DUPONT	MOHAWK	pttpolycanada
E. I. du Pont de Nemours and Company	Mohawk Industries, Inc.	PTT Poly Canada

February 21, 2006

Office of Secretary
Federal Trade Commission
600 W. Pennsylvania Ave., NW
Washington, DC 20580

Petition To Establish A New Generic Subclass

Mohawk Industries, Inc.[1] (Mohawk), E. I. du Pont de Nemours and Company[2] (DuPont), and PTT Poly Canada[3] (PTT Canada) (collectively "Petitioners") hereby submit this Petition to the Federal Trade Commission (the "Commission") for the establishment of a new generic subclass within the existing polyester category for fibers made from poly(trimethylene terephthalate) ("PTT"). In the event the Commission determines that this petition deserves further consideration, Petitioners propose the designation PTT for temporary use in identifying PTT fiber. Petitioners propose in order of preference the following names for a new generic subclass of polyester that may be used with respect to PTT fibers: 1. triexta; 2. resisoft; and 3. durares.

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[1] Mohawk was founded more than 120 years ago and today is the leading producer and distributor of flooring worldwide. Mohawk products serve all major flooring categories: carpet, rugs, hardwood, laminate, ceramic tile, and vinyl flooring. Mohawk has launched a line of carpets manufactured from PTT and sells such carpets under the trademark SmartStrand.

[2] Founded in 1802, DuPont is a science company operating in more than 70 countries. DuPont offers a wide range of innovative products and services for markets including agriculture, nutrition, electronics, communications, safety and protection, home and construction, transportation and apparel. DuPont markets PTT under the trademark Sorona®.

[3] PTT Poly Canada is a 50 / 50 Limited Partnership between Shell Chemicals Canada LTD and SGF Chimie, a subsidiary of Societe Generale de Financement du Quebec (SGF). PTT Poly Canada markets PTT under the trademark Corterra® Polymers.

[redacted]

Summary of Petition

Petitioners seek to establish a generic subclass for fibers spun from PTT on the grounds that such fibers satisfy the three tests required by the Commission for the use of a generic subclass.[4] These tests are satisfied by fibers spun from PTT because:

1. PTT fiber has the same general chemical composition as the Commission's established polyester generic fiber category.

2. PTT fiber, while having the general chemical composition of polyester, has distinctive properties of importance to the general public as a result of its unique chemistry, molecular design, and fiber structure. These properties are durability, resilience, softness, and stretch with recovery.

PTT fiber's distinctive features of durability, resilience, softness, and stretch with recovery make PTT fiber suitable for uses which conventional polyester (PET) is significantly less well suited. These features are as follows:

a) Carpet applications: Durability and softness.
b) Apparel applications: Softness and stretch with recovery.

Fiber Attributes Of Importance In Markets Where PTT Fiber Is Used

An important issue in an application for a generic subclass is the requirement that the distinctive features of any new polymer or fiber be important to the general public, and that such features make the fiber suitable for uses for which other fibers which fall under the established generic name are not suited, or would be significantly less well suited.

Since the distinctive features of a fiber may differ from application to application, it is useful to first discuss the two fiber markets where fibers made from PTT are used so that the properties of PTT can be compared to the properties of the other polyester that is used for fiber applications. These markets are apparel and residential carpet. In these markets, the form of polyester that is most widely used is poly(ethylene terephthalate) ("PET"). Accordingly, Petitioners will provide data comparing the chemistry and crystalline structure of PTT to PET and the performance of fibers made from these polymers in carpet and apparel applications.[5]

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[4] These factors were identified as follows by the Commission in its Notice of Proposed Rulemaking of February 15, 2002 appearing at 67 FR 7104:
"Thus, a new generic fiber subclass may be appropriate in cases where the proposed subclass fiber: (1) Has the same general chemical composition as an established generic fiber category; (2) has distinctive properties of importance to the general public as a result of a new method of manufacture or substantially differentiated physical characteristics, such as fiber structure; and (3) the distinctive feature(s) make the fiber suitable for uses for which other fibers under the established generic name would not be suited, or would be significantly less well suited."

[5] In addition, Petitioners will provide data comparing the performance of PTT in carpet applications to the performance of nylon carpet because nylon currently has the largest market share in residential carpet. Accordingly, the properties of nylon fibers are a useful reference to define those features of PTT carpet fibers that are of importance to the general public.

Residential Carpet

Prior to the launch of residential carpet made from PTT by Mohawk Industries, Inc. and Shaw Industries, Inc. (the two largest United States suppliers of carpet for the residential market), the four principal types of man-made fiber used to manufacture carpet were nylon, PET polyester, and polypropylene. Of these three materials, nylon carpet offered the broadest range of attributes most highly valued by consumers. As a result, for comparable carpet constructions, nylon carpet has commanded the highest price. Carpet made from PET has been less highly regarded because PET fiber lacks the durability and resilience of nylon and because, compared to many recent nylon carpet constructions, PET fibers were less flexible and not as soft as some nylon constructions.

With the launch of carpet based on PTT, consumers have a choice of a fiber that has stain resistance properties superior to nylon, together with durability, resilience and softness that matches the highest quality constructions of nylon residential carpet.

In a 2004 study of consumer purchasing preferences[6], 1600 consumers between 25 and 64 years of age who shopped for carpet in the past were asked questions pertaining to carpet fiber performance and preferences. A list of those carpet attributes that relate to fiber performance and the percentages of consumers who rated the attribute as very important is in Table 1 below. The attributes where PTT fiber has a significant performance advantage in residential applications over PET fiber because of its physical and chemical properties are highlighted in bold italics.

Table 1: Consumer preferences in carpets

Attribute	Percentage Rating Attribute As Very Important
Common spills and pet accidents can be removed easily even after they have dried	69%
The carpet will stand up to years of foot traffic without matting down	***67%***
Dirt and soil can be removed easily from the carpet with regular vacuuming	66%
Areas where spills have been cleaned will not be visible	64%
Stain resistant properties will not diminish over the life of the carpet	63%
Soil resistance properties will not diminish over the life of the carpet	61%

[6] Data taken from a August 23, 2004 study titled Carpet Fiber Performance and Preferences prepared for Mohawk Industries by the Brandware Group.

The pile of the carpet stays tight and will stand up like new after normal vacuuming	***58%***
The color of the carpet will stay the same year after year and never fade, even in direct sunlight	56%
Heavy soil and most stains can be removed from the carpet with just plain water	53%
The carpet pile will not shed or fuzz	53%
The carpet is soft and comfortable to sit on or lie on	***49%***
The carpet can be professionally cleaned as often as you want	36%
The carpet never shows tracks from footprints or vacuuming	27%
The carpet will never produce static shock, even if you walk on it in wool socks	24%

Apparel

There are many man-made fibers used in the apparel industry, and the supply chain is far more complex than in the carpet industry. However, it is still possible to obtain market requirements information thru a carefully designed "voice of customer" process by interviewing fabric buyers and brand managers in the apparel industry. These steps in the supply chain determine what fabrics are made into garments for the consumer public. Fabric buyers and brand managers understand the downstream requirements and must match that demand to the supply of fabrics and in turn what polymers and fibers are used in those fabrics.

In order to understand these preferences, DuPont conducted a survey[7] of downstream participants in the supply chain to determine preferences in the apparel supply chain where differences in fabric fiber content were important and discernable. Table 2 lists the companies that were surveyed in the countries which are the major sources of fabrics made from man-made fibers. The purpose of the survey was to determine the attributes of fabrics that are of greatest importance to consumers.

[7] This study was conducted by DuPont employees in the first and second quarter of 2004.

