

# FLEXOTHANE®

WHAT MAKES FLEXOTHANE® CLASSIC  
SUCH A UNIQUE AND BETTER  
PRODUCT THAN THE COMPETITION ?



**SIOEN**

Protection  
through Innovation

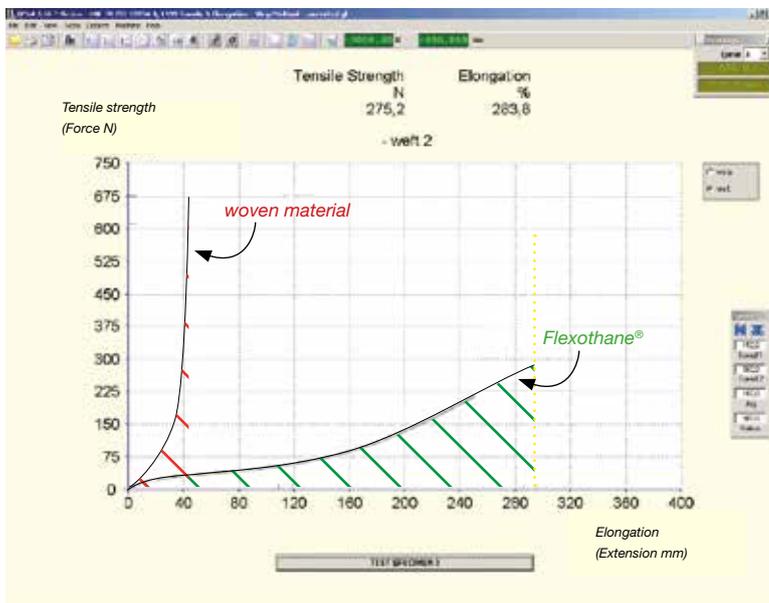
# extended life time

## WHAT MAKES FLEXOTHANE® CLASSIC SUCH A UNIQUE AND BETTER PRODUCT THAN THE COMPETITION ?

Because it respects the original 'classic' rules of good workmanship, a balanced combination between the properties of the base knitting and a high grade PUR applied by state of the art coating technology, which guarantees a high and durable quality and comfort for the wearer.

We use a PA 6.6 (which guarantees high colour fastness, excellent RF welding properties of the seams, ...) weft knitted base fabric which with an optimized strength and elasticity balance.

### > 150% STRETCHABLE

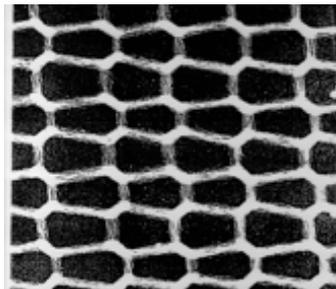
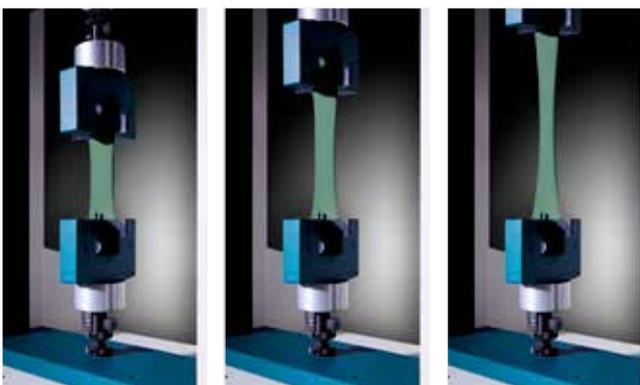


The stress-strain curve illustrates how the mechanical force is absorbed and distributed by the deformation and elasticity of the knitted loop structure which explains the 'toughness' of the material and the limitation of the damaged area in case of mechanical damage (eg. accidental contact with a nail,...)

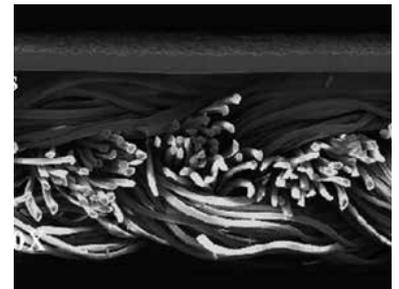
### We get an elongation at break over 150%.

Of course it's also important that after a 'foreseeable conditions of use stretching' that the fabric returns to it's original shape and that the waterproofness is still guaranteed.

