



(22) Date de dépôt/Filing Date: 2012/09/04
(41) Mise à la disp. pub./Open to Public Insp.: 2013/03/02
(45) Date de délivrance/Issue Date: 2014/05/20
(30) Priorités/Priorities: 2011/09/02 (DE10 2011 112 098.3);
2011/09/05 (DE10 2011 112 267.6)

(51) Cl.Int./Int.Cl. *D04H 3/12* (2006.01),
A41D 27/02 (2006.01), *B32B 3/26* (2006.01),
B32B 5/02 (2006.01), *D04H 1/58* (2012.01),
D04H 1/66 (2012.01), *D04H 3/11* (2012.01),
D04H 5/03 (2012.01), *D04H 5/04* (2006.01),
D06M 17/04 (2006.01)

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(54) Titre : ENTREDOUBLURE
(54) Title: INTERLINING

(57) **Abrégé/Abstract:**

An interlining, especially useable as front interlining in the textile industry is disclosed. The interlining includes a carrier layer on the basis of a weakly bonded and water jet structured fibrous web or non-woven textile. The carrier layer is bonded only in selected regions by a binder agent and is provided on at least one side with an adhesive material. The carrier layer is structured to have a grid like void structure. A high volume and reversible elasticity as well as an extraordinary bounce back are achieved by using the structured carrier layer.



ABSTRACT

An interlining, especially useable as front interlining in the textile industry is disclosed. The interlining includes a carrier layer on the basis of a weakly bonded and water jet structured fibrous web or non-woven textile. The carrier layer is bonded only in selected regions by a binder agent and is provided on at least one side with an adhesive material. The carrier layer is structured to have a grid like void structure. A high volume and reversible elasticity as well as an extraordinary bounce back are achieved by using the structured carrier layer.

INTERLINING

Field of the Invention

The invention relates to interlinings, in particular interlinings for use as front interlining in the textile industry.

5 Background

Interlinings are the unseen skeleton of clothing. They ensure correct fit and optimal wear comfort. Depending on the respective use, they support the workability, enhance the functionality and improve the stability of the clothing.

10 Front interlinings are used for large area reinforcement of the front portion of clothing parts. They consist of a carrier layer with a coating thereon of adhesive material with hot melt adhesives. During manufacture of the clothing piece, the coated side is laminated onto the front portion of the clothing part, in order to stabilize the front portion of the clothing part and to guarantee its form stability.

15 The requirements for front interlinings in the field of men's clothing are especially extensive and demanding, especially for suits and sports jackets. This goes especially for the carrier layer itself of the interlining which must conform with multiple different requirements.

20 Essential requirements of the carrier layer are a pleasing textile feel, very good reinforcement properties for shape conservation, a high volume at low weight, as well as high elasticity, especially in fill direction. A textile and a pleasing feel is a basic requirement for the processing into a top quality clothing part.

25 Good reinforcement properties of the interlining are especially important in men's clothing, where one often deals with formal pieces such as suits. Especially with the larger sizes in men's clothing, sufficient standing and shape consistency must be present in order to guarantee the correct appearance of the clothing piece.

30 A high volume of the interlining is very also important especially for men's clothing pieces, since the internal construction of the suit can consist of up to 30 parts and the individual components of the construction must not be apparent in the top fabric on the outside of the clothing piece. The interlining must therefore have a high volume in order to reliably prevent these impressions on the outside.

Modern face fabrics are generally elastic at least in one direction, often even

bi-elastic. This generates a high wear comfort and enables close fitting cuts of the clothing piece. A high elasticity of the interlining enables that the interlining can universally adapt to as many face fabrics as possible.

Since the face fabrics themselves are becoming progressively lighter, a low weight
5 of the interlining is by now of enormous importance. Furthermore, a low weight also means lower material usage and therefore a lower cost for the interlining.

Currently, it is woven or knitted fabrics which are used almost exclusively as carrier materials for front interlinings in men's clothing. These woven or knitted fabrics consist primarily or exclusively of textured polyester filaments which are arranged in weft
10 and fill yarns. These woven and knitted fabrics offer good reinforcement properties, high volume and high elasticity because of the crimp of the textured yarns and an appropriate weave construction. The coating of these carrier layers with the adhesive coating is carried out by way of commonly known coating processes, especially however with a double dot coating process such as the dot-trickle process.

15 The weight of the woven and knitted fabrics lies generally at $50 \text{ g/m}^2 - 100 \text{ g/m}^2$. With respect to their textile feel, those products are accepted in the market. However, because of the use of textured filaments, no fibre ends are present at the surface of the interlining which could generate a soft and textile hand, so that the textile feel of these woven and knitted fabrics is rather dull and synthetic impression because of how they are
20 constructed.

Various attempts have been made to overcome the disadvantageous textile feel, as described for example in DE 196 44 111 or DE 199 04 265. However, none of these processes has really captured the market.

It is a further disadvantage of woven and knitted fabrics that the textured polyester
25 yarns used are manufactured from virgin PES chips. The use of recycled materials as a sustainability measure for resource protection is not possible. In the future, cost disadvantages are expected when virgin PES materials are used.

Furthermore, the use of weaving and knitting processes for the manufacture of a textile web is comparatively labour intensive.

30 In contrast, the manufacture of an interlining on the basis of a non-woven textile is significantly more efficient and less labour intensive. Interlinings with carrier layers made of nonwoven textiles, which do not consist of yarns but of fibres were to date not

considered for the mentioned use in strengthening the front of clothing pieces, especially of clothing pieces in men's clothing.

The carrier layers of non-woven textile are in general manufactured by way of the heat calendaring process (Point Seal = PS Process) and are used predominantly in small pieces, for example edge and seam protection, as waistband or for the strengthening of collars and cuffs.

A further process for the manufacture of interlinings with carrier layers made of a non-woven textile is known, for example, from DE 10 2009 010 995 A1, EP 2 207 986 B1 as well as WO 2009/059801 A1. In the interlinings disclosed in those references, the application of the binder agent for the bonding of the non-woven textile and the adhesive material is carried out in a single processing step. A binder agent/polymer particle-dispersion is thereby applied onto a carrier layer on the basis of a weakly bonded non-woven textile or fibrous web. The polymer particles are thereby the adhesive material. The dispersion is designed in such a way that the polymer particles remain on the surface of the fibrous web, while the binder agent penetrates into the surface of the fibrous web. Subsequent to the application of the dispersion, a temperature treatment is used for drying the fibrous web, cross-linking the binder agent and sintering of the adhesive polymer particles. According to the references, the dispersion is preferably applied in a grid-like dot pattern onto the carrier layer. Interlinings manufactured as described above are already distinguished by a soft textile feel and improved elasticity. Since they are based on a non-woven-carrier layer, they can also be cost efficiently manufactured.