Table 2: Apparel fabric preferences survey participants

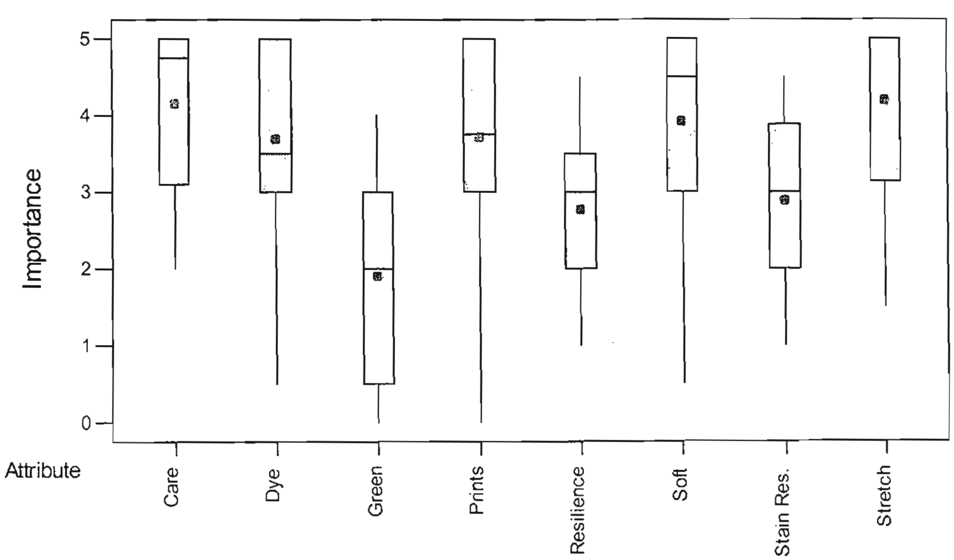
Country	Fabric Producer or Purchaser
Korea	Li & Fung, C&A/Mondial, Sears, SAE-A Trading Company, Mastex, Liz Claiborne, Mast Industries
Taiwan	Esquel, Levi, TAL, Adidas, Li & Fung, Nike, Puma, Eddie Bauer
China	Burringtex, Liz Claiborne, Federated, May Co., Mast, Newtimes Jones (Jones New York)

Survey participants were asked to rate the following attributes on a scale of 0 to 5. The results are shown in Figure 1 with the mean denoted by the small square and the range denoted by the box. The average of the responses is the horizontal line.

1. Stretch
2. Softness (also referred to as "Drape")
3. Easy Dye
4. Easy Care
5. Made from renewable resources
6. Stain resistance
7. Resilience
8. Printability

From this list of eight attributes, the three which had the greatest importance were easy care, softness (hand or drape), and stretch with recovery. PTT fiber is superior to PET fiber with respect to two of these three attributes: softness and stretch with recovery.

Figure 1: Fabric survey results



Discussion of Factors Needed For The Designation Of A New Generic Subclass For Fibers Spun From PTT Polymer

Section 1. PTT polymer and fibers spun from PTT have the same general chemical composition as the FTC's established polyester generic fiber category.

Rule 7(c) defines "polyester" as "[a] manufactured fiber in which the fiber-forming substance is any long chain synthetic polymer composed of at least 85% by weight of an ester of a substituted aromatic carboxylic acid, including but not restricted to substituted terephthalate units, [formula omitted] and para substituted hydroxy-benzoate units, [formula omitted]." 16 CFR 303.7(c).

PTT polymer is made by reacting (a) dimethyl terephthalate (DMT) or terephthalic acid (TPA), both of which are substituted aromatic carboxylic compounds, and (b) 1,3-propanediol (PDO) to form a long chain synthetic polymer consisting of more than 85% of substituted terephthalate esters. Accordingly, fiber made from PTT polymer has the same chemical composition as is described by Rule 7(c).

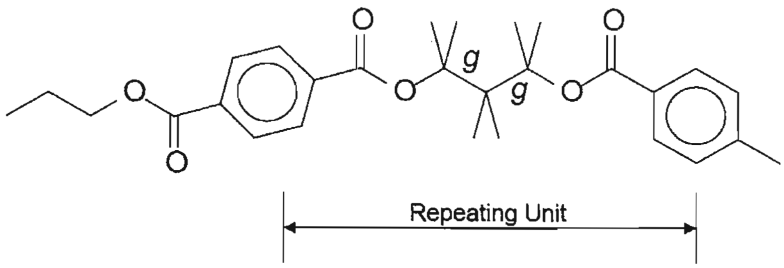
Section 2. PTT fiber, while having a chemical composition which causes it to fall within the definition provided for polyester set forth in 16 CFR 303.7(c), has distinctive properties of importance to the general public as a result of its unique chemistry, molecular design, and fiber structure.

The generic class of aromatic polyesters today consists of several different chemical formulations including poly(ethylene terephthalate) (PET) and PTT. The type of polyester that is familiar to consumers because of its use in carpet and apparel applications is PET. However, the molecular differences between PET and PTT are quite profound, and result in significantly different physical properties of fibers. These properties are (a) durability/resilience for carpet applications, (b) softness for both consumer carpet and apparel applications, and (c) stretch and recovery for apparel applications.

a) **Durability/Resilience**

Fiber durability, which in carpet applications is measured by the resiliency of the fiber and its ability to recover from compression, is together with stain resistance the most important property that consumers look to when selecting a residential carpet as shown in the consumer survey results set forth above. This property is inherently better in fibers made from PTT vs. PET because of PTT's chemistry and molecular design. PET and PTT crystallize into triclinic unit cells during fiber formation. However, the glycol portion of their chemical chains crystallizes into different conformations. The two methylene units in the glycol portion of PET are arranged *trans* to each other, whereas the three methylene units in PTT are arranged in a *gauche-gauche* conformation as shown in Figure 2 below:

Figure 2. PTT molecule showing *gauche-gauche* Conformation *(ref. 1)*



Because of the methylene diol's conformations, PTT chains are contracted by 24.7% while the PET chain is fully extended. Also the benzene ring of the terephthalic ester groups of PET are oriented parallel to each other in every chemical repeating unit. However, the orientation of PTT's benzene ring in the successive terephthalic ester units is at an angle to each other), thus PTT molecular chain forms a 2/1 helix, which is made up of two repeating units per turn which introduces a zigzag shape to the polymer chain. This difference is illustrated in Figure 3 which compares the molecular structures of PET and PTT. As a result of this structure, compressive forces translate at the molecular level to bending and twisting of bonds, rather than just stretching. The molecular structure of PTT is more like a coil spring compared to a straight wire structure in the case of PET polyester.[8] Therefore, PTT fiber can take an additional level of applied strain and recover completely.

[8] This property of PTT polymer has also been confirmed through study of x-ray diffraction patterns which occur when fibers of PTT are subjected to stress. See Crystal Deformation in Aromatic Polyester, Journal of Polymer Science, Vol. 13, 799-813 (1975) ref 2.

Figure 3: Structural differences between PET and PTT *(ref 3)*

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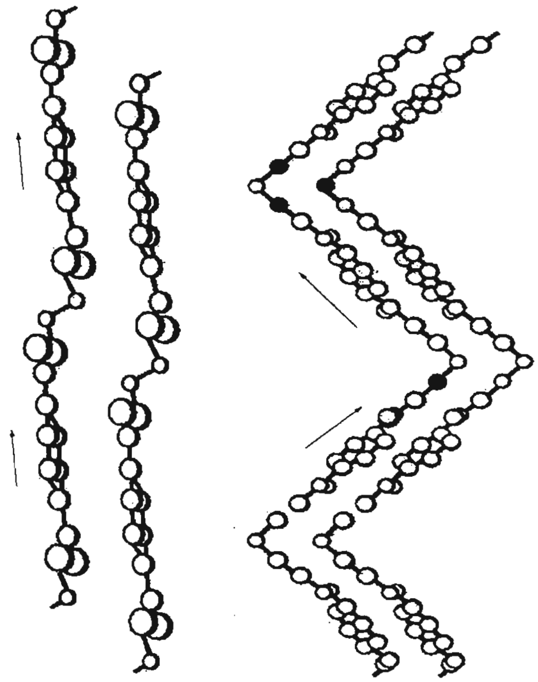


