products may differ when used with other materials and are dependent on the manufacturing circumstances or other processes. Such hazards, toxicity and behaviour should be determined by the user and made known to handlers, processors and end users.

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