Summary of the Invention

It is now an object of the invention to further develop an interlining of the above described type so that it has improved elastic properties with respect to bounce back and reversible elasticity in addition to a high volume and pleasing feel, while being cost efficient to manufacture.

This object is achieved with an interlining according to the invention, especially for use as a front interlining in the textile industry, which includes a carrier layer of a weakly bonded and water jet structured fibrous web or non-woven textile. The carrier layer is bonded only in selected areas by way of a binder agent and provided at least at one location with an adhesive material. The carrier layer is structured in accordance with the invention in such a way that it includes a grid-like void structure.

It has now been surprisingly found that a high reversible elasticity and a high bounce back can be achieved which lie in the ranges relevant even for front interlinings, by using the grid-like void structure achieved by structuring with water jets in combination with only localized bonding by way of a binder agent.

5 The carrier layer in accordance with the invention consists of a weakly bonded fibrous web or non-woven textile. In accordance with the invention, this is intended to include all fibrous webs, the fibres of which, even after a more or less strong consolidation process, still have the highest possible mobility. This is generally the case, for example, with water jet consolidated non-woven textiles, even when high water pressures are used.
10 Those are intended to be encompassed within the scope of the invention.

“Structuring” or “water jet structuring” in accordance with the invention is intended to mean the rearrangement of fibres in a fibrous web by way of water jets in such a way that a grid-like void structure is achieved. However, the voids for the achievement of the effect in accordance with the invention need not be completely free of fibres.

15 According to a preferred embodiment of the invention, the void structure is achieved in the water jet process by a forming sieve. Water jet processes are generally known and are used, among other things, for the consolidation, especially pre-consolidation of non-woven textiles. Typical water pressures for the consolidation or pre-consolidation are 150 bar or <50 bar. Water pressures in the range of 60 to 120 bar have
20 been found useful for the generation of the void structure of the fibrous web or the weakly bonded non-woven textile in accordance with the present invention.

The water jets acting on the weakly bonded fibrous web or non-woven textile obviously force aside a part of the fibres. This generates a perforated structure in the carrier layer with an unexpectedly high volume. This volume, at the same total weight of
25 the interlining, is 40% higher than in a woven or knitted fabric of the same weight.

It is especially preferred to carry out the structuring (generation of the void structure) as part of the pre-consolidation of the fibrous web or non-woven textile. This provides an especially good process control.

The structuring of the fibrous web generally requires higher energy and a higher
30 water pressure than in water jet processes used, for example, only for the pre-consolidation of a fibrous web, as described in DE 10 2009 010 995 A1. However, the fibrous web is at

the same time also more strongly consolidated. This has a positive effect on the wear resistance of the surface of the non-woven textile.

Because of the pre-consolidation of the fibrous web which occurs at the same time as the structuring, the fibrous web, even when a perforation is present subsequent to the water jet treatment, is sufficiently stable so that it need not be fully consolidated by compression. Further, the patterned, three dimensionally structured fibrous web can be dried and wound onto rollers and in a separate, second processing step coated according to all commonly known coating processes for interfacing materials and finally consolidated. This means that even printing with a binder agent and application of adhesive material polymers according to the 3P or double dot process especially preferred for front interlinings is possible in a subsequent processing step.

The pre-consolidation and structuring of the fibrous web by way of the water jet process is preferably carried out in such a way that the exposure to the water jets on the first side is carried out through a sieve, for example a 100 mesh sieve. The first pre-consolidation of the fibrous web is achieved thereby, while the fibrous web at the same time obtains an even and smooth surface. Subsequent to the first pre-consolidation, the spraying with water jets for the generation of the void structure is carried out on the opposite, second side of the pre-consolidated fibrous web, for example through a 20 mesh sieve.

The mesh sieves known from the high pressure energy (HE)-water jet treatment can be used as the sieves. They consist of sieve drums in which the sieve structure is generated by wire grids. The thickness and diameter of the wires as well as the materials of the wires determine the final volume of the non-woven textile through the achievable crimp of the web structure.

For the manufacture of the interlining in accordance with the invention, wires of 0.3 mm to 1.0 mm diameter for the warp threads and 0.2 mm to 1.5 mm diameter for the fill threads are used for the mesh sieves. Round or rectangular wires of VA-steel, bronze, PET or other plastics can be used.

Instead of the mesh sieves, other sieve structures can be used for the structuring, even perforated templates with a specific topography and water permeability. Similar effects as with a mesh sieve are achieved.

Desired effects can be achieved by way of a special aperture geometry of the sieves or templates. Without the intention of being generally limiting, the apertures can be, for example, shaped as rectangles or diamonds. The longitudinal/transverse orientation of the rectangles thereby results in a differential stretchability of the pre-consolidated fibrous web.

Transversely oriented rectangles result in a higher longitudinal stretch than longitudinally oriented rectangles. Diamonds on the other hand are more even in stretch.

The laying down of the fibres for the manufacture of the fibrous web or non-woven textile is carried out in a known manner. The processes used herefor are known and variously described in the patent literature. According to a preferred embodiment of the invention, the laying down of the fibrous web (laying) occurs in longitudinal and transverse direction. A significantly higher elasticity of the final, bonded carrier material at mechanical stretch is thereby achieved.

It is especially preferred that the ratio of the surface weight of the longitudinally laid fibres to that of the transversely laid fibres is between 2:1 – 1:4, or that 100% are transversely laid. This guarantees that a reversible longitudinal stretch of > 20% can be achieved.

Additional effects in the finished material can be achieved with a multilayered construction of the fibrous web:

a) the reorientation of the fibres in longitudinal direction can be reduced by higher weight portions of the transverse layer.

b) improved transverse bounce back in the lining can be achieved with the use of stiffer fibres in the transverse layer (coarser PES(polyester)-fibre and/or PA66(polyamide 66)-fibre).

c) high component fibres with thermally bonding properties in the fibrous web cover can be used for the sealing for deep drawing of the lining.

Fibres of polyester are preferably used as the fibre material. Especially preferred are fibres of recycled PES (r-PET(recycled polyethylene terephthalate). Mixtures of recycled PES with other fibres are also possible. The mixing ratio can be user defined. The present invention thereby also complies with the task of sustainable use of raw materials.