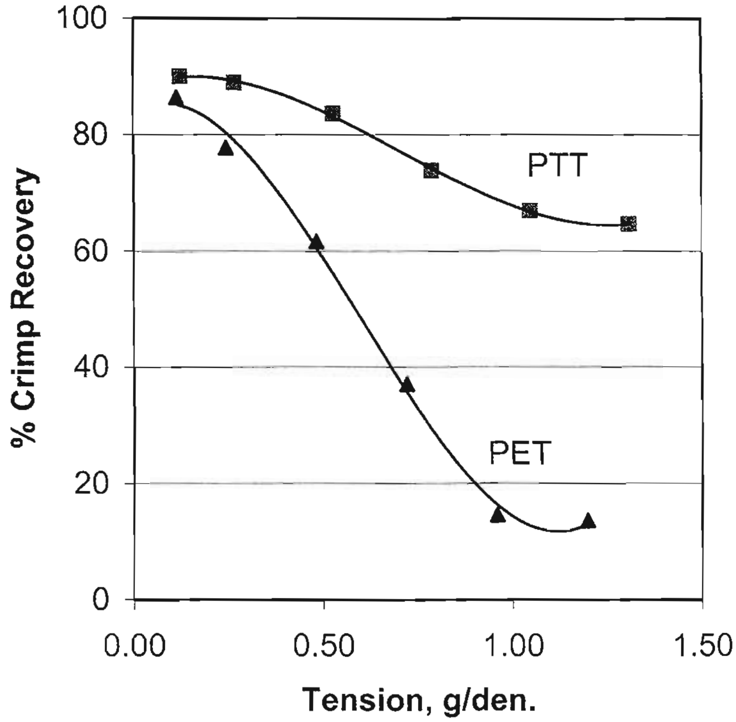
(a) (b)

Arrangement of PET (a) and PTT (b) crystalline molecular chains. Arrow indicates the alignment direction of the benzene ring.

Accordingly, when a PET fiber is subjected to compression forces in carpet applications (e.g., when carpet is walked on or subjected to carpet industry tests that simulate foot traffic), the molecular chain structure of PET changes and develops a larger permanent set or crystal deformation which is not completely recoverable. This causes consumer carpet made from PET polyester to develop a crushed appearance where the carpet fibers do not continue to stand up as they did when the PET carpet was new.

In the case of PTT, compression forces in carpet applications cause the molecular chain structure to deform. However, the crystalline structure is able to recover without developing a permanent set. The carpet fibers continue to stand up and appear new for a significantly longer period of time. The basis for this performance difference is the molecular structure of the two polymers, extended to larger physical properties differences such as crimp retention as shown in Figure 4 below:

Figure 4: **Crimp recovery of PET and PTT BCF yarns** ***(Shell internal study)***



b) **Softness**

Softness is important to the consumer for both carpet and apparel applications. Consumers judge the softness of a residential carpet by touching or walking on the upright twisted fibers or yarns. The ease with which the yarns bend over is a measure of softness. Consumers judge the softness of a fabric by assessing its hand or drape (the ease with which conforms to the shape of the body). The degree of softness in both cases is proportional to the amount of force required to bend the fiber. The laboratory measurement of the amount of force required to bend a fiber is know as fiber modulus, which can also ascertain the relative softness of the resulting fabric or article.

The lower modulus of PTT fibers over PET fibers is explained on a molecular level by the lower crystalline modulus of PTT. The odd number of carbon atoms in the tri-methylene constituent of PTT results in different chain conformations for PTT as compared to PET. PTT conformation is more helical or spring like, whereas PET is straighter like a wire. Naturally, more force is needed to deform a straight wire while very little force is required to deform a coil spring to the same extent, therefore, PTT with coil spring structure has a very low crystal modulus, 2.5 GPa vs. 107 GPa ***(ref 5)*** for PTT and PET crystals, respectively. As a result, the crystals of PTT are relatively weaker and easier to bend compared to PET, and the fiber made from this polymer has lower modulus.

Evidence of this different crystalline modulus caused by molecular structure differences is apparent also in the higher glass transition temperatures (Tg) and crystalline melting temperatures (Tm) of PET vs. PTT. These higher temperatures generally correspond to stiffer molecular structures. See Table 3 below:

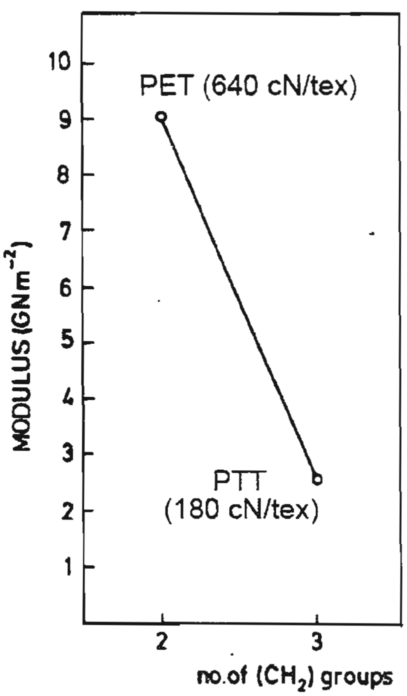
Table 3: Differences in physical properties of PTT and PET ***(ref. 4)***

Physical properties of PTT vs. PET

	PTT	PET
Tm (°C)	228	255
Tg (° C)	50	75

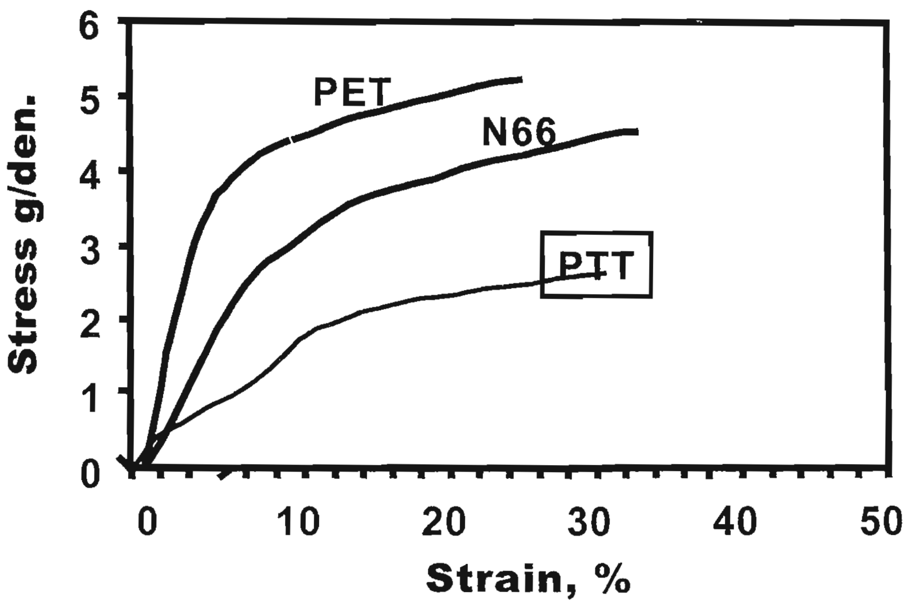
Young's modulus is yet another measure of the relative hardness of a material, and from the data in Figure 5 it is readily apparent that PTT has far lower modulus than PET.

Figure 5. Young's modulus of PET and PTT fibers ***(ref 5)***



Finally, Figure 6 shows a stress (force) vs. strain (fiber deformation) comparison of fibers made from PET, nylon 66, and PTT. This graph shows that the properties of PTT polymer result in fibers of PTT which have lower modulus than fibers made from either PET or nylon 66.

