JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

MINISTRY OF INDUSTRY
GENERAL ORGANIZATION FOR TEXTILE INDUSTRY
THE SYRIAN ARAB REPUBLIC

STUDY ON THE DEVELOPMENT OF THE TEXTILE INDUSTRY IN THE SYRIAN ARAB REPUBLIC

(ANNEXES)

MARCH 1998

UNICO INTERNATIONAL CORPORATION
TOYOBO ENGINEERING CO.,LTD.

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LIST OF ANNEXES

ANNEX-1 Present Situation and Issues of State-Owned Companies

ANNEX 1

PRESENT SITUATION AND ISSUES OF STATE-OWNED COMPANIES ①
(9 COMPANIES SPECIALIZED IN SPINNING)

Company name	Capital (Million Sp)	Employees	Turnover (Million Sp)	Products	Raw material	Operation & factory management	Production machinery	Product quality	Sales, export, inventory	Production Cost
1. Lattakia Spinning Company	170	2,050		Cotton yarn CE 16, 20, 24, 30, 32 CM 24, 30, 32, 36, 40	• Combing process : Syrian cotton • Carding process : waste cotton from other companies	• Good orderliness and cleaning • Smooth production	• New machines OP, CE(Trutzscher), DF, CM(Hara), FF,RF(Zinser), WD(Schlafhorst)	• ISO9001 authorized factory (SQS) • Good quality (exportable)	• Smooth sales • Export ratio70-80% • Destination : Europe, USA, China	Raw material 60%, labor 10%, operational goods 5%, energy 5%, others 5%
2. Jableh Spinning Company	225	2,100	565	Cotton carded yarn Cotton combed yarn CE30, 24, 20 CM32, 24		• Workforce fixity : good	• Irregularity of OP and lap fed by chute • Planned reconditioning of CM(Platt) • Waiting for tender for new WD	• Uster 75% level • Quality of CM inferior to Hama/ Lattakia (quality equivalent to CE) • Medium to low quality	• Domestic sale 100% • Customer : Bawadekji and others • Export of waste cotton to Italy/ Germany	Raw material 62%, labor 20%, operational goods 10%, energy 8%
3. Al Waleed Spinning Company	312	1,485	723	Cotton yarn CE12, 20, 24, 30	No. 1 Unit : Syrian cotton (upto Ne30) No. 2 Unit : Waste cotton spinning	• High temperature/ humidity due to air conditioning capacity shortage • Work ratio/ production management : good	OP (Trutzschler), CE(Saco), DF(Hara), FF, RF(Saco), WD(Schlafhorst) (1975 made)	• Quality check of each process (Uster 99 in Labo) • Medium to low quality	• Smooth sale • Export ratio : 10% • Destination : Italy, Rumania, Switzerland, Germany • Many bills not collected	Raw material 69%, labor 20%, operational goods 8%, energy 3%
4. Hama Cotton Yarns Company	358	1,311	1,022	Cotton yarn CE 24/1, 24/2, 28/1, 30/1 CM 32/1, 32/2	Syrian cotton (Aleppo 33/1?)	• Orderliness, cleaning : good • Work ratio/ production management : good	• China-made in 1971/76 • RF 8,000~10,000 rpm	• Good quality (exportable)	• Smooth sale without stock • Export ratio : 24% • Destination : Italy, Portugal, Switzerland	Raw material approx. 70%
5. Idleb Spinning Company	400	997	786	Cotton OE yarn Ne 5.5, 7, 8, 10, 12, 16, 20, 24		• Operation : nearly smooth • Necessary to train employees	• Old machines (mainly 1975 made) • OE spinner : BD 200	• Uster 50% level • OE yarn : medium grade quality	• Export ratio 6% • Domestic sale : public & private sector half and half	
6. Hassakeh Spinning Project		871	127	Cotton yarn CD 26~39 P/C 40 (up to 1996)	• Raw cotton : Syrian cotton • P fiber : import	• Ratio of implemented plan : 36% (average of last 5 years) • Frequent job hopping/difficulty to secure workforce (Agricultural area)	• Cotton line : already shifted to Al Waleed • P/C line : underway shifted to Homs	• Low quality	• Cotton yarn to private knitter • P/C yarn to public/ private sector	
7. Al Furat Spinning Company	745	2,950	999	Cotton CE 12, 14, 16, 20, 24, 30	• Syrian cotton	• Ratio of implemented plan : 61% (average of last 5 years) • Frequent job hopping/difficulty to secure workforce (Agricultural area) • Overdry air conditioning	• No.1 Unit : SACM • No.2 Unit : Chinese	• Low quality	• Domestic sale 100% (Export rare case)	
8. Idleb New Project				• Combed yarn 5,000 ton (planned) • Carded yarn 7,000 ton (planned)			• Cotton line (mainly Zinser) (Carded line : 60,264 spindles, combed line : 58,752 sp) • OE line ("Auto coro" of Schlafhorst : 3,024 rotor)			
9. Jableh New Project				• Combed yarn 5,000 ton (planned) • Carded yarn 7,000 ton (planned)			• Cotton line : 210,000 spindles • OE line : 3,500 rotor			