Especially suited for the interlinings in accordance with the invention is the use of a portion of fibres with a relatively high fibre titre of up to 11 dtex. With this use of

coarser of fibres, the high bounce back achieved in accordance with the invention, which is highly untypical for non-wovens, is further improved.

According to the invention, the binder agents and/or adhesives are not applied over the whole surface but only in selected surface regions onto the carrier layer. This provides the material of the invention with softness and bounce back. Preferably, the binder agent and/or adhesive polymers are applied in a dot pattern onto the carrier layer. The dot pattern can be regularly or irregularly distributed. The dot wise applied binder agent results in a significantly increased reversible inner strength of the structured non-woven material, but preserves at the same time a portion of freely movable, un-bonded fibre regions in the fibre composite. Furthermore, an irreversible sliding of fibres in the structured non-woven textile is prevented by the binder agent dots. The structured non-woven textile retains a high reversible elasticity. Within the stretchability range of 10% in warp direction and 20% in fill direction which is required for elastic interlinings a very good shape recovery upon stretch is achieved.

The present invention is however not limited in any way to dot patterns. The mixture of binder agents and thermoplastic polymers can be applied in any geometry, for example, in the form of lines, stripes, net or grid-like structures, dots with rectangular, diamond-shaped or oval geometry, or the like.

Because of the superior volume and form recovery capacity, 20% to 30% material weight can be saved with the structured, non-woven textile in accordance with the invention, compared to the woven or knitted fabrics used today. A perforated 60 g/m² non-woven textile in accordance with the invention replaces a 73 g/m² woven fabric or knitted fabric of textured polyester yarns.

It is an especial advantage of the present invention that by the application of the void structure, soft non-woven carrier layers can now also be manufactured in a wide weight range of 15 g/m² to 115 g/m², without non-woven textiles of high surface weight becoming papery and stiff.

Since the present invention deals with a fibre-based product, the problem of the feel of the interlinings made of woven fabrics and knitted fabrics is also solved, since the interlining in accordance with the invention has fibres at the surface.

According to a preferred embodiment of the invention, the application of the binder agent and adhesive is carried out in a single processing step, as described for

example in DE 10 2009 010 995 A1, whereby in a generally known manner, a preferably aqueous dispersion of a binder agent and a thermoplastic polymer, present in particle form is applied in a grid-like dot pattern onto the fibrous web. The polymer particles are thereby the adhesive. The dispersion is designed in such a way that the particles remain at the surface of the fibrous web, while the binder agent penetrates into the surface of the fibrous web. A heat treatment subsequent to the application of the dispersion serves the drying of the fibrous web, the cross-linking of the binder agent and partial sintering on the adhesive polymer particles.

The type of dryer used is important for the drying of the described interlinings.

Belt driers with through-air technology are preferred over drum driers and suction drum driers, since the latter lead to flat products. Drier temperatures which are as high as possible ($>190^{\circ}\text{C}$) lead to a stabilization of the volume and to a thermal fixing of the finished material.

For applications in which higher tear resistance is needed, for example for use as a front interlining, the application of the adhesive is carried out according to one of the known double dot coating processes. In the double dot coating process, the underdot which generally consists of a binder agent and serves as a return flow barrier, is applied in a first process step onto the fibrous web and the overdot which forms the actual adhesive is then applied in a second process step onto the underdot.

In order to support the point-wise consolidation of the textile provided with a void structure to increase the wear on the side directed away from the adhesive, the applied amount of the underdot can be higher than necessary in the regular double dot coating. When the applied amount of binder agent is so large that at least partial penetration by the binding agent of the fibrous web or weakly bonded non-woven textile is guaranteed, a point form bonding of the carrier layer only by way of the underdot can be carried out. Further binder agent application is not necessary. The penetration depth of the binder agent perpendicular to the surface should thereby be more than 30%, preferably more than 40% and especially preferably more than 70%, in order to achieve a sufficient reversible elasticity and bounce back.

The interlining in accordance with the invention is suited especially for use as front interlinings in the textile industry, especially in the field of high value clothing, for example men's clothing.

Brief Description of the Drawings

The invention will be described in the following with reference to the Figures and by way of exemplary embodiments.

Fig. 1 shows in schematic top view an interlining in accordance with the

5 invention with perforation;

Figs. 2 & 3 show a force-stretch diagram with the elasticity modules of an interlining in accordance with the invention and an unstructured interlining at longitudinal and transverse stretch;

10 Figs. 4 & 5 show a force-stretch diagram with the elasticity modules of two interlinings in accordance with the invention with longitudinal/transverse laying of the fibrous web and longitudinal laying of the fibrous web at longitudinal and transverse stretch;

Figs. 6 & 7 show a force-stretch diagram with the elasticity modules of two interlinings in accordance with the invention with longitudinal/transverse laid fibrous web and longitudinally laid fibrous web at longitudinal and transverse stretch.

15

Detailed Description

Exemplary Embodiments:

Example 1 (PDB_3 cc47)

20 A fibrous web of 30 g/m² PES 1.7 dtex/38 mm (r-PET – recycled PES) the fibres laid in the form of 10 g/m² longitudinal web and 20 g/m² transverse web, was fed to a pre-crosslinking unit. A slight pre-consolidation with low pressure water jets (<50 bar) was carried out with a 100 mesh sieve. On a second drum of the pre-crosslinking unit, a 30 mesh bronze sieve (warp thread diameter 0.63 mm x 0.33 mm // fill thread diameter 0.51 mm//mesh x count [cm]: 9.5/8.5// thickness: 1.09 mm) was installed. The structuring was

25 carried out with medium pressure water jets (<80 bar). The wet fibrous web was then printed in point form (52 points/cm²) and in line with 15 g/m² (dry) of a binder agent – polymer particle dispersion consisting of:

self-crosslinking butyl-ethyl-acrylate binder dispersion with tg=28°C	9 parts
co-polyamide powder 60 - 130μ with a melting region of about 115°C	24 parts
30 crosslinking agent a/n/i	1 part
thickener	2 parts
water	59 parts.

In the subsequent drying step, the binder agent dots were crosslinked to the fibres and the polymer particles were partially sintered.