<u>Figure 6.</u> **Modulus of PET and PTT Fibers vs. Nylon 6,6** ***(ref 5)***

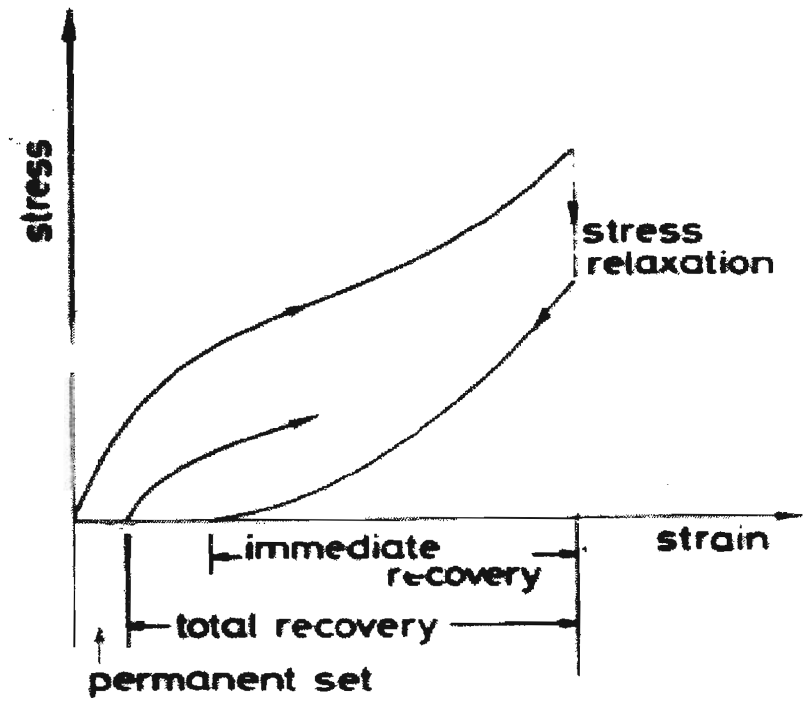


As a result of the lower modulus of the PTT fibers, carpets made from PTT fibers are perceived to be softer, and apparel fabrics made from PTT fibers have greater softness and superior "hand".

(c) **Stretch with Recovery**
Stretch and recovery of fiber is important in apparel applications in order to improve the comfort of garments and increase their ability to retain their shape and appearance.

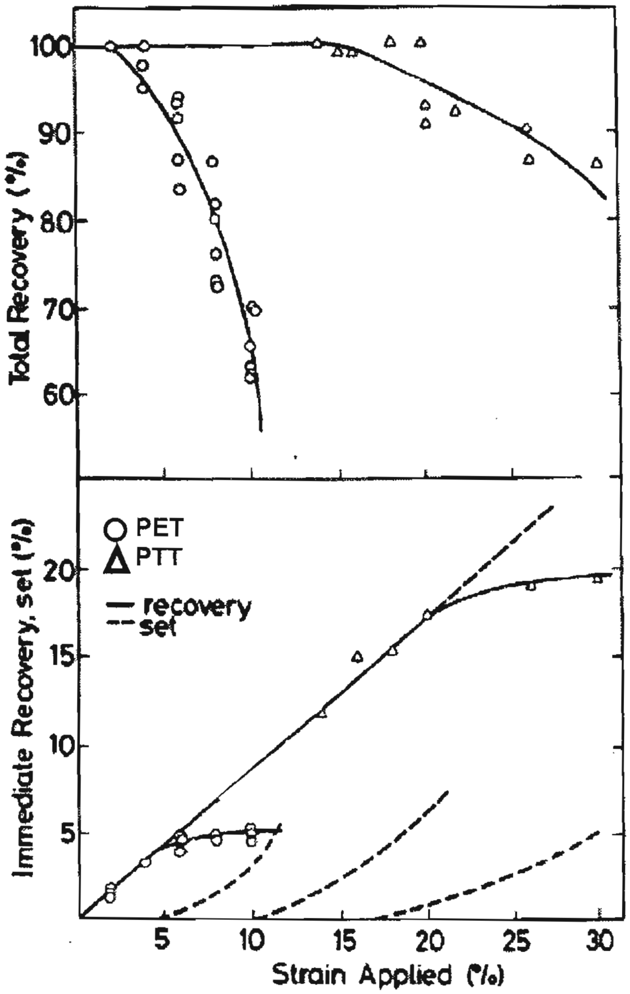
Elastic recovery is measured by first extending the fiber in a tensile tester to a given strain (percent of extension) and then holding the fiber at that position for a given time, after which time the strain is completely released. After a fixed period of relaxation time, the fiber is re-extended and released to measure its recovery again. The difference between these two extensions and recoveries represents the immediate recoverability of the fiber and the permanent set. More elastic fibers recover immediately with lower permanent set. The terms are further defined in Figure 7.

Figure 7. **Elastic extension and recovery terminology** ***(ref 5)***



As shown in Section 2(a) above, the crystalline region of the PET polymer will absorb only a limited amount of strain. Strain beyond that point will cause the fiber to deform irreversibly. In the case of PTT, the strain is absorbed by the crystal structure uncoiling like a spring. When the strain is released, the crystalline structure recovers. This difference is shown in Figure 8 which compares the stretch and recovery performance of PET and PTT fibers. The data indicates that PTT fiber can be stretched with total recovery more than five times the stretch after which PET fails to recover.

<u>Figure 8.</u> **Stretch with recovery of PET and PTT fibers** ***(ref 5)***



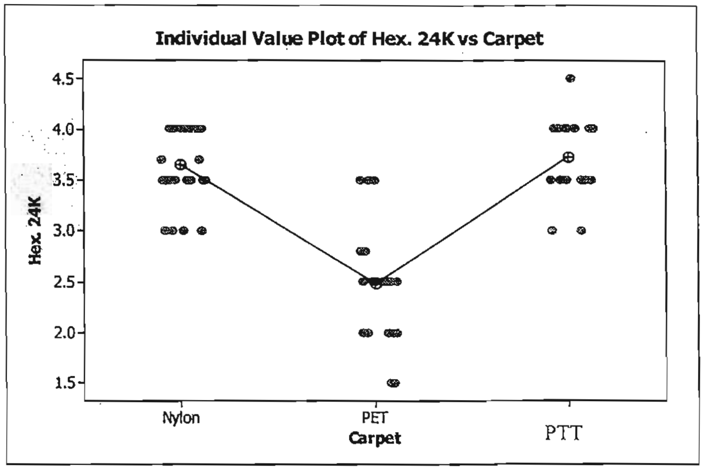
Section 3. The properties of fibers made from PTT described in Section 2 above cause PTT fibers to be suitable for carpet and apparel applications for which other fibers marketed under the established generic name polyester would be significantly less well suited.

As discussed above, the attributes of durability/resilience and softness are of greater importance to consumers when purchasing residential carpet. For apparel applications, softness and stretch with recovery are among the most important attributes of any fabric. The test results set forth below illustrate the improved performance of PTT fibers over PET fibers with respect to these attributes. Each test is preceded by a description of the protocol, and the identity of the company performing the test.

a) **Durability/Resilience**

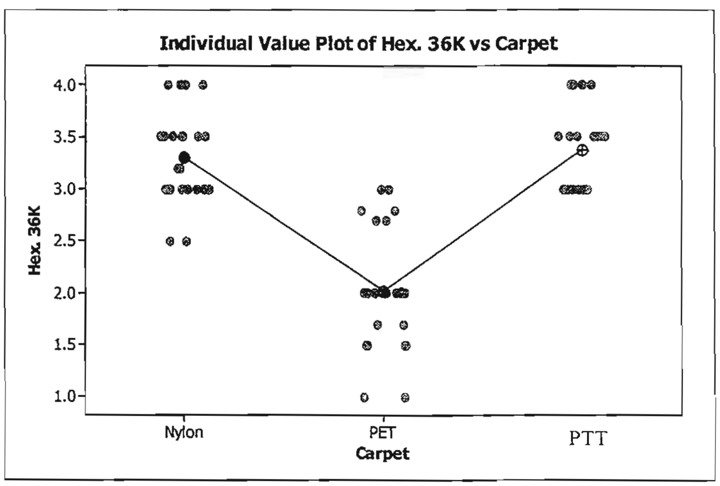
Carpet durability and resilience can be measured by a number of standard tests. For example, there are simple floor walking tests, where a sample of carpet is placed in a high traffic location and the number of walkers is simply counted using an electric eye trigger. Another

Figure 10: ***Hexapod Wear Test (24K Cycles)***



After 24K cycles, there continue to be statistically significant differences between PET, and both PTT and nylon. PTT's performance continues to be like nylon. The differences between PTT and nylon are not statistically significant.

