CLAIMS

1. A fabric comprising;

a. a first fiber component is a thermoplastic hard yarn having 10% to 75% or 10% to 60% ultimate elongation measured according to ASTM D2256;

b. a second fiber component comprising a melt-spun thermoplastic polyurethane fiber having at least 300% ultimate elongation measured according to ASTM D2731;

wherein the first fiber component and the second fiber component together form the fabric and wherein the fabric is dyed at a temperature of at least 130°C.

2. The fabric of claim 1, wherein the melt-spun thermoplastic polyurethane fiber exhibits hysteresis after 5th load and un-load cycle of

(a) at 100% elongation has hysteresis of less than 30%

(b) at 150% elongation has hysteresis of less than 30%

(c) at 200% elongation has hysteresis of less than 30%

wherein hysteresis is measured according to per ASTM D2731.

~~2~~3. The fabric of claim 1 or 2, wherein the second fiber component is a melt-spun thermoplastic fiber comprising the reaction product of a polyol component, wherein the polyol component comprises a co-polymer diol derived from caprolactone monomer and poly(tetramethylene ether glycol); a hydroxyl terminated chain extender component; and a first diisocyanate component; and an isocyanate functional prepolymer cross-linking agent.

~~3~~4. The fabric of claim ~~2~~3, wherein the co-polymer diol comprises the reaction product of 50% by weight caprolactone monomer polyol and 50% by weight poly(tetramethylene ether glycol).

~~4~~5. The fabric of claim ~~2~~3 or ~~3~~4, wherein the melt-spun thermoplastic polyurethane fiber has a weight average molecular weight measured by gas permeation chromatography of 300,000 to 450,000.

56. The fabric of any of claims 2 to 4claim 3, wherein the first diisocyanate component comprises or consists of an aromatic diisocyanate.

6. The fabric of claim 5, wherein the first diisocyanate component comprises or consists of, optionally comprising 4,4'-diphenylmethane diisocyanate.

7. The fabric of any of claims 2 to 6claim 3, wherein the isocyanate functional prepolymer crosslinking agent comprises or consists of the reaction product of: (i) a poly(tetramethylene ether glycol) and a second diisocyanate component; or (ii) neopentyl glycol adipate and a second diisocyanate component.

8. The fabric of any of claims 2 to 6, wherein the isocyanate functional prepolymer crosslinking agent comprises or consists of the reaction product of neopentyl glycol adipate and a second diisocyanate component.

9. The fabric of claim 7 or 8, wherein the second diisocyanate component comprises an aromatic diisocyanate.

10. The fabric of claim 9, wherein the second diisocyanate component comprises or consists of, 4,4´-methylenebis(phenyl isocyanate).

),11. The fabric of claim 7 or 8, wherein the second diisocyanate component comprises an aliphatic diisocyanate.

12. The fabric of claim 11, wherein the second diisocyanate component comprises or consists of , or dicyclohexylmethane-4,4´-diisocyanate.

139. The fabric of any of claimsclaim 1 to 12, wherein the first fiber is selected from polyester fiber, nylon fiber, cotton fiber, wool fiber, acrylic fiber, polypropylene fiber, viscose-rayon fiber, or mixtures thereof.

1410. A process for preparing a dispersed dyed fabric, comprising the steps of:

(1) providing a fabric comprising (a) a first fiber component is a thermoplastic hard yarn having 10% to 75% or 10% to 60%-ultimate elongation measured according to ASTM D2256

and (b) a second fiber component comprising a melt-spun thermoplastic polyurethane fiber having at least 300% ultimate elongation measured according to ASTM D2731;

(2) dyeing the fabric at a temperature of at least 130°C using disperse dyeing conditions.

11. The process of claim 10, wherein the melt-spun thermoplastic polyurethane fiber exhibits hysteresis after 5th load and un-load cycle of

(a) at 100% elongation has hysteresis of less than 30%

(b) at 150% elongation has hysteresis of less than 30%

(c) at 200% elongation has hysteresis of less than 30%

wherein hysteresis is measured according to per ASTM D2731;.

~~(2) dyeing the fabric at a temperature of at least 130°C using disperse dyeing conditions.~~

~~15.~~12. The process of claim ~~14~~10 or 11, wherein the second fiber component is a melt-spun thermoplastic fiber comprising the reaction product of a polyol component, wherein the polyol component comprises a co-polymer diol derived from caprolactone monomer and poly(tetramethylene ether glycol); a hydroxyl terminated chain extender component; and a first diisocyanate component; and an isocyanate functional prepolymer cross-linking agent.

~~16~~13. The process of claim ~~15~~12, wherein the co-polymer diol comprises the reaction product of 50% by weight caprolactone monomer polyol and 50% by weight poly(tetramethylene ether glycol).

~~17~~14. The process of claim ~~14 to 16~~12 or 13, wherein the melt-spun thermoplastic polyurethane fiber has a weight average molecular weight measured by gas permeation chromatography of 300,000 to 450,000.

~~18~~15. The process of ~~any of claims 14 to 17~~claim 12, wherein the first diisocyanate component comprises ~~or consists of~~ an aromatic diisocyanate.

~~19~~16. The process of claim ~~18~~15, wherein the first diisocyanate component comprises ~~or consists of~~ 4,4'-diphenylmethane diisocyanate.

~~20~~17. The process of ~~any of claims 15 to 19~~claim 12, wherein the isocyanate functional prepolymer crosslinking agent comprises or consists of the reaction product of a poly(tetramethylene ether glycol) and a second diisocyanate component.

~~21~~18. The process of ~~any of claims 15 to 19~~claim 12, wherein the isocyanate functional prepolymer crosslinking agent comprises or consists of the reaction product of neopentyl glycol adipate and a second diisocyanate component.

~~22~~19. The process of claim ~~20~~17 or ~~21~~18, wherein the second diisocyanate component comprises an aromatic diisocyanate~~.~~

~~23. The process of claim 22, wherein the second diisocyanate component comprises or consists of,~~ 4,4´-methylenebis(phenyl isocyanate~~).~~

~~24. The process of claim 20 or 21, wherein the second diisocyanate component comprises~~), an aliphatic diisocyanate~~.~~

~~25. The process of claim 24, wherein the second diisocyanate component comprises or consists of~~ , or dicyclohexylmethane-4,4´-diisocyanate.

~~26~~20. The process of any of claims ~~14~~10 to ~~25~~24, wherein the first fiber is selected from polyester fiber, nylon fiber, cotton fiber, wool fiber, acrylic fiber, polypropylene fiber, viscose-rayon fiber, or mixtures thereof.