The achieved interlinings in accordance with the invention have the following properties:

- 5 - surface weight: 45 g/m²
- module/longitudinal/transverse: at 10% longitudinal stretch of 6.9 N and at 20% transverse stretch of 1.5 N.
- reshaping ability: permanent stretch at 15 cycles: longitudinal 3.1% at 10% and transverse 5.8 at 20%.
- 10 - bounce back elasticity comparable to a 60 g/m² fabric lining with extra filaments of dtex 75 f48 in warp and fill.
- the achieved release force fixed to a PES/BW fabric 2.5 bar and 12s was at 120°C primary: 15.6N/5cm//40°C wash 12.6N/5cm// CR 11.9N/5cm at 140°C primary: 17.3N/5cm//40°C wash 13.8N/5cm//60°C wash 10.6N/5cm.

15

Example 2

A fibrous web laid down in the form of 10 g/m² longitudinal web of 100% PES 1.7 dtex/38mm (r-PET) fibres and 15 g/m² transverse web of 50% PES 1.7 dtex/38mm (r-PET), 30% PES 3.3 dtex/60mm (r-PET) and 20% PES 6.7 dtex/60mm, was fed to a pre-
 20 crosslinking unit. A slight pre-consolidation with low pressure water jets was carried out (<50 bar) with a 100 mesh sieve. On a second drum of the pre-crosslinking unit was a 20 mesh bronze sieve (warp wire diameter: 0.63mm x .033mm//fill wire diameter:0.51mm//mesh x count [cm]: 9.5/8.5// thickness: 1.09mm). The structuring was carried out with medium pressure water jets (<80 bar). The wet fibrous web was dried and
 25 pre-bonded in a three web drier with through-air guiding at 180°C.

This pre-bonded 20 mesh structure non-woven textile was then in a second processing step wetted with water in the foulard wet uptake 100% – and then printed with a 14 g/m² (dry application) binder agent – polymer particle dispersion in point form (72 dots/cm²).

30 In the subsequent drying step, the binder agent dots are crosslinked to the fibres and the particles are partially sintered.

The achieved interlining had the following properties.

- weight: 39 g/m²

- module longitudinal/transverse: at 10% longitudinal of 5.9N and at 20% direct transverse of 1.9N.

5 - reshaping ability: permanent stretch at 15 cycles: longitudinal at 2.9% at 10% and transverse 4.9 at 20%.

- bounce back elasticity comparable to a 60 g/m² fabric lining with textured filaments of dtex 75 at 48 in warp and fill, whereby the bounce back transverse was higher.

10 - the achieved release force fixed to PES/BW fabric at 2.5 bar and 12s was at 120°C primary: 13.3/5cm//40°C wash 11.9N/5cm//CR 11.6N/5cm at 140°C primary: 15.7N/5cm//40°C wash 13.6N/5cm//60°C wash 11.2N/5cm.

Example 3

15 A 20 mesh structured water jet consolidated non-woven textile 35 g/m² of made of 100% 1.9 dtex PES fibres was printed in a two step process with 9 g/m² dispersion of printing paste components analogue to EP 1 162 304 B1 and a 13 g/m² adhesive polymer with 80-200µ particle size distribution was subsequently applied. In the subsequent drying step, the dual layer adhesive application was partially sintered in the drier.

The achieved interlining had the following properties:

20 - weight: 57 g/m²

- module longitudinal/transverse: at 10% longitudinal of 9.7N and at 20% stretch transverse of 3.1N.

- reshaping ability: permanent stretch at 15 cycles: longitudinal 3.6% at 10% and transverse 5.6 at 20%.

25 - bounce back elasticity comparable to a 70 g/m² fabric lining with textured filaments of dtex 75 f48 in warp and fill.

- the achieved release force fixed to a PES/BW fabric at 2.5 bar and 12 seconds was at 120°C primary: 17.4/5cm//40°C wash 17.0N/5cm//CR 16.2N/5cm at 140°C primary: 17.7N/5cm//40°C wash 20.9N/5cm//60°C wash 17.4N/5cm.

30

Figure 1 shows a fibrous web 1 of longitudinally and transversely laid down fibres. The fibrous web has a void structure in accordance with the invention. The voids 2 in the

fibrous web 1 are positioned in the form of a grid. Figure 4 further shows bonding points 3 positioned in an irregular dot pattern, which bond the fibrous web 1 in selected surface regions and at the same time carry the adhesive polymer particles 4. In the surface regions between the bonding points 3, the fibres are freely movable. This effect is further enhanced by the void structure. The material is highly elastic.

Figures 2 and 3 show the influence of the structuring of an interlining in accordance with the invention according to Example 1 and unstructured comparison interlining (structure of 100 mesh sieve in the second HE-pass, but otherwise manufactured in the same manner) (PDB_1 cc45) on the force-stretch behaviour. It is apparent that the non-structured non-woven textile is stretchable under significantly higher forces longitudinally and transversely in the structured non-woven textile. The stretchability is facilitated by the structuring and the proportion of the elastic stretch is increased in the interlining in accordance with the invention.

Figures 4 and 5 show the influence of the laying of the non-woven on the force-stretch behaviour of the interlining according to Example 1 and on an only longitudinally laid comparison interlining, otherwise manufactured in the same manner (PDB_3 ra48). It is apparent that the longitudinally oriented and structured non-woven textile can be stretched under significantly higher forces than the longitudinal/transverse oriented structured non-woven textile according to Example 1. The stretchability is facilitated by the longitudinal/transverse fibre laying. One recognizes further that the longitudinally oriented structured non-woven has an extremely easy stretchability in transverse direction – contrary to the interlining according to Example 1 with longitudinal/transverse fibre laying. This easy stretchability does however not provide any restoring forces and is therefore undesired.

Figures 6 and 7 illustrate the influence of the penetration depth of the binder agent into the carrier layer on the force-stretch behaviour of two interlinings in accordance with the invention. The maximum tension force values are illustrated at 30 and 78% penetration perpendicular to the surface.

In the 3P or double dot coating, it is desirable that the double dot layer does not sink too deep into the fibrous web during the printing, since this results in a hardening of the feel. Simultaneously the strength of the non-woven is however reduced at a lesser through binding with the printed on binder agent.

A low strength/maximum tension force reduces the reversibility of the elastic stretch of the structured non-woven textile.

It is apparent from the figures that the unwoven textile consolidated with 30% penetration depth has a lower strength longitudinally at low stretch than the strongly
5 through bonded interlining with 78% penetration depth. With lesser through bonding of the fibrous web, the fibres “slide” easier on one another. This effect is even more visible upon transverse stretching. The reversible resetting forces are only weakly present in the interlining consolidated to 30% penetration depth. The through bonding of more than 30% is therefore preferred.