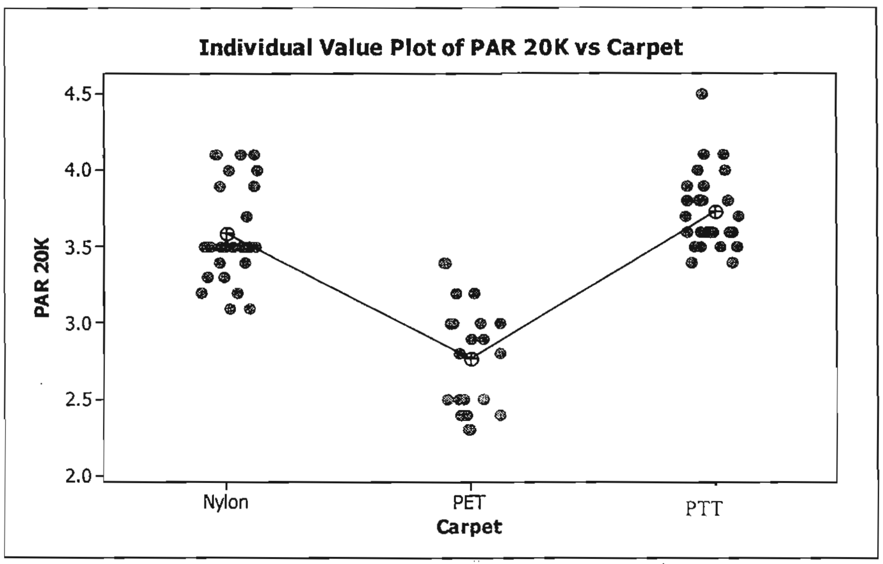
Figure 11: ***Hexapod Wear Test (36K Cycles)***



After 36K cycles, statistically significant differences continue between PET, and both PTT and nylon. PTT's performance remains like nylon. The differences between PTT and nylon are not statistically significant.

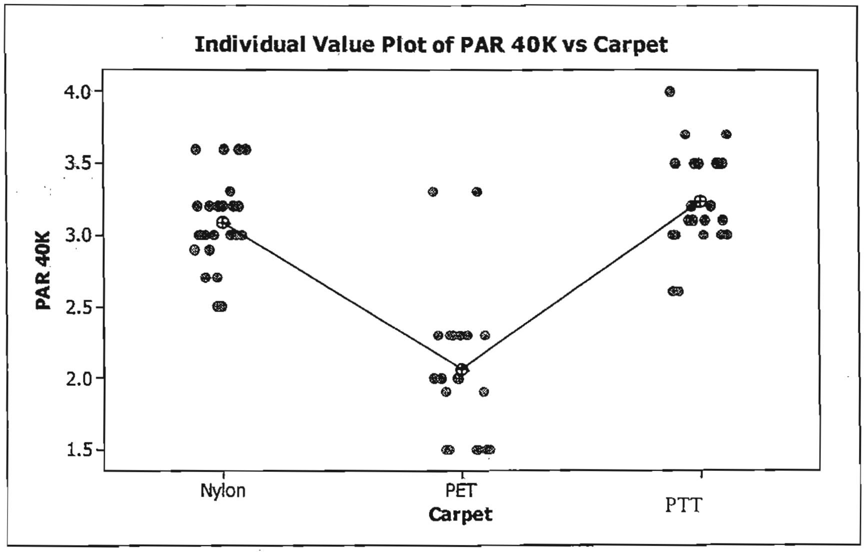
While hexapod test data simulates wear through a mechanical device, PTT's advantages over PET are equally apparent when carpet is walked on by human subjects. The standard human traffic test used by the carpet industry is known as the Kruskal-Wallis Test. The performance of nylon, PET, and PTT carpet in this test is compared by measuring the appearance of carpet after a certain numbers of cycles (human footsteps on carpet). Results of this test conducted at an industry certified testing lab operated by Mohawk at Lyerly, Georgia after 20 thousand, 40 thousand and 60 thousand cycles are set forth below in Figures 12, 13, and 14. Consistent with the results from the hexapod test, the performance of PTT carpet was much better than the performance of PET carpet and was comparable to the performance of nylon carpet.

Figure 12: ***Performance Appearance Rating (20K Cycles)***



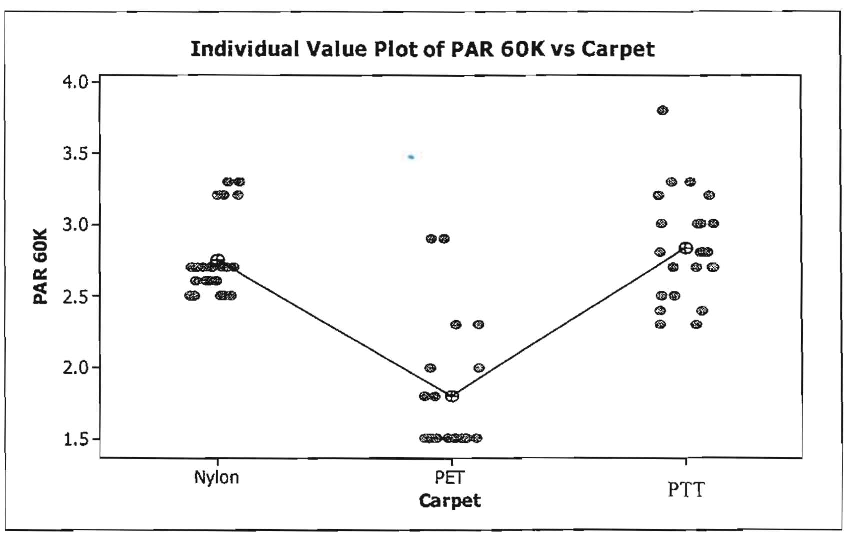
There are statistically significant differences between PET, and both PTT and nylon. In other words, PTT's performance in this test is like nylon, rather than polyester. The differences between PTT and nylon are not statistically significant.

<u>Figure 13:</u> ***Performance Appearance Rating (40K Cycles)***



After 40K cycles, there are also statistically significant differences between PET, and both PTT and nylon. Again, PTT's performance in this test is like nylon, rather than polyester. The difference between PTT and nylon are not statistically significant.

<u>Figure 14:</u> ***Performance Appearance Rating (60K Cycles)***



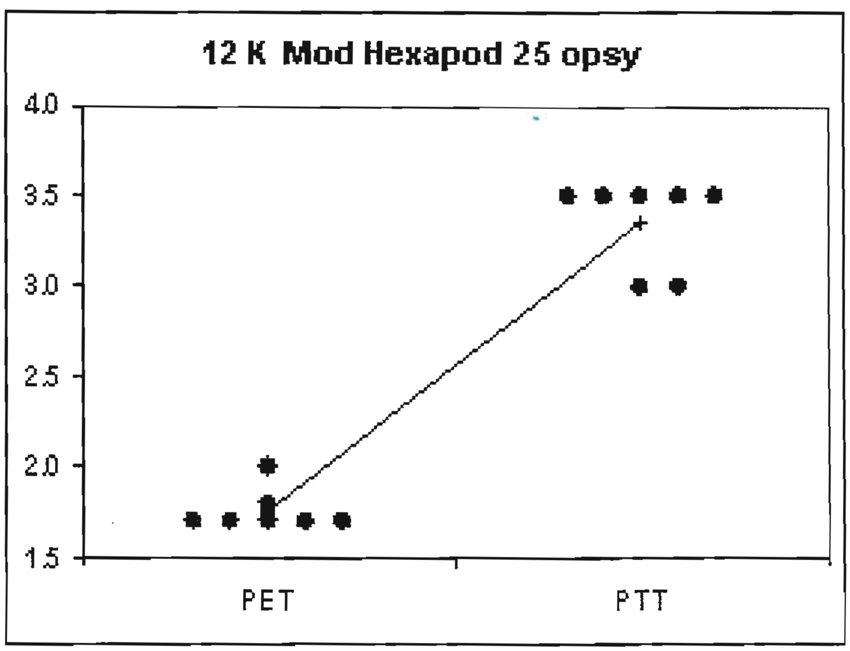
After 60K cycles, there are also statistically significant differences between PET, and both nylon and PTT. PTT's performance continues to be like nylon, rather than polyester. The differences between PTT and nylon are not statistically significant.