-  toughness woven material
-  toughness Flexothane®



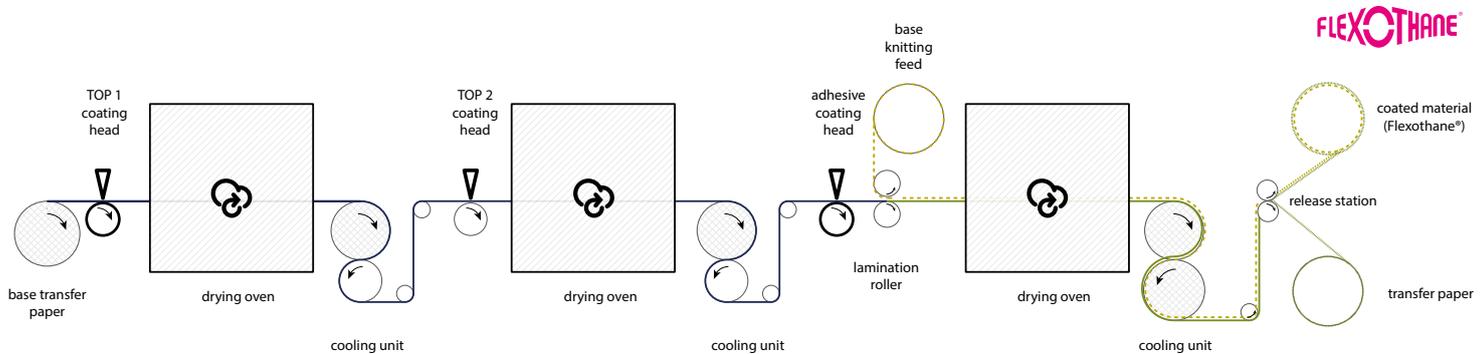
The mechanical force can be absorbed and distributed by the deformation and elasticity of the knitted loop.



The above microscopic picture of a cross section of FLEXOTHANE® shows how homogenous the PUR coated layer is.

### 3-LAYER TRANSFER COATING ON A CONTINUOUS MACHINE

When you paint your house at home, you know it's much better to apply several thin layers of paint one after the other, and allow the previous layer to dry first. That is exactly what we do. We apply a 3 layer transfer coating on a continuous machine with 3 coating heads and 3 drying ovens.



Competitors materials are often based on a 1 coating head machine combining top 1 and 2 in one thicker layer in which the solvent is forced to evaporate through a thick layer of PUR during one oven passage. This can create pinholes which cause problems with waterproofness, and even more problems after stretching the material. Furthermore, the elasticity of the coating must be optimized so that it's a perfect marriage with the elasticity of the base fabric.