CLAIMS:

1. Interlining, comprising
a carrier layer made of a weakly bonded and water jet structured fibrous web or non-woven textile, the carrier layer being bonded only in selected regions by a binder agent and provided at least at one location with an adhesive material, and the carrier layer including a grid like void structure, wherein the fibrous web is a multi layer structure with at least one longitudinally laid down fibre layer and at least one transversely laid down fibre layer, the transversely laid down fibre layer having a higher surface weight than the longitudinally laid down fibre layer.
2. The interlining according to claim 1 for use as front interlining in the textile industry.
3. The interlining according to claim 1 or 2, wherein the void structure is produced by way of a water jet process carried out through a structuring sieve or template.
4. The interlining according to claim 3, wherein the binder agent and/or the adhesive material is applied in a grid like, regular or irregular dot pattern.
5. The interlining according to any one of claims 1 to 4, wherein the adhesive material dots are constructed as double dots with overdots and underdots, whereby the underdots include a binder agent and the overdots comprise a thermoplastic polymer.
6. The interlining according to claim 5, wherein the double dots are produced by way of a two-stage double dot process, in which in a first step the binder material is applied to the carrier layer and then in a second step the thermoplastic polymer is applied onto the binder material.
7. The interlining according to claim 5 or 6, wherein the double dots are produced by application of a binder agent-polymer particle-dispersion onto the fibrous web in one step in such a way that the binder agent penetrates at least partially into the fibrous web and forms the

underdots, while the particles of thermoplastic material remain on the surface of the fibrous web and form the overdots.

8. The interlining according to claim 7, wherein the binder agent for the underdots is added in such an amount that the bonding of the fibrous web or the weakly bonded fibrous web is achieved only by way of the underdots without any further binder agent addition.

9. The interlining according to any one of claims 1 to 8, wherein the carrier layer consists essentially of fibres made of recycled polyethylene terephthalate.

10. The interlining according to any one of claims 1 to 9, wherein the surface weight of the carrier layer is 15 g/m² to 120 g/m².

11. Use of the interlining according to any one of claims 1 to 10 as a front interlining in the textile industry.

12. The use of claim 11, wherein the front interlining is used in men's clothing.

Application number / Numéro de demande: 2788772

Figures: _____

Pages: 1

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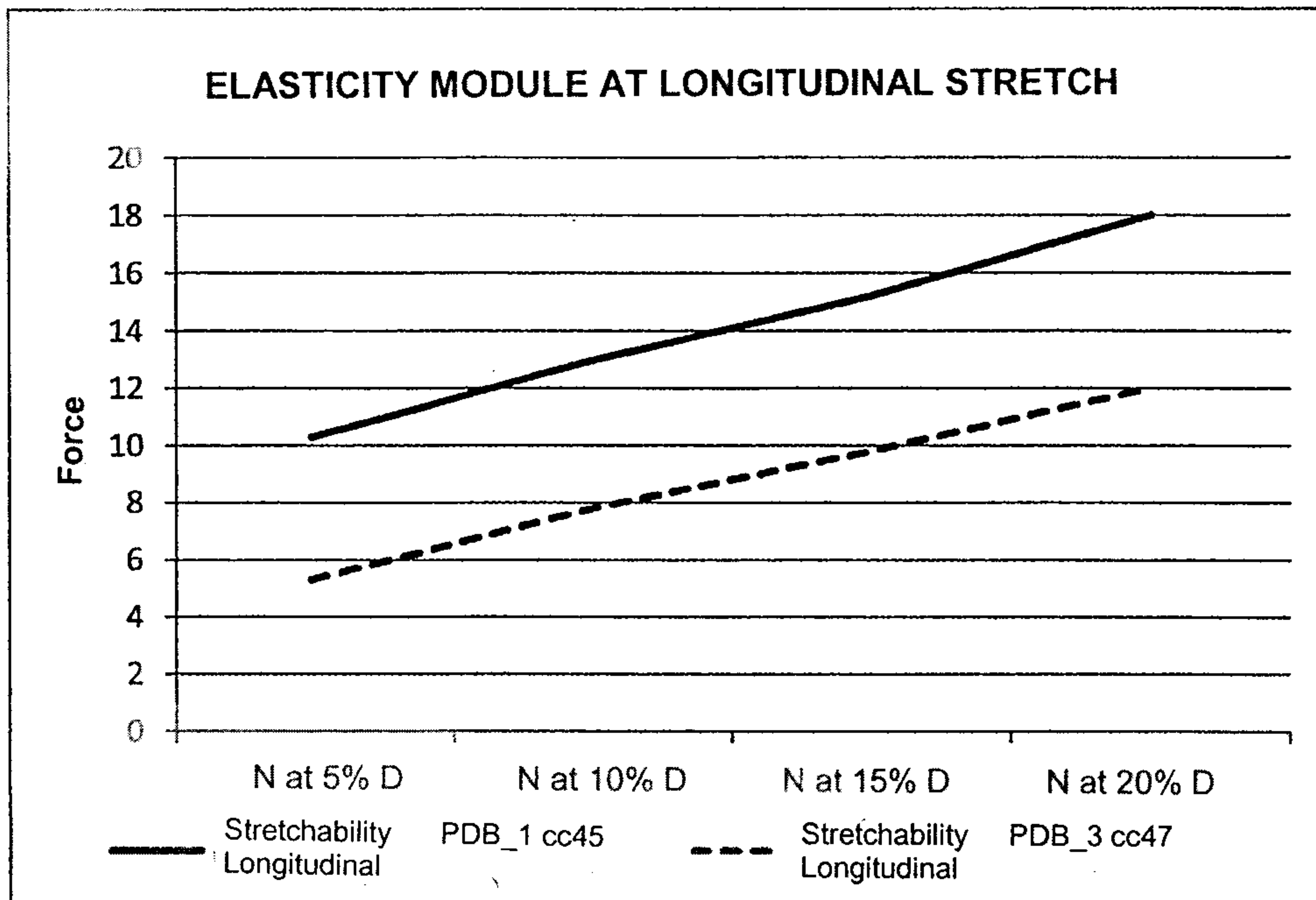