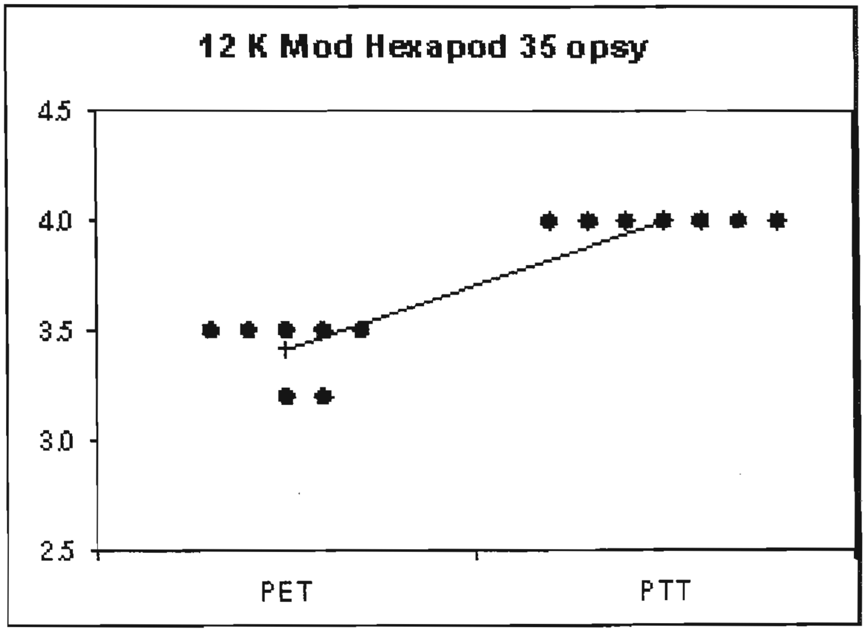
The data in Figure 15 is provided as additional confirmation of the superior durability and resiliency of even low denier per filament (dpf), soft PTT fiber as compared to identical PET fiber. Shell Chemical LP, acting under contract as the marketing and technical service provider to PTT Canada, arranged to have identical PTT and PET carpets made and tested. The bulked continuous filament (BCF) yarns were made on a commercial extruder at CAF Extrusion, Inc. in Calhoun, Georgia. The same spinneret with 120 holes was used for both yarns resulting in 12 dpf PTT and PET yarns. These yarns were then each twisted at 5 turns-per-inch (TPI), Superba heat-set, and converted into carpet. Durability and resiliency testing was conducted at the certified laboratory of Independent Textile Testing Service, Inc. (ITTS) in Dalton, Georgia. The carpet specifications are shown in Table 4 below; each point is the average of three 'raters'.

Table 4: Head-to-head comparison of PTT vs PET carpets

Carpet Construction Details	25-ounce per square yard		35-ounce per square yard	
	PTT	PET	PTT	PET
Gauge	5/32	5/32	3/16	3/16
Pile Height (inches)	13/32	13/32	3/4	3/4
Stitches per Inch (SPI)	10	10	10	10
Wear Performance				
20 K Cycle Walk Test	3.5	2.7	3.9	3.0
12 K Cycle Hexapod	3.4	1.8	4.0	3.2