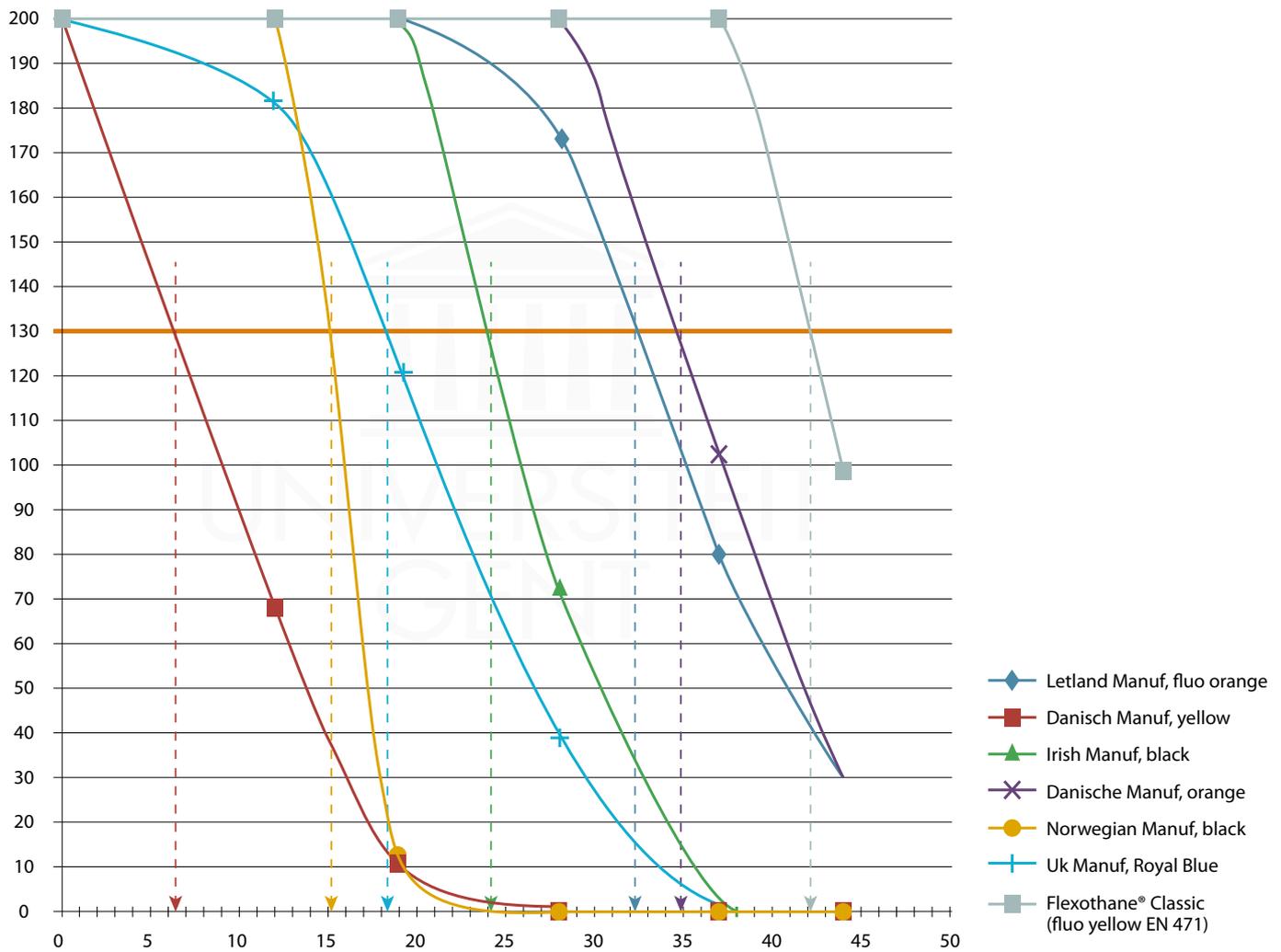
**The applied FLEXOTHANE® coating formula is of key importance. We use an European origin high grade hydrolysis resistant PUR.** The European standard EN 343 class 3 (meaning minimum 130 cm of waterproofness) is applying a range of pre-treatments to the fabric after which we still need 130 cm waterhead. As received we easily have waterproofness results of >8m (or 800 cm).

**The EN 343 pre-treatments are washing & drying, abrasion, crumple flexing and submersion in oil and fuel.** FLEXOTHANE® is systematically subjected to an additional (not specified in the standard) hydrolysis or 'jungle' test as an accelerated ageing test. The combination of moisture and temperature can cause depolymerisation of the PUR chain causing loss of elasticity, deterioration of waterproofness, stickiness, etc...

#### SYNOPSIS OF THE FLEXOTHANE® CLASSIC PROPERTIES:

- EN 343 tested
- Higher waterproofness for the foreseeable conditions of use
- Seams are easily RF welded
- Windproof
- Blood borne pathogens resistant (*ASTM test report available*)
- Good chemical resistance (*permeation list available*)
- Up to > 150% stretchable
- High tear resistance
- Very supple & comfortable; stays supple at low temperatures
- High hydrolysis resistance (*test report available*)
- longer end of life period = lower total cost of ownership
- Lightweight
- Noiseless
- Hygienic
- Mould resistant
- Easy wipe cleanable
- Machine washable/dry cleaning
- Repair kit available
- Ökotex 100 tested
- Logo's, reflective stripes are RF welded
- EN ISO 20471 hi-vis yellow, orange-red (incl. GORT) and red possible

## HIGH HYDROLYSIS RESISTANCE = EXTENDED LIFE TIME



We asked the University of Ghent in Belgium to test our FLEXOTHANE® Classic and some competitors products against the hydrolysis behavior. All samples had an original waterhead of >200 cm 'as received'.

The same samples were subjected to an increasing period of accelerated ageing (after 12, 19, 28, 37 and 44 days continuous at 70°C and 90% RH) and asked them to evaluate the waterproofness.

The exposure times of this accelerated ageing test is not representative and can not be correlated to an exact real life ageing or utilization period but **these graphs show that FLEXOTHANE® Classic has up to a factor 6 longer end of life period than competitors products**, which translates in a far lower cost of ownership when choosing for FLEXOTHANE®.

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