ASSIGNMENT ON

MILK FABRIC

Course Code: TE-204
Course Title: Fabric Manufacturing – I with Lab

Submitted To:
ABRAR AHMED APU
Asst. Professor
Department of TE
Daffodil International University

Submitted By:
YOUSUF ALI
ID: 103-23-2102
Section: B (L_2T_1)
Department of TE
Daffodil International University

Date of Submission: 21-NOV-2011

MILK FABRIC

ABSTRACT:

The milk fabric is new born fabric. The milk protein fabric moistens skin and it is healthy and bacteriostatic - it is the perfect material to produce underwear and socks, pants, long-sleeve T's and jackets also. The important ingredients of milk protein fiber are milk casein proteins, which can nourish and lubricate the skin. The milk protein contains the natural humectant factor, which can capture the moisture and maintain skin's moisture to make the skin tender and smooth and reduce wrinkles. Its cost is in our capability.

Introduction:

Milk churns into butter, yes. It curdles into cheese, OK. But milk made into socks? A pair of pants? A gown?

It's almost like nylon and a silk, but it is pure milk. I would like to discuss about the topics given below:

i. Main process of Milk Protein Fibre.
ii. Functional compare of milk protein fiber fabrics.
iii. Property comparison between milk protein fiber and other textile fiber.
iv. Milk Yarn.
v. Kinds and content of amino-acid in Cyarn milk protein fiber.
vi. Good moisture, Absorption and Conduction.
vii. Antibacterial.

Background:

We use usually cotton fabric, silk fabric and so on are since human civilization. The Milk Fabric is new born fabric. "It will get a change" it is the thought of the researcher. This fabric is luxurious, comfortable, healthy and fashionable. It will make a history in The Textile World. It may make thousands of people as jobholder and may remove our penurious.

History of Milk Fabric:

Milk fabric has been around since the 1930s but was always produced in unecological ways that used a lot of chemicals. Anke Domaske (28) a young fashion designer from the German city of Hanover has developed a fabric called QMilch made from high concentrations of the milk protein casein -- the first man-made fiber produced entirely without chemicals. "It feels like silk and it doesn't smell — you can wash it just like anything else," Domaske said. This news was published last October, 10th, 2011on a Germans' national and well-known news paper named—EYE WITNESS NEWS.

Types of Milk Fabrics:

Milk fabrics are classified according to its component. The classifications are given below with is components →

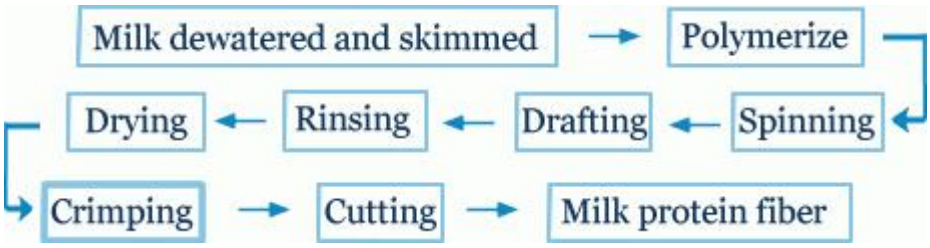



Component: milk10%/cashmere/tencel/wool	Component: milk50/bamboo20/spun silk20/cashmere10	Component: milk15/tencel/bamboo/nylon/ cashmere	Component: milk50/tencel50
Spc: 48Nm/2	Spc: 60Nm/2	Spc: 40Nm/2	Spc: 28Nm/2


Component: milk40/PTT30/tencel20 /cashmere10	Component: milk30/wool30/silk40	Component: milk35/cotton65	Component: milk40/PTT30/tencel20/cashmere10
Spc: 60Nm/3	Spc: 48Nm/2	Spc: 40Ne/1	Spc:60Nm/3

➢ Main process of milk protein fiber:

To make milk protein fiber, milk is first dewatered and skimmed, then by means of new bio-engineering technique, the protein spinning fluid suitable for a wet spinning process is manufactured, then finally the new high-grade textile fiber is made. It combines the advantages of natural fiber and synthetic fiber - the protein fiber is a kind of fresh fiber with healthy function. The process flowchart is given below--→



➢ Functional compare of milk protein fabric:

1). Permeability

Knit fabric	Milk protein fiber	Polypropylene fiber	Polyester	Polyamide	Acrylic	Silk
Permeability	1.78	0.64	0.775	0.645	0.98	1.215

2). Wet conduction

Knit fabric	Milk protein fiber	Polypropylene fiber	Polyester	Polyamide	Acrylic	Silk
10minutes wicking rate	3.78	3.10	4.11	0	2.06	0.85
Wetting area(cm^2)	8.710	15.54	13.9	0	4.6	1.04
Wetting volume(cm^3)	0.430	0.653	0.695	0	0.298	0.058

3). Heat retention

Fabric	Thermal resistance (clo)	Heat transfer coefficient (kal/m.h.)	Heat retention rate(%)
Milk protein fiber knit fabric	0.2491	26.08	28.5
Acrylic knit fabric	0.1985	33.33	24.02
Cotton knit fabric	0.2639	25.98	29.71
Wool knit fabric	0.3341	19.3	36.26