Figure 16: Hexapod Wear Test – 25 & 35-Oz Per SqYd (opsy) carpet, 12K cycles

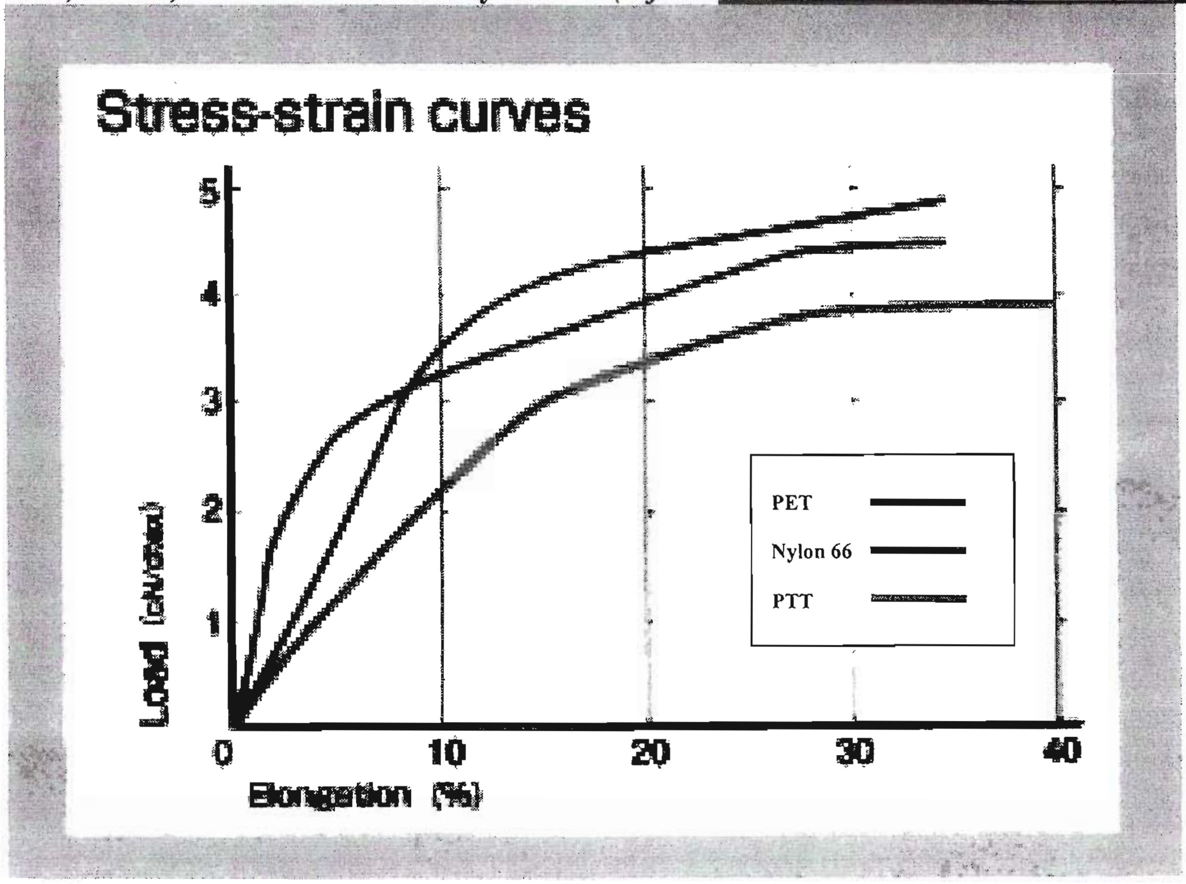


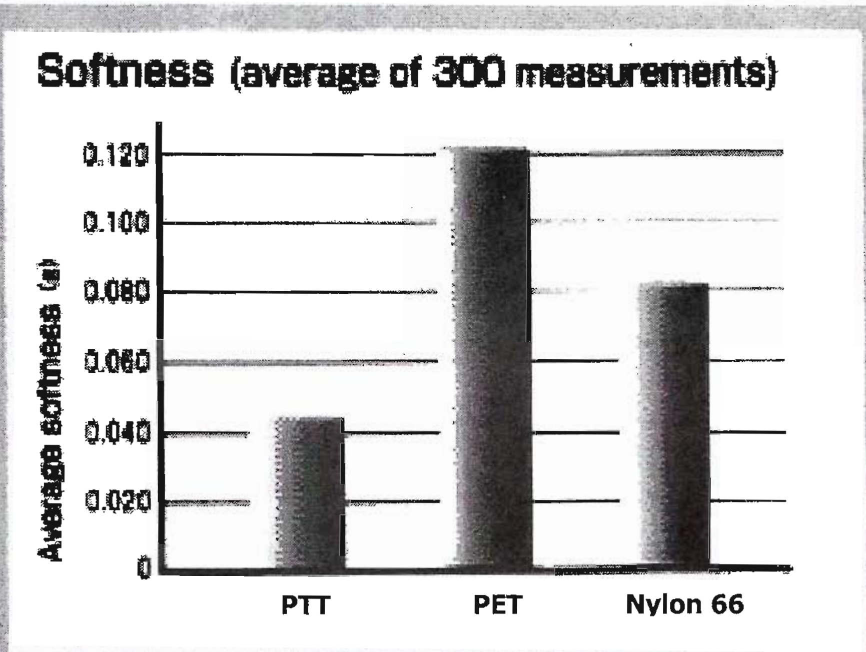


b) **Softness**

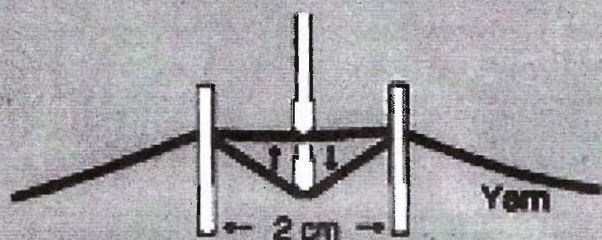
Softness is an aesthetic that is valued particularly for apparel fabrics, where skin contact is prevalent. Softness in carpet, on the other hand, is not associated with direct skin contact. In both cases, softness is impacted by the ease in which yarns can bend. While fabric and carpet construction differences can vary widely, articles constructed similarly from different fibers or yarns have softness values that reflect the differences in their constituent polymers. A very useful measure of this difference in yarn softness is the force or stress required to deflect or strain the fiber a given distance. Therefore the stress vs. strain curves for fibers made from different polymers correlates well with expected fabric softness aesthetics. Figure 16 represents the stress vs. strain performance of PET and PTT fibers as compared to nylon 66 using 56 dtex yarns, and a comparison of the force to deflect these yarns a given distance as a measure of relative softness.

Figure 16: Stress vs. Strain and Softness measurements (cn/dtex and gms force) of PET, N6,6 and PTT yarns *(ref http://www.solotex.co.jp/en/soft.html)*





Samples : 56 dtex.



Yarns are emplaced between clamps 2 cm apart and depressed a given distance. As a measure of softness, force required for deflection is measured.

c) **Stretch with recovery**

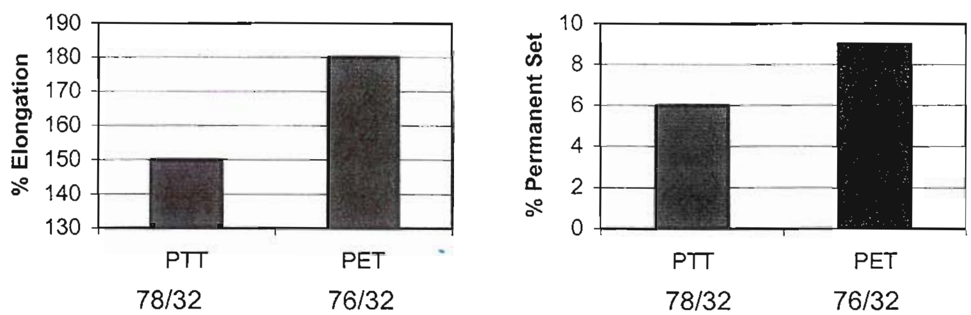
The superior stretch and recovery properties of fabrics knitted or woven from PTT compared to fabrics made with PET is demonstrated by the following tests conducted for PTT Canada by Shell Chemical:

Knitted Fabrics

Knitted fabrics with identical constructions made from draw-textured PET and PTT yarns were dyed and heat-set according to widely used industry protocols. 76/32 PET yarns were compared to 78/32 PTT yarns. The PTT was disperse dyed at atmospheric boil and finished at 150°C while the PET fabric was dyed at 130°C and finished at 180°C. The two knitted fabrics were also softened with equal amount of silicone softener.

Figure 17 (a) shows the % fabric elongation at 10 N force and Figure 17 (b) show the % permanent deformation after one cycle loading. Even though the PET fabric has slightly higher elongation characteristics (an artifact of the fabric construction as explained below) the PTT fabric has better recover and thus lower set than the PET fabric.

Figure 17: (a) % Elongation performance for fabrics @ 10 N force; (b) % Permanent set for fabrics after elongation @ 10 N force ***(ref 6)***

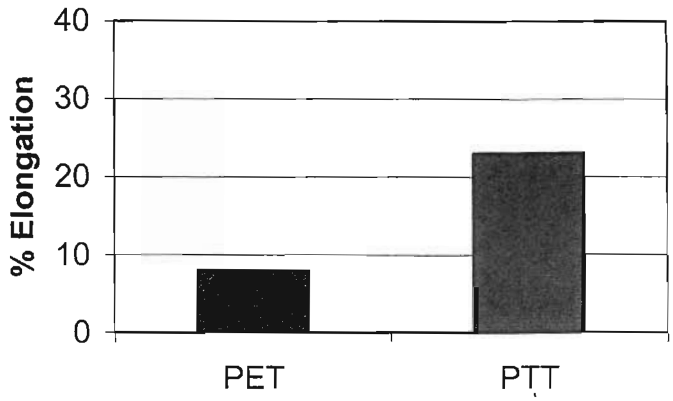


Woven Fabrics

The PET and PTT yarns used for comparing woven fabrics were 72/36 and 78/22 respectively. The number of picks/cm used for the PTT fabric was 40 while only 31 picks/cm were used for the PET fabric, which explains the slightly higher elongation. Both fabrics were woven with a 2/1 construction. Since commercial PET draw-textured yarns were used in the woven fabrics evaluation, there were some differences in the yarn counts, which must be taken into account when comparing the stretch and recovery of the fabrics.

Figure 18 shows the % stretch of the three fabrics in the weft direction with 10 N load, and the permanent set after one cycle loading. The PTT woven fabric has high stretch of 22.5 compared to the 8% stretch of the PET fabric. Both fabrics have <5% permanent set after one cycle loading.

Figure 19: **% Elongation in the weft direction of PES and PTT woven fabrics *(ref 6)***



Other Information Relevant To This Petition

Subclass Definition

Applicants propose the following definition for a new subclass of polyester at 16 C.F.R. 303.7(c):

> "[a] manufactured fiber in which the fiber-forming substance is any long chain synthetic polymer composed of at least 85% by weight of an ester of a substituted aromatic carboxylic acid, including but not restricted to substituted terephthalate units, [formula omitted] and para substituted hydroxy-benzoate units, [formula omitted] and where specifically the glycol used to form the ester consists of at least ninety mole percent 1,3-propanediol."

This definition is appropriate because if a polymer manufacturer uses the above proportions of starting materials, the resultant polymer will exhibit a molecular or crystalline structure that will permit fiber extruded from such polymer to exhibit the properties described in this petition.