Note : -
CE = carded yarn CM = combed yarn OP = blow room CE = card DF = draw frame
FF = fly frame RF = ring frame CM = comber WD = winder OE = open end

ANNEX 1

PRESENT SITUATION AND ISSUES OF STATE-OWNED COMPANIES ②
(1 SPINNING AND WEAVING, 1 WEAVING, 5 INTEGRATED PROCESS)

Company name	Capital (Million Sp)	Employees	Turnover (Million Sp)	Products	Raw material	Operation & factory management	Production machinery	Product quality	Sales, export, inventory	Production Cost
1. Al Shahba Spinning & Weaving General Company	177	602	450	• Cotton grey fabric • Sack for flour/sugar	• Syrian cotton	• Operation affected by worker shortage • Job hopping/ moonlighting of workforce (Aleppo)	• OP, OC (Trutzschler), FF(Zinser)-new machine installed • Remaining machines 1960～80's made • OE spinner : BD200	• Low quality (lack of quality consciousness)	• Domestic sale 100% (Export started of gauze and bandge)	• Cotton purchase price SP75/kg, transport/ insurance/ warehouse/ tax :SP20, waste : SP15 Total SP 110/kg • Raw material cost 76%
2. Lattakia Weaving Company	196	850	30	• Dyed fabric (shirts, sheets) • Sack for sugar/flour	• Ne 8.5, 10, 12, 16, 20 • Purchased from : Al Shahba, Idleb, Al Furat, Lattakia	• Loom working ratio : 70～75% (less than 60% when visited) • Machine stop due to non-availabity of spare parts	• WP (Schlafhorst), SZ (Sucker), AJL (Czech), (1970's made)	• Fabric for apparel : low quality	• Domestic sale 100%	• Raw material 67%, labor 22%, operational goods8%, others 7%
3. Maghazel Spinning & Weaving Company	111	1,400	668	• Jacquard fabric for home furniture • Canvas fabric • Printed fabric • Cotton yarn CE 17-20	• Syrian cotton • Yarn and grey fabric for in-house consumption (partially for sale)	• Operation ratio of spinning is low.	• Spinning machinery is old (Saco, Ingolstadt) and 40% not operable	• Both yarn and grey : low quality	• 'Niche' goods are main. • Domestic sale 100%	• Raw material 80%, labor 7%, operational goods7%, others 6%
4. Homs Spinning & Weaving Company	117	800	199	• Bleached, dyed and printed fabrics	• Mainly, purchased yarn and grey	• Low working ratio of spinning/ weaving	• Spinning machinery (Trutzchler, Ingolstadt,etc.) is old. • Weaving machinery is also worn out. • Dyeing machinery was partially replaced.	• Yarn/grey low grade quality • Dyed fabric medium grade quality	• Fabric for military camouflage suits 30%, sack for flour 30%, for apparel 20% • Domestic sale 100%	• Raw material 63%, labor 24%
5. United Industrial Commercial Company (Al Khomasieh)	460	2,850		• Cotton gray fabric • Bleached, dyed and printed fabric • for medical use (gauze, bandage, sanitary cotton)	• Syrian cotton • Imported NZ top • In-house cotton yarn & gray	• Low operation ratio of wool line • Low operation ratio of cotton weaving caused by defective yarn • Insufficient cleanliness and orderlines	• Machinery of cotton spinning (Trutzschler, Ingolstadt, Zinser), wool spinning and processing is worn out. • Weaving machinery (Sucker, Benninger, Sulzer) relatively new.	• Yarn quality : Uster 50～70% (very low) • Low quality of gray and dyed fabric	• Customer : Government organization/ state-owned garment company/ private merchant • Domestic sale 100%	
6. United Arab Company for Industry (Dibs)	126		600	• Fabric for work wear, bed sheets • Fabric for sheeting, canvas	• Syrian cotton • Waste of cotton and P/C	• Difficult to secure workforce Damascus) • Need to improve overall factory management	• Machinery of spinning (Platt, Textim) and processing is worn out. • Weaving machinery (Schlafhorst, Benninger, Sulzer, Saurer) relatively new.	• Gray quality : low	• Domestic sale 100%	
7. Syrian Company for Spinning & Weaving	66	928	304	• Gray, bleached, dyed and printed fabric (for home and apparel)		• Difficult to secure workforce (Aleppo)	• Machinery of spinning (Rieter, Zinser, Platt) and processing is worn out. • Weaving machinery (Benninger, Sucker, Picanol) relatively new	• Low quality yarn adversely affecting quality of gray and finished fabric	• Domestic sale 100% (public sector for the most part)	