Fig. 2

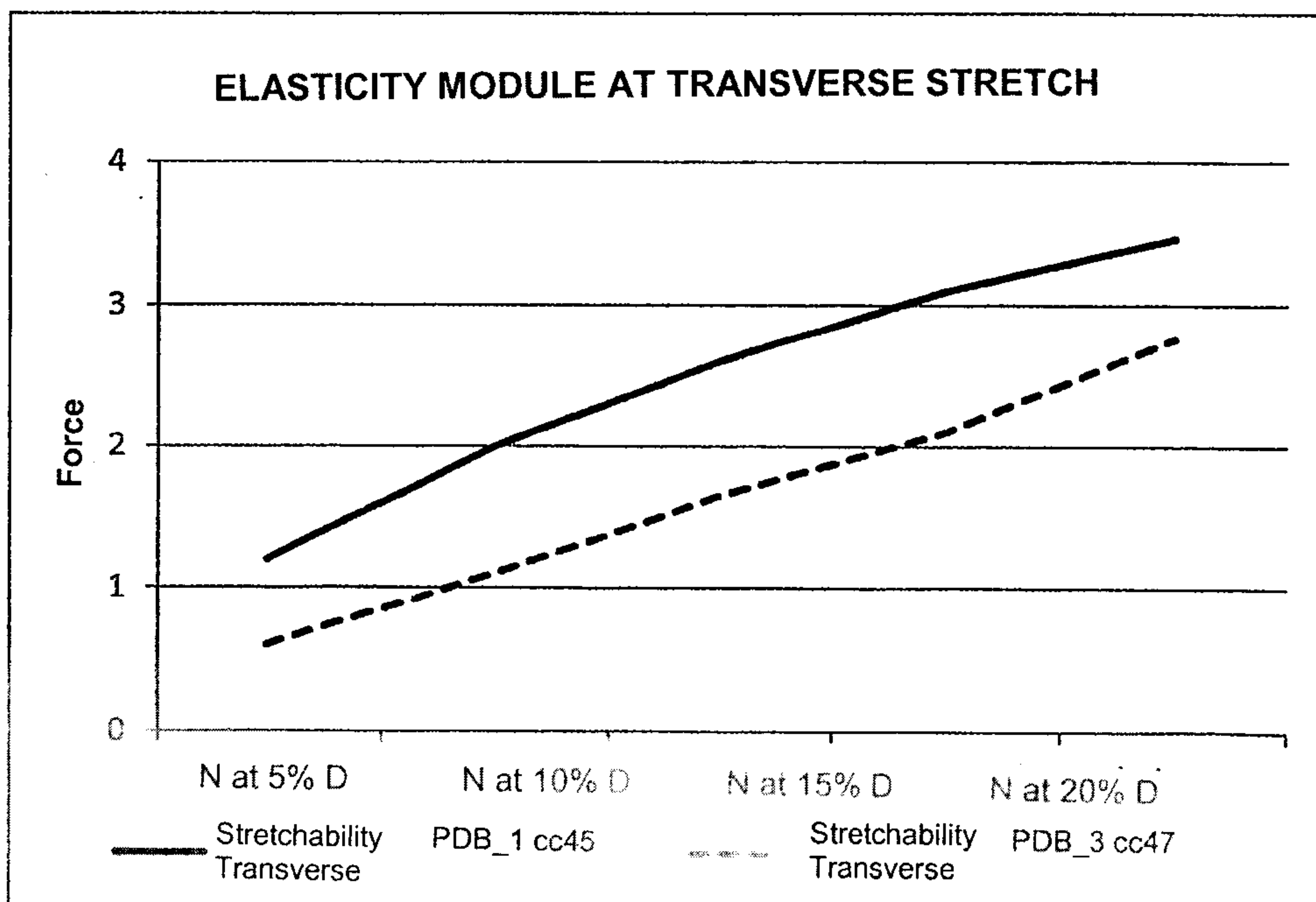


Fig. 3

3/4

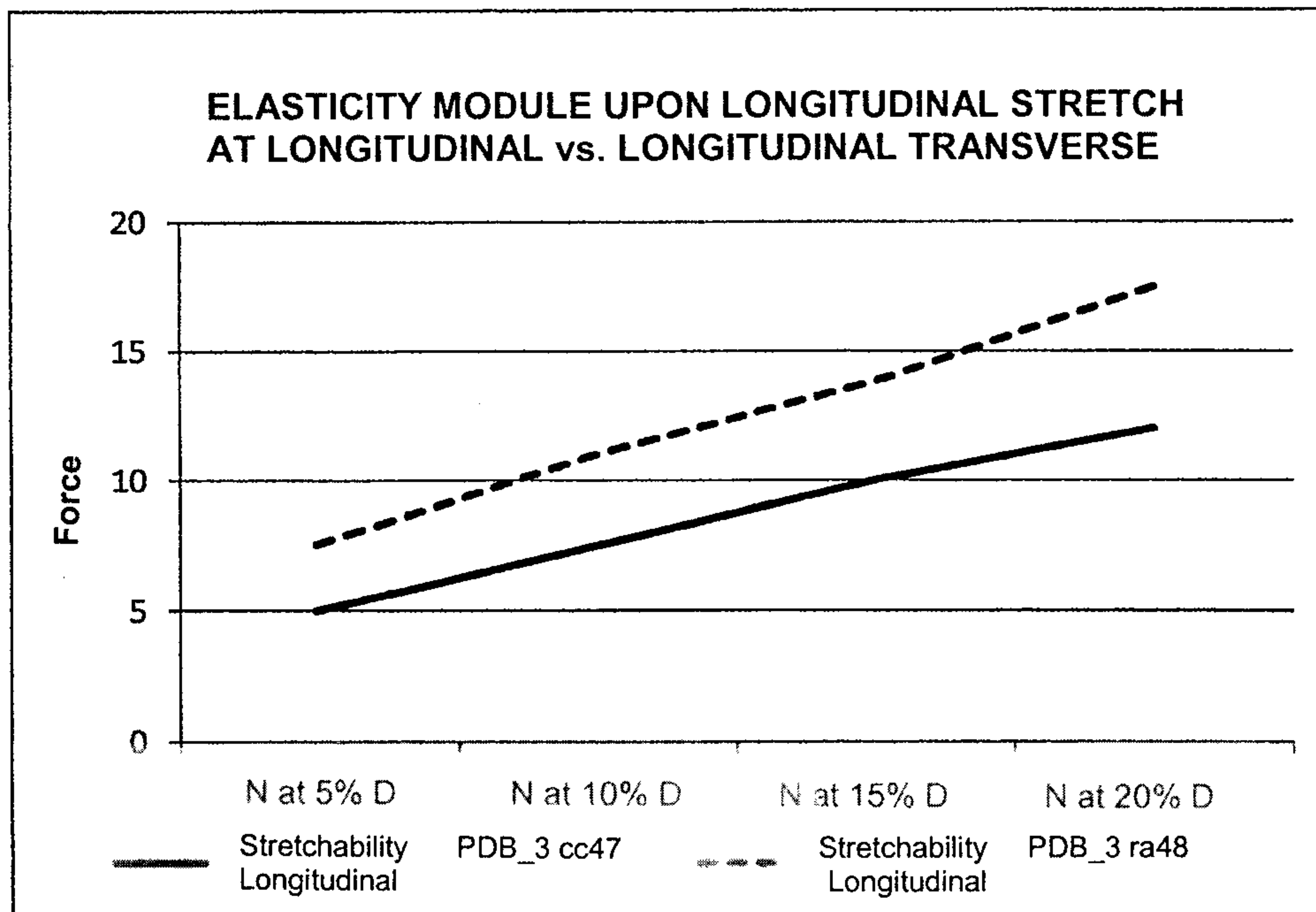


Fig. 4

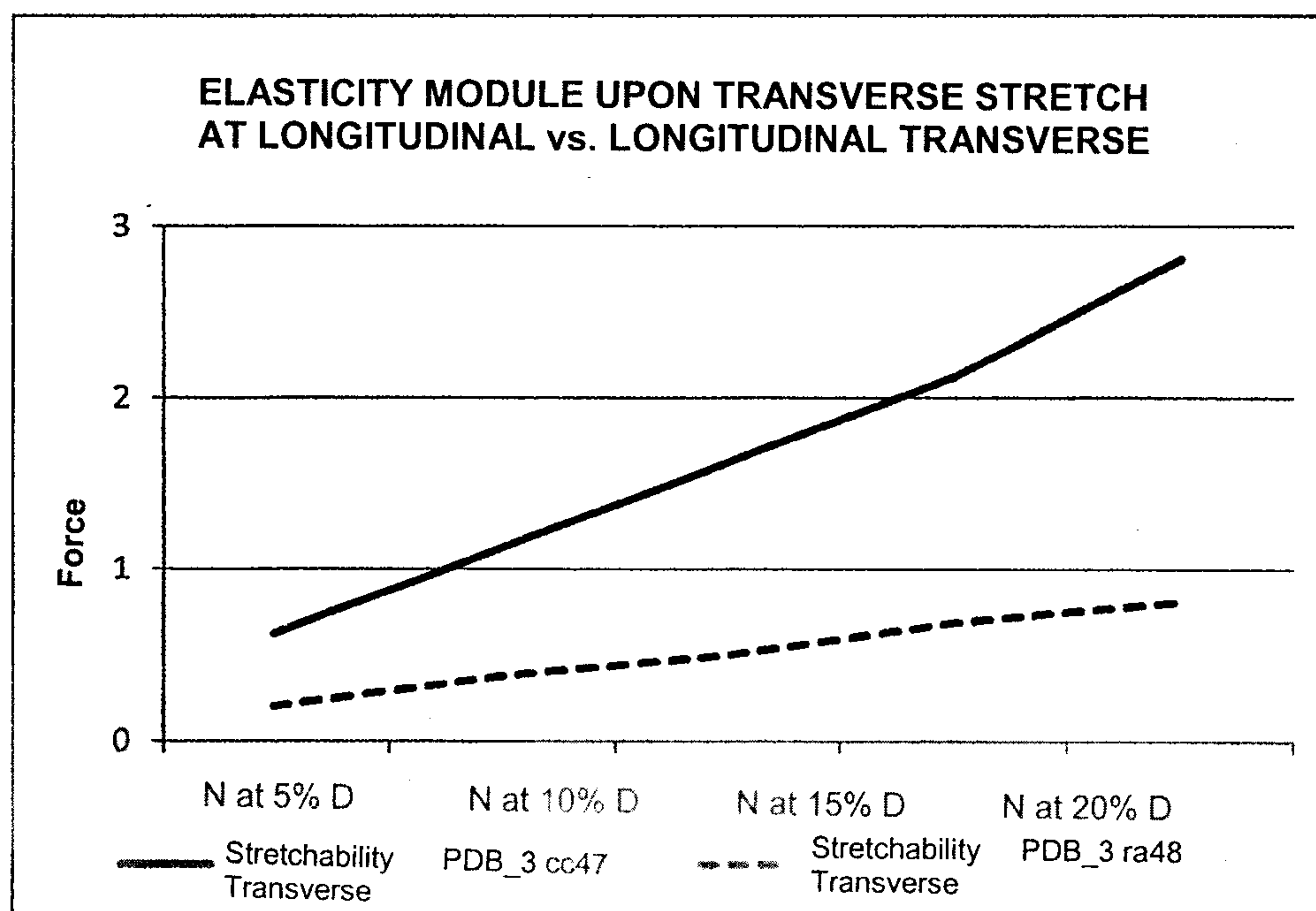


Fig. 5

4/4

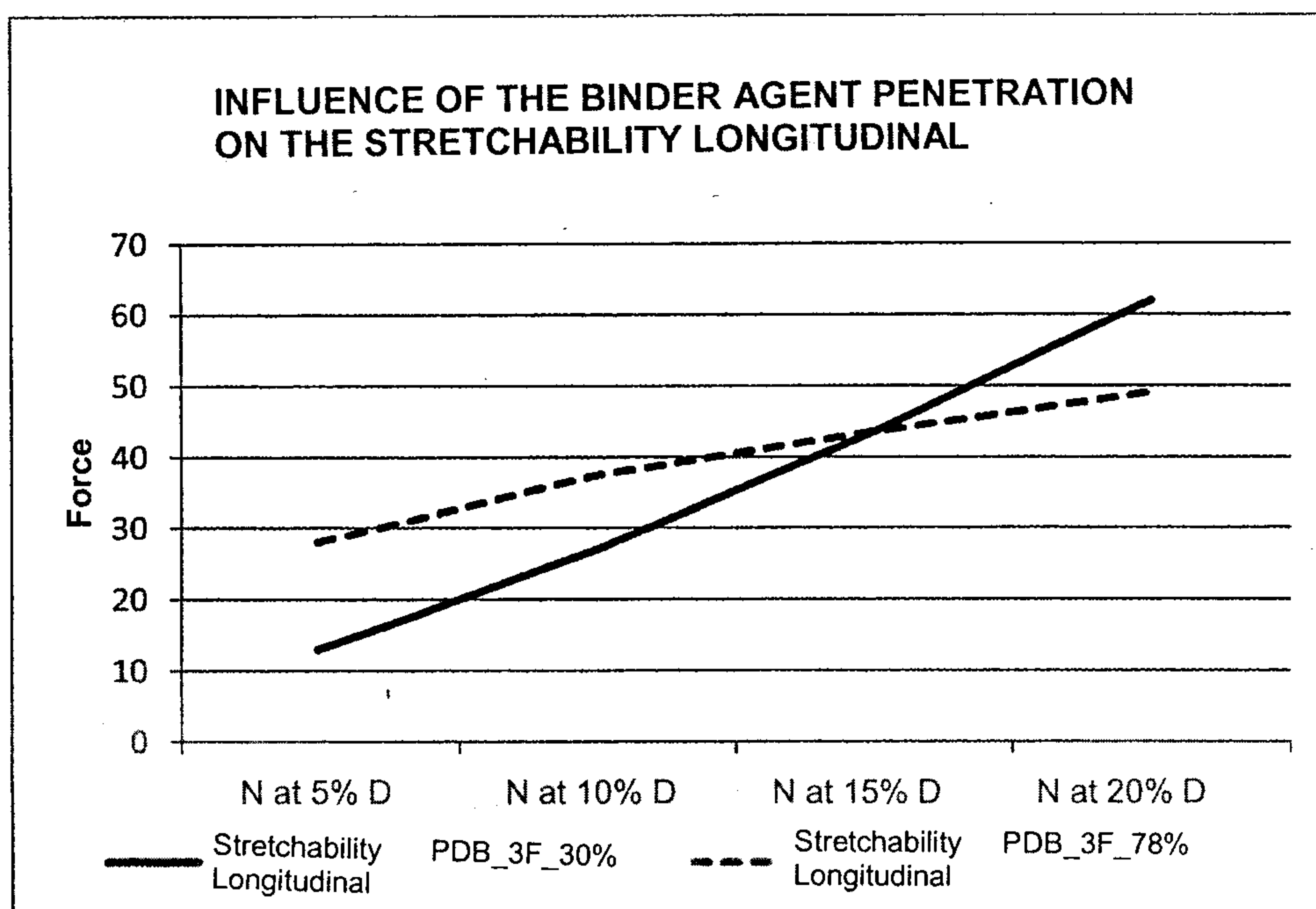


Fig. 6

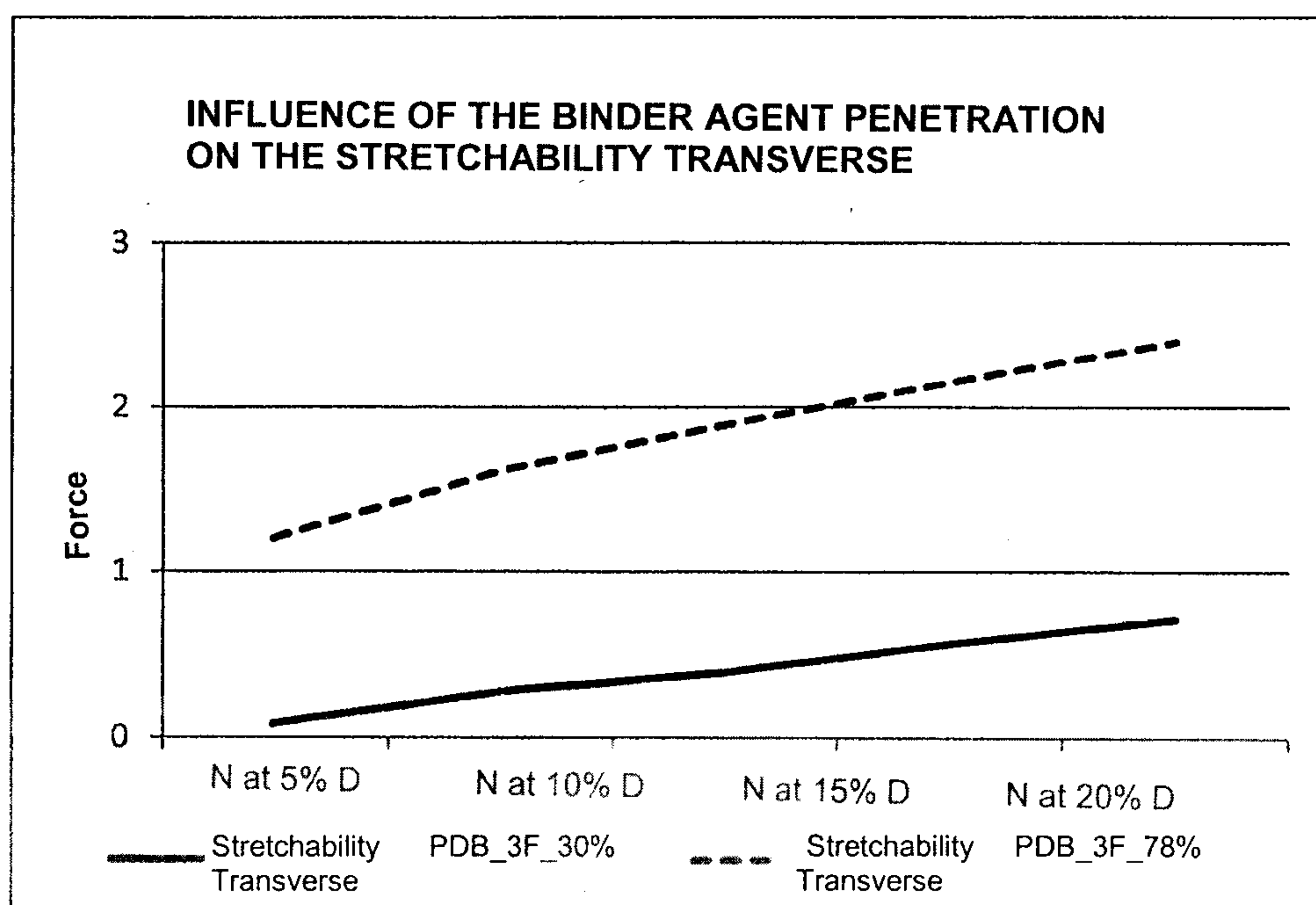


Fig. 7