Extent of Commercialization of PTT Fibers

PTT has been commercialized by E. I. du Pont de Nemours and Company and PTT Canada. Carpet fiber spun from PTT has been commercialized by Mohawk Industries (including Lees Carpets), Shaw Industries and CAF Extrusions. Apparel fibers spun from PTT have been commercialized by the following firms mills grouped according to apparel type:

PTT apparel fiber mills grouped by apparel type
• ***Swimwear*** **O-Sung, Houndey, Haitian** • ***Active Sportswear*** **Everest, Favis, Yon-Il K, FETL, Shanghai Challenge** • ***Casual Shirts and Pants*** **Akore, Huvis, Visionland, Chia Her, Wujiang Jili** • ***Casual Shirts*** **O-Sung, Samil** • ***Jackets and Pants*** **Saehan, Ulhwa** • ***Ready to Wear*** **New Wide, True Way, Haitian, Fountain Set** • ***Luggage/Backpacks*** **Rueyhwa, Tay Shin**

Suggested Names For A New Subclass of Polyester Fiber Than May Be Used With Respect To Fibers Spun From PTT

As indicated above, Petitioners propose in order of preference:

1. triexta; 2. resisoft; and 3. durares.

as possible generic names for a new subclass of PTT fibers.

Petitioners have done word searches for each of these proposed generic subclass names and have found no confusingly similar use of these names by any other company either as a trademark or product name.

Petitioners suggest PTT as a temporary designation.

Recycling Properties

Recycling of man-made fibers, while of secondary importance for consumers in the United States at this time, will assume increasing importance as consumers increasingly adopt preferences for sustainable products. To the extent that PET and PTT are included in the same pool of polymer to be recycled because they are currently both classified as polyester, mixing of the two types of polyester could have adverse effects on the properties of the recycled polymer (melt temperature and tenacity) and will require different safe handling procedures during processing. For this reason, the use of a different generic that would facilitate the separation of the polymers during recyling is an important consideration.

Figure 20: impact of mixing waste PET and PTT on melting temperature of the polymer ***(ref7)***

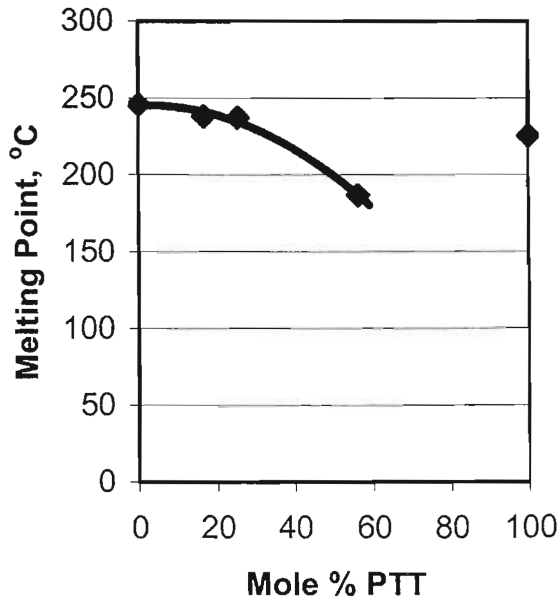
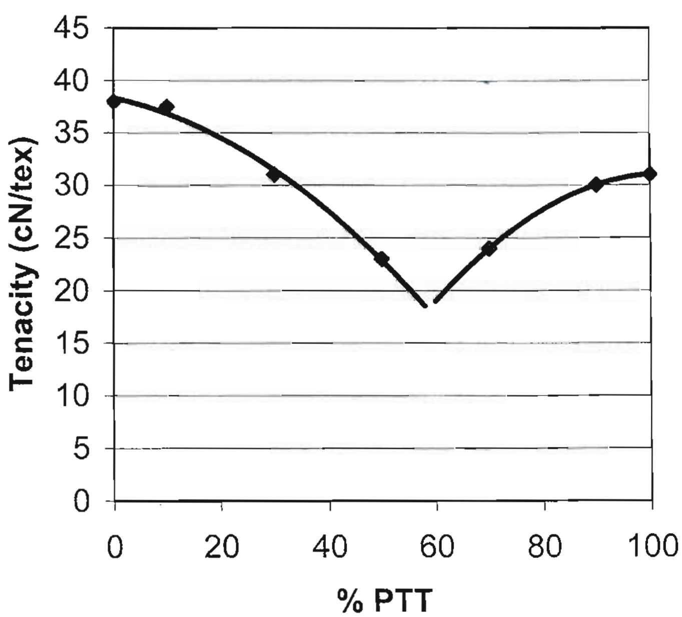


Figure 21: tenacity of PET fibers melt blended with PTT*(ref8)*



Finally, the major byproduct produced during the processing of PET is acetaldehyde. The major byproduct produced during the processing of PTT is acrolein. These gases have different properties and quite different OSHA 8 hour personal exposure limits and short-term exposure limits. Since firms involved in recycling articles made from PET vs. PTT should be aware of these differences, a new generic name for PTT is appropriate.

Questions regarding this petition may be addressed to:

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By ______________________

PTT Poly Canada

By ______________________

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By ______________________

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Appendix A: Carpets used for performance tests

wt. oz/yd^2	gauge	denier	dpf	polymer	ply twist	tpi	Stain Blocker
35	3/16	1480	18	PTT	1 x 1	5.5	No
45	3/16	1480	18	PTT	1 x 1	5.5	No
55	3/16	1480	18	PTT	1 x 1	5.5	No
50	1/8	1480	18	PTT	1 x 1	5.5	No
40	1/8	1480	18	PTT	1 x 1	5.5	No
60	1/8	1480	18	PTT	1 x 1	5.5	No
32	3/16	1480	18	PTT	1 x 1	5.5	No
42	3/16	1480	18	PTT	1 x 1	5.5	No
52	3/16	1480	18	PTT	1 x 1	5.5	No
42	3/16	1480	18	PTT	1 x 1	5.5	No
32	3/16	1480	18	PTT	1 x 1	5.5	No
52	3/16	1480	18	PTT	1 x 1	5.5	No
32	3/16	1480	18	PTT	1 x 1	5.5	No
35	3/16	995	12	Nylon	2 x 2	6.5 x 1	Yes
40	3/16	995	12	Nylon	2 x 2	6.5 x 1	Yes
50	3/16	995	12	Nylon	2 x 2	6.5 x 1	Yes
35	3/16	995	12	Nylon	2 x 2	6.5 x 1	Yes
52	3/16	995	12	Nylon	2 x 2	6.5 x 1	Yes
38	3/16	995	12	Nylon	2 x 2	6.5 x 1	Yes
35	3/16	995	12	Nylon	2 x 2	6.5 x 1	Yes
38	3/16	995	12	Nylon	2 x 2	6.5 x 1	Yes
35	3/16	995	12	Nylon	2 x 2	6.5 x 1	Yes
55	1/10	1045	12	Nylon	1 x 1	6.5	Yes
46	1/8	1045	12	Nylon	1 x 1	5.25	Yes
35	1/8	1045	12	Nylon	1 x 1	5.5	Yes
65	1/10	1045	12	Nylon	1 x 1	6.5	Yes
46	5/32	1045	12	Nylon	1 x 1	6.5	Yes
34	3/16	1460	15	PET	1 x 1	5.5	No
40	3/16	1460	15	PET	1 x 1	5.5	No
51	3/16	1460	15	PET	1 x 1	5.5	No
51	3/16	1460	15	PET	1 x 1	5.5	No
40	3/16	1460	15	PET	1 x 1	5.5	No
32	3/16	1460	15	PET	1 x 1	5.5	No
40	3/16	1459	15	PET	1 x 1	5.5	No
52	1/8	3.0 cc	15	PET Staple	1 x 1	4.8 x 4.0	No
42	1/8	3.0 cc	15	PET Staple	1 x 1	4.8 x 4.0	No
35	3/16	3.15 cc	15	PET Staple	1 x 1	5.3 x 6.4	No
58	5/32	3.0 cc	15	PET Staple	1 x 1	4.8 x 4.0	No