Note : - WP = warper SZ = seizer AJL = air jet loom

ANNEX 1

PRESENT SITUATION AND ISSUES OF STATE-OWNED COMPANIES ③
(1 KNITTED UNDERWEAR MAKING, 7 SOCK MAKING 2 READY-MADE GARMENT MAKING)

Company name	Capital (Million Sp)	Employees	Turnover (Million Sp)	Products	Raw material	Operation & factory management	Production machinery	Product quality	Sales, export, inventory	Production Cost
1. Al Shark Underwear's General Company	268	1,300	600	· Pure cotton under shirts, shorts, T-shirts	· Mainly combed yarn · Purchasing : CM30 (Lattakia), CE24 (Hama), CE30 (Waleed)	· Knitting machine stop ratio : 60% (No other)	· Circular knitting machine (ALBI, etc.) 92 · Bleaching & Dyeing machine (Italian) 14 · Sewing machine (Italian, German, Japanese) 500	· Not exportable quality	· Sale : domestic 80%, export 20% (Germany, Greece, Middle East)	· Cotton underwear, T-shirts
2. Arab Underwear's General Company	38	245	85	· Cotton underwear, T-shits	· Purchasing : CM32 (Lattakia), CE2d4(Hama)	· Knitting machine stop ratio : 30% (No order)	· Circular knitting machine (ALBI, etc.) 22 · Bleaching machinery · Sewing machine (Italian) 82	· Not exportable quality	· Millitary force 60%, Sunduss 17%, company shop 3%, stock 20%	
3. General Synthetic Yarns Crimping & Stocking Company	117	115	115	· Sock (100dz/hr.) · Stocking (40dz/hr.) · False twist yarn (3,000ton annually) · Special cotton yarn (100kg/hr.)	· Import : POY (F.T.yarn), acryl (sock), nylon F70/2 (stocking) · Domestic : cotton yarn CE 24/2 (sock), CE24/1 (special yarn) from Lattakia	· Sock Dept : 3 shifts operation · F.T. yarn restarted operation · Special yarn started operation recently	[F.T. yarn] ARCT(France) 9 faily worn out [Special yarn] 2nd hand machine shifted from Hama (doubling→gassing→ dyeing→mercerizing)	[Sock] Not exportable quality [F.T] yarn, special yarn] to study further	[Sock] public sector 70%, private sector 30% [F.T. yarn] public sector 30%, private sector 70% (through merchants, end user:tricot/ circular knitter)	
4. Syrian Company for Ready-made Garment (Waseem)	155	850	251	Pants, jacket, school uniform, driver suits, workwear, pijama, coat, children's wear, shorts, flag, etc.	· Cotton fabric (Al Khomasieh), Dibs, Maghazel · P/C, P/W (G. Co. for Modern Industry) · Wool, P/R : import	· Machine operators' slow speed work · Skilled workers poached from private sector	· Sewing machine (Hungarian, Czech) 733 · Press 55 · Cutting table 5 In general outdated	· No exportable quality	· Domestic sale 100% · Inactive sale to Sunduss, Government shops	
5. Industrial Company for Ready-made Garment	99	853	170	· Suits for gents (15%), jacket(15%),workwear (overall, shirts, pants, driver suits 45%), children's wear (25%) · Monthly production : 22,000 pcs	· Cotton fabric : domestic procurement · Wool, P/W, P/R : domestic 60%, import 40%	· Skilled workers poached from private sector	· Japan-made sewing machine (1976 made)	· Further study required	· Domestic sale 100% · Government organization 76%, sunduss 4%, stock 20%	

ANNEX 1

PRESENT SITUATION AND ISSUES OF STATE-OWNED COMPANIES ④ (2 WORSTED INTEGRATED, 3 CARPET YARN AND CARPET MAKING, 1 SILK SPINNING)

Company name	Capital (Million Sp)	Employees	Turnover (Million Sp)	Products	Raw material	Operation & factory management	Production machinery	Product quality	Sales, export, inventory	Production Cost
1. Al Ahlie Company for Spinning & Weaving	218	700	150	· Worsted fabric (suits for gents) · Cotton fabric (for apparel, bed sheets, table cloth) · Cotton	· Wool (top of Merino sheep) : import (Australia) · P/W, A/W, acryl : import · Cotton : Syrian cotton, waste cotton	· Cronical low operation ratio due to difficulty to import raw material · Operation of cotton/ waste is good	· Worsted line : well maintained · Cotton line : outdated and worn out · Waste cotton line : good	· Worsted goods : fairly good · Cotton goods : low quality · Waste cotton goods : good	· Domestic sale 100% · Worsted fabric for suits for gents and ladies will be profitable, if raw materials are secured with stability. · Cotton fabric : much competition · Cotton coarse yarn by waste spinning : good sale	· Raw material 50%, others 50% (Share of raw material must be more).
2. General Company for Modern Industry	97	690	273	· Worsted fabric (for military uniform, etc.) · Blended fabric of various long staple yarn	· Top, acryl, polyester, rayon : import	· Spinning : low efficiency due to lack of spare parts · Weaving : well managed	· Spinning : worn out (1960/70 made) · Weaving and processing : relatively new	· Worsted fabric : in general hard feeling · Worsted yarn : to be improved more	· Domestic sale 100% · Fabric for military uniform sell well.	
3. General Company for Wool	723	566	313	· Wool carpet yarn · Wool blanket yarn	· Syrian wool · NZ wool : imported (for blending with Syrian wool)	· Technology level : a little low, · Management : good	· No.1 Unit (European made machines) : worn out (non-availability of spare parts) · No.2 Unit (China made machines) : relatively new	· Nep and short staple coming off · Mixed foreign matter · Fluctuation of quality	· Domestic sale 100% · Sale to wool carpet companies and military force (wool blanket yarn)	· Necessary to curtail manufacturing cost by 20%
4. General Company for Carpet	56	350	360	· Pure wool jacquard carpet	· Wool yarn (Nm 3/15) : G/Co. for Wool · Cotton : State-owned companies · Jute yarn : import (Bangladesh)	· Working ratio : 50% (due to low quality of yarn)	· Old jacquard loom 24	· Short staple coming off · Insufficient color vividness · Hard feeling	· Wool carpet monopolized. Difficult to export in terms of quality and price. · Small stock	· Raw material 80%, labor 15%, others 5% · Cost : 20% higher in export market.
5. Aleppo General Company for Silk Weaving	38	614	310	· Wool carpet · Synthetic fiber carpet · Jacquard fabric for home use · P/C fabric (military uniform, workwear, base cloth of belt	· Wool yarn (Nm 3/15) : G. Co. for Wool · Cotton yarn : state-owned companies · Synthetic yarn, jute yarn : import	· Not maintained well due to worn out machinery. · Job hopping & moonlighting (Aleppo)	· Wool jacquard loom (Textima, 1975) : well maintained · Synthetic jacquard loom (1965 made) · Ctton weaving/ processing (European, 1945～60)	· Wool carpet : good quality · Jacquard fabric for home use : good quality	· Domestic sale 100% · Synthetic carpet and cotton fabric : much competition	· Raw material cost (carpet 72%, cotton fabric 43%)
6. Draikeesh Natural Silk Company	16	30	10	· Raw silk (bleached, dyed)	· Cocoon egg : import (Japan)	· Production gradually reduced · 2.6 ton against 12 ton capacity (1996) · Operation in only season (Jun,e July)	· Japan-made machines (cocoon boiling machine, reeling & re-reeling machine)	· Not exportable quality (avergae 49d)	· Domestic sale 100% · for weaving in private sector · Sotck : 17 ton	· Raw material 52%, labor 16%, operation goods29%

ANNEX-2 Result of Analysis of Samples Got in Syria

Cotton

TEST REPORT

25 April, 1997

Messrs. TOYOBO ENGINEERING CO., LTD.

Dear Sirs,

We are pleased to inform you the test result of the sample which was carried out according to your request as follows ;

1. Article : Syrian raw cotton
2. Quantity of sample : 6
3. Test item : micronaire, staple length, uniformity index, strength, elongation, hue, foreign matter, etc.
4. Test method : by HVI (Spinlab 900 system)
5. Test result : Please see the attached sheet.

Yours sincerely

Japan Spinners' Inspection Foundation

I.D.#	Gr	L	Area%	Cnt	Len	Un	Str	El	Mik	Rd	b	C.G.	SBr	RS	CSP	OE
IDENTIFIER ---> TOYO80												DATE 04-23-1997				
1 ALEPPO-40		1	0.14	20	1.09	82.4	30.0	6.7	5.0	77.4	8.4	31-1	205	19	1908	7
2 ALEPPO-33/1		1	0.15	7	1.16	84.1	34.0	6.7	4.5	80.9	8.1	21-1	234	22	2136	8
3 Al-Furat Mill No.1		2	0.34	44	1.11	81.9	31.8	6.6	4.9	77.1	7.7	31-2	211	20	1988	8
4 Al-Furat Mill No.2		1	0.18	26	1.11	82.0	28.6	6.2	5.1	76.2	8.0	31-2	199	18	1848	7
5 HASSAKH SPINNING		1	0.04	9	1.06	81.0	28.8	6.3	5.2	77.0	9.1	31-3	194	18	1835	7
6 HAMA Cotton Mill		1	0.05	6	1.17	84.5	33.6	6.7	4.6	75.3	7.9	41-1	228	21	2137	8

Explanation for terms of testing items

L : Trash cord (1 better than 2)

Area % : Trash area per cent in the measured area of sampled cotton. The less figure, the better.

Cnt : Count. Individual number of trash.

Len : Length. Fiber length measured by Fibrograph method.

Un : Uniformity index. Uniformity per cent of fiber length.

Str : Strength. Strength of 1/8" gauge expressed in gf/tex.

El : Elongation. %.

Mik : Micronaire.

Rd : Reflectance. Hue indicated by reflectance per cent. Cotton colorimeter method.

b. : Hue indicated by yellowishness. Cotton colorimeter method.

C.G. : Color grade. Better 21>31>41.

SBr : Skein break. Estimated Lea strength corresponding to Ne 22s ring carded yarn.

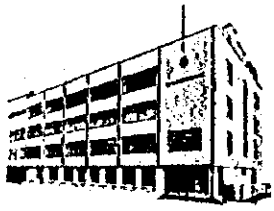
RS : Ring Spinning. Grouping number of SBr. The larger figure, the better.

CSP : Count strength product. The product of estimated Count strength corresponding to Ne 8s open end yarn.

OE : Open end. Grouping number of CSP. The larger figure, the better.

Cotton Yarn

TELEPHONE : OSAKA06 (762) 5887
FAX. : OSAKA06 (762) 8568



INSPECTION HOUSES:
OSAKA TOKYO
NAGOYA HAMAMATSU
TOYAMA IZUMISANO
OKAYAMA SHIKOKU

JAPAN SPINNERS INSPECTING FOUNDATION

ORIGINAL

18-15, 1-CHOME, UE-MACHI CHUO,
OSAKA, 540 JAPAN

Test No. JSIF 002539-1

TEST REPORT

DATE : May 9, 1997

Applicant : TOYOBO ENGINEERING CO., LTD.

Sample : One sample of Cotton Yarn.(LATTAKIA CM 32s Corn)

Test Method : JIS (Japanese Industrial Standard) L 1095
Testing Method for Spun Yarn

Test Item and Result :

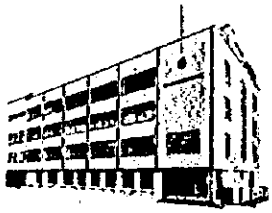
I T E M		R E S U L T
Count	Actual (Ne)	28.3
	Deviation (%)	-11.5
	Coefficient of Variation (%)	4.3
Breaking Strength ; single	Average (gf)	354.1
	Coefficient of Variation (%)	6.6
	Elongation (%)	5.8
Twist	Average (tpi)	22.8
	Coefficient of Variation (%)	3.5
U	%	10.5
I.P.I Values (No./200m)	Thin Place	0
	Thick Place	1
	Neps	4
Fluff - Index (3mm, No./10m)		181
Appearance (Class;1,2,3, below)	Evenness	1-1
	Foreign Matters and Neps	1-1

JAPAN SPINNERS INSPECTING FOUNDATION

Supervised by M. Yoshinaka

Notice ——The report applies only to sample tested and not to the lot.

TELEPHONE : OSAKA06 (762) 6987
FAX. : OSAKA06 (762) 6569



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OSAKA TOKYO
NAGOYA HAMAMATSU
TOYAMA IZUMISANO
OKAYAMA SHIKOKU

JAPAN SPINNERS INSPECTING FOUNDATION

ORIGINAL

18-15, 1-CHOME, UE-MACHI CHUO.
OSAKA, 540 JAPAN

Test No. JSIF 002539-3

TEST REPORT

DATE : May 9, 1997

Applicant : TOYOBO ENGINEERING CO., LTD.

Sample : One sample of Cotton Yarn.(LATTAKIA CE 32s)

Test Method : JIS (Japanese Industrial Standard) L 1095
Testing Method for Spun Yarn

Test Item and Result :

I T E M		R E S U L T
Count	Actual (Ne)	33.0
	Deviation (%)	+3.1
	Coefficient of Variation (%)	1.4
Breaking Strength ; single	Average (gf)	240.1
	Coefficient of Variation (%)	10.2
	Elongation (%)	4.8
Twist	Average (tpi)	23.1
	Coefficient of Variation (%)	4.8
U	%	14.0
I.P.I Values (No./200m)	Thin Place	8
	Thick Place	16
	Neps	26
Fluff - Index (3mm, No./10m)		170
Appearance (Class;1,2,3, below)	Evenness	2-1
	Foreign Matters and Neps	3-1

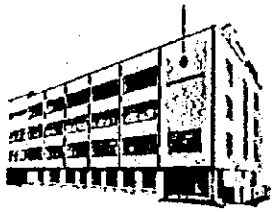
* Appearance : Card yarn

JAPAN SPINNERS INSPECTING FOUNDATION

Supervised by T. Yoshinaka

Notice ——The report applies only to sample tested and not to the lot.

TELEPHONE : OSAKA06 (762) 5887
FAX. : OSAKA06 (762) 8588



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OSAKA TOKYO
NAGOYA HAMAMATSU
TOYAMA IZUMISANO
OKAYAMA SHIKOKU

JAPAN SPINNERS INSPECTING FOUNDATION

ORIGINAL

18-15, 1-CHOME, UE-MACHI CHUO,
OSAKA, 540 JAPAN

TEST REPORT

Test No. JSIF 002539-2

DATE : May 9, 1997

Applicant : TOYOBO ENGINEERING CO., LTD.

Sample : One sample of Cotton Yarn.(JABLEH CM 32s Corn)

Test Method : JIS (Japanese Industrial Standard) L 1095
Testing Method for Spun Yarn

Test Item and Result :

I T E M		R E S U L T
Count	Actual (Ne)	30.3
	Deviation (%)	-5.3
	Coefficient of Variation (%)	1.1
Breaking Strength ; single	Average (gf)	251.4
	Coefficient of Variation (%)	12.8
	Elongation (%)	6.8
Twist	Average (tpi)	20.9
	Coefficient of Variation (%)	5.9
U	%	14.9
I.P.I Values (No./200m)	Thin Place	6
	Thick Place	41
	Neps	100
Fluff - Index (3mm, No./10m)		302
Appearance (Class;1,2,3, below)	Evenness	3-1
	Foreign Matters and Neps	2-1

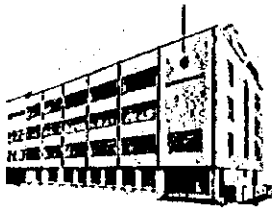
* Appearance : Card yarn

JAPAN SPINNERS INSPECTING FOUNDATION

Supervised by H. Yoshinaka

Notice——The report applies only to sample tested and not to the lot.

TELEPHONE : OSAKA06 (762) 5807
FAX. : OSAKA06 (762) 8588



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OKAYAMA SHIKOKU

JAPAN SPINNERS INSPECTING FOUNDATION

ORIGINAL

18-15, 1-CHOME, UE-MACHI CHUO,
OSAKA, 540 JAPAN

Test No. JSIF 002539-4

TEST REPORT

DATE : May 9, 1997

Applicant : TOYOBO ENGINEERING CO., LTD.

Sample : One sample of Cotton Yarn.(HOMS CE 24s Cone)

Test Method : JIS (Japanese Industrial Standard) L 1095
Testing Method for Spun Yarn

Test Item and Result :

I T E M		R E S U L T
Count	Actual (Ne)	19.9
	Deviation (%)	-17.1
	Coefficient of Variation (%)	4.1
Breaking Strength ; single	Average (gf)	364.3
	Coefficient of Variation (%)	15.3
	Elongation (%)	8.1
Twist	Average (tpi)	22.7
	Coefficient of Variation (%)	7.2
U	%	21.9
I.P.I Values (No./200m)	Thin Place	113
	Thick Place	298
	Neps	415
Fluff - Imdex (3mm, No./10m)		162
Appearance (Class;1,2,3, below)	Evenness	Unacceptable as 3-1
	Foreign Matters and Neps	Unacceptable as 3-1

* Appearance : Card yarn

JAPAN SPINNERS INSPECTING FOUNDATION

Supervised by M. Yoshinaka

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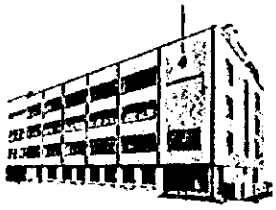
TELEPHONE : OSAKA06 (762) 5887
FAX. : OSAKA06 (762) 8568



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OSAKA TOKYO
NAGOYA HAMAMATSU
TOYAMA IZUMISANO
OKAYAMA SHIKOKU

JAPAN SPINNERS INSPECTING FOUNDATION

ORIGINAL

18-15, 1-CHOME, UE-MACHI CHUO,
OSAKA, 540 JAPAN

Test No. JSIF 002538-5

TEST REPORT

DATE : May 9, 1997

Applicant : TOYOBO ENGINEERING CO., LTD.

Sample : One sample of Cotton Yarn.(HAMA CM 30s Cop)

Test Method : JIS (Japanese Industrial Standard) L 1095
Testing Method for Spun Yarn

Test Item and Result :

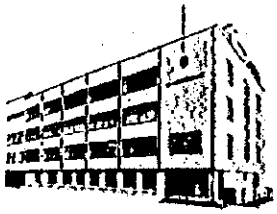
I T E M		R E S U L T
Count	Actual (Ne)	28.8
	Deviation (%)	-4.0
	Coefficient of Variation (%)	2.6
Breaking Strength ; single	Average (gf)	366.8
	Coefficient of Variation (%)	8.9
	Elongation (%)	6.8
Twist	Average (tpi)	18.4
	Coefficient of Variation (%)	3.7
U %		10.5
I.P.I Values (No./200m)	Thin Place	0
	Thick Place	1
	Neps	10
Fluff - Index (3mm, No./10m)		98
Appearance (Class;1,2,3, below)	Evenness	1-1
	Foreign Matters and Neps	2-1

JAPAN SPINNERS INSPECTING FOUNDATION

Supervised by T. Yoshinaka

Notice ——The report applies only to sample tested and not to the lot.

TELEPHONE : OSAKA06 (762) 5887
FAX. : OSAKA06 (762) 8588



INSPECTION HOUSES:
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NAGOYA HAMAMATSU
TOYAMA IZUMISANO
OKAYAMA SHIKOKU

JAPAN SPINNERS INSPECTING FOUNDATION

ORIGINAL

18-15, 1-CHOME, UE-MACHI CHUO.
OSAKA, 540 JAPAN

Test No. JSIF 002539-6

TEST REPORT

DATE : May 9, 1997

Applicant : TOYOBO ENGINEERING CO., LTD.

Sample : One sample of Cotton Yarn.(AL FURAT Cop)

Test Method : JIS (Japanese Industrial Standard) L 1095
Testing Method for Spun Yarn

Test Item and Result :

I T E M		R E S U L T
Count	Actual (Ne)	21.8
	Coefficient of Variation (%)	2.5
Breaking Strength ; single	Average (gf)	363.4
	Coefficient of Variation (%)	9.3
	Elongation (%)	6.4
Twist	Average (tpi)	19.1
	Coefficient of Variation (%)	4.5
U	%	16.9
I.P.I Values (No./200m)	Thin Place	28
	Thick Place	136
	Neps	81
Fluff - Index (3mm, No./10m)		187
Appearance (Class;1,2,3, below)	Evenness	Unacceptable as 3-1
	Foreign Matters and Neps	3-1

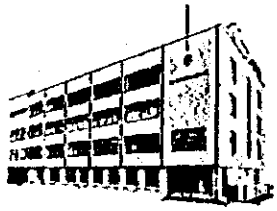
* Appearance : Card yarn

JAPAN SPINNERS INSPECTING FOUNDATION

Supervised by M. Yoshinaka

Notice ---The report applies only to sample tested and not to the lot.

TELEPHONE : OSAKA06 (762) 5887
FAX. : OSAKA06 (762) 8588



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JAPAN SPINNERS INSPECTING FOUNDATION

ORIGINAL

18-15, 1-CHOME, UE-MACHI CHUO.
OSAKA, 540 JAPAN

TEST REPORT

Test No. JSIF 002539-7

DATE : May 9, 1997

Applicant : TOYOBO ENGINEERING CO., LTD.

Sample : One sample of Cotton Yarn.(HASSAKEH Cop)

Test Method : JIS (Japanese Industrial Standard) L 1095
Testing Method for Spun Yarn

Test Item and Result :

I T E M		R E S U L T
Count	Actual (Ne)	23.9
	Coefficient of Variation (%)	2.3
Breaking Strength ; single	Average (gf)	299.3
	Coefficient of Variation (%)	20.6
	Elongation (%)	6.6
Twist	Average (tpi)	17.6
	Coefficient of Variation (%)	5.3
U %		17.9
I.P.I Values (No./200m)	Thin Place	25
	Thick Place	137
	Neps	215
Fluff - Index (3mm, No./10m)		138
Appearance (Class;1,2,3, below)	Evenness	Unacceptable as 3-1
	Foreign Matters and Neps	3-1

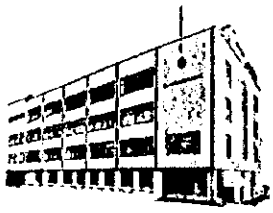
* Appearance : Card yarn

JAPAN SPINNERS INSPECTING FOUNDATION

Supervised by N. Yoshinaka

Notice ——The report applies only to sample tested and not to the lot.

TELEPHONE : OSAKA06 (762) 5887
FAX. : OSAKA06 (762) 8566



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JAPAN SPINNERS INSPECTING FOUNDATION

ORIGINAL

18-15, 1-CHOME, UE-MACHI CHUO.
OSAKA, 540 JAPAN

TEST REPORT

Test No. JSIF 002539-8

DATE : May 9, 1997

Applicant : TOYOBO ENGINEERING CO., LTD.

Sample : One sample of Cotton Yarn.(AL-KHOMASIEH Cop)

Test Method : JIS (Japanese Industrial Standard) L 1095
Testing Method for Spun Yarn

Test Item and Result :

I T E M		R E S U L T
Count	Actual (Nc)	14.8
	Deviation (%)	-7.5
	Coefficient of Variation (%)	4.1
Breaking Strength ; single	Average (gf)	590.2
	Coefficient of Variation (%)	12.8
	Elongation (%)	7.7
Twist	Average (tpi)	16.4
	Coefficient of Variation (%)	5.3
U	%	17.5
I.P.I Values (No./200m)	Thin Place	18
	Thick Place	115
	Neps	142
Fluff - Index (3mm, No./10m)		137
Appearance (Class;1,2,3, below)	Evenness	Unacceptable as 3-1
	Foreign Matters and Neps	Unacceptable as 3-1

* Appearance : Card yarn

JAPAN SPINNERS INSPECTING FOUNDATION

Supervised by N. Yoshinaka

Notice ——The report applies only to sample tested and not to the lot.

Cotton Fabric
(Gray, Dyed, Printed)

TEST REPORT

DATE: MAY 20, 1997

Applicant: TOYOBO ENGINEERING CO., LTD.

THE JAPAN COTTON & STAPLE FIBER FABRIC INSPECTING INSTITUTE FOUNDATION
OSAKA INSPECTING & TESTING HOUSE

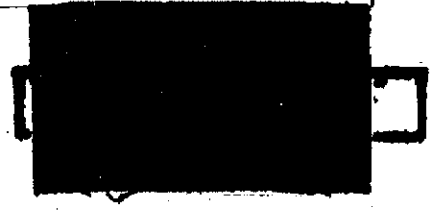
Item・Methods			9. Maghazel Spinning & Weaving Co., (1) Gray Cotton Canvas ①
Apparent Yarn Count (Nec) JIS L 1096		warp	19.0/1
		filling	8.1/1
Density (thread/cm) JIS L 1096		warp	17.0
		filling	15.8
Appearance Evaluation The sample has following defects: a misdraw, a float over whole width, many broken picks (when yarn was changed.) and a great many slubs.			
Comment The sample is evaluated as C-grade, and unsuited for garments.			

Item・Methods			9. Maghazel Spinning & Weaving Co., (1) Gray Cotton Canvas ②
Apparent Yarn Count (Nec) JIS L 1096		warp	24.1/2
		filling	14.0/1
Density (thread/cm) JIS L 1096		warp	41.5
		filling	19.1
Appearance Evaluation The sample has following defects: a broken pick, a double pick, two misdraws, and inferior yarn (foreign matters, thick places, neps, and so on.)			
Comment The sample is evaluated as C-grade because of inferior yarn and weaving.			

Item・Methods			9. Maghazel Spinning & Weaving Co., (2) Cotton Printed Fabric ①
Apparent Yarn Count (Nec) JIS L 1096		warp	21. 1/1
		filling	22. 2/1
Density (thread/cm) JIS L 1096		warp	24. 1
		filling	14. 5
Appearance Evaluation The sample has following defects: a warp falling, two misdraws, and a great many slubs.			
Color Fastness to Light (class) JIS L 0842		shade change	more than 4
Color Fastness to Washing (class) JIS L 0844 A-2 method		shade change	5
		staining cotton	5
		staining silk	5
Color Fastness to Perspiration (class) JIS L 0848	acid	shade change	5
	acid	staining cotton	5
	acid	staining silk	5
	alkaline	shade change	5
	alkaline	staining cotton	5
	alkaline	staining silk	5
Color Fastness to Rubbing (class) JIS L 0849 Type II		dry	4
		wet	3-4
Shrinkage to Automatic Home Laundering JIS L 0217 103 method (%)		warp	6. 9
		filling	3. 7
Identification of Dyestuff Classes JIS L 1065			naphthol dye
Water Repellency (point) JIS L 1092			0
Barium Activity Number JIS L 1096			84
Comment The sample is evaluated as C-grade because it has many misdraws and slubs. It comes up to general standard about color fastness. It absorbs water and shrinks easily. Fabric, mercerized normally is 115-130 and completely is about 155, as barium activity number, compared with U.S. cotton.			

Item・Methods				9. Maghazel Spinning & Weaving Co., (2) Cotton Printed Fabric ②
Apparent Yarn Count (Nec) JIS L 1096			warp	21.3/1
			filling	21.4/1
Density (thread/cm) JIS L 1096			warp	20.6
			filling	13.8
Appearance Evaluation The sample has following defects: a warp falling, a broken pick, and a great many slubs.				
Color Fastness to Light (class) JIS L 0842			shade change	more than 4
Color Fastness to Washing (class) JIS L 0844 A-2 method			shade change	5
		staining	cotton	5
			silk	5
Color Fastness to Perspiration (class) JIS L 0848	acid		shade change	5
		staining	cotton	5
			silk	5
	alkaline		shade change	5
		staining	cotton	5
			silk	5
Color Fastness to Rubbing (class) JIS L 0849 Type II			dry	4
			wet	3-4
Shrinkage to Automatic Home Laundering (%) JIS L 0217 103 method			warp	7.1
			filling	3.3
Identification of Dyestuff Classes JIS L 1065				naphthol dye
Water Repellency (point) JIS L 1092				0
Barium Activity Number JIS L 1096				
Comment The sample comes up to general standard about fabric appearance and color fastness, except yarn quality. It absorbs water and shrinks easily.				

Item・Methods			10. Homs Spinning & Weaving (1) Cotton Printed Fabric (Navy)
Apparent Yarn Count (Nec) JIS L 1096		warp	21. 3／1
		filling	19. 2／1
Density (thread／cm) JIS L 1