4). Antistatic property

Fiber	Milk protein fiber	Polyester (deoiled)	Polyamide(deoiled)	Acrylic	Silk
Mass specific resistance (lg pm) (Relative humidity is 65%)	9.1	14	14	9.12	9.8

5). Friction coefficient

Knit fabric	Milk protein fiber	Cotton	Silk
Friction coefficient	0.214	0.298	0.332

6). Bending elastic modulus

Knit fabric	Milk protein fiber	Cotton	Silk
Bendign elastic modulus	0.33	3.65	1.47

7). Drapability

Knit fabric	Milk protein fiber	Cotton	Silk
Drape coefficient (%)	8	16	10

➢ Property comparison between milk protein fiber and other textile fiber

Property	Milk protein fiber	Cotton	Silk	Wool
Length (mm)	38	25-39	-----	58-100
Fineness (dtex)	1.52	1.2-2.0	1.0-2.8	6-9
*Dry tensile strength(CN/dtex)	2.8	1.9-3.1	3.8-4.0	2.6-3.5
*Dry breaking elongation rate (%)	25-35	7-10	11-16	14-25
Wet tensile strength (CN/dtex)	2.4	3.2	2.1-2.8	0.8
Wet breaking elongation rate (%)	28.8	13	27-33	50
Friction coefficient (static)	0.187		0.52	0.24
Friction coefficient (dynamic)	0.214		0.26	0.384
Logarithm of mass specific resistance (Wg/ cm2)	9.1	6.8	9.8	8.4
*Initial modulus (CN/dtex)	60-80	60-82	60-80	44-88
Moisture regain (%)	5-8	7-8	8-9	15-17
Specific weight (g/cm3)	1.22	1.50-1.54	1.46-1.52	1.34-1.38

* The intensity of fiber breakage and mould are moderate, it is great to extend, the spinning and weaving performance is good.

➢ Milk yarn

Cyarn milk protein fiber dewaters and skims milk, and manufactures the protein spinning fluid suitable for wet spinning process by means of new bio-engineering technique, and new high-grade textile fiber is made by combining them. In April 2004, it passed Oeko-Tex Standard 100 green certification for the international ecological textiles.

Cyarn milk protein fiber is healthy for skin, comfortable, with bright colors due to good dyeability, etc. The milk protein fiber can be spun purely or spun with cashmere, silk, spun silk, cotton, wool, ramie and other fibers to weave fabrics with the features of milk protein fibre. It can also be used to create top-grade underwear, shirts, T shirts, loungewear, etc. to satisfy people's pursuit of comfortable, healthy, superior and fashionable garments.

The milk protein fiber is a fresh product as a superior green, healthy and comfortable fibre, milk protein fiber will certainly become popular goods in the market as new favorite of the Textile.

➢ Kinds and content of amino-acid in Cyarn milk protein fiber

Kinds of amino-acid	Actual data	Kinds of amino-acid	Actual data
Aspartic acid	2.039	Methionine	0.7587
Threonine	0.9918	Isoleucine	1.101
Serine	1.429	Leucine	2.493
Glutamic acid	5.549	Tyrosine	1.572
Pro.	2.529	Phe.	1.331
Glycocoll	0.5259	Lysine	2.289
Alanine	0.9037	Histidine	0.8602
Cystine	0.0815	Arginine	0.9246
Val.	1.71	Tryptophan	0.1831

Tested by SGS-CSTC Standards Technical Services Com. Ltd Shanghai Branch, the content of amino acid is 30.34%.

➢ Good moisture, absorption and conduction:

The fiber base body (AN), the double composition and the vertical fibers does not have the regular channels, which makes the milk fiber have as fine moisture absorption as natural fiber and better moisture conduction as synthetic fibers, and is both comfortable and permeable.

➢ Antibacterial

Item	Test result
Golden yellow staphylococcus (ATCC NO.6538)	Restrain >3.86(99.9986)
	Sterilization > 1.96(98.9011)
colon bacillus (ATCC NO.8099)	Restrain >5.17(99.9993)
	Sterilization > 2.03(99.0741)
white Beads germ (ATCC NO.8099)	Restrain >3.84(99.9855)
	Sterilization >1.88(98.6667)

Tested by ChinaNationalTextilesQualitySupervisionTestingCenter, the bacterial value of golden yellow staphylococcus is greater than 99.9986, the bacterial value of colon bacillus is greater than 99.9993 and the bacterial value of white Beads germ is greater than 99.9855.

Conclusion:

The milk fabric is the gift by modern textile science. Its properties are finer than all other fabrics. Its more comfortable to use and also luxuries. Not harmful for environment and suitable for human body. It contains such kind of amino bacteria that helps to protect the germs of human body. Milk fabric produced by milk but it has no scent of milk. If we start to produce milk fabric in our Bangladesh we can earn a large amount of foreign money. It's like wearing a milk bath. It is said by Brad Caudill, executive director of the Tulare County Farm Bureau "I'd rather drink my milk than wear it"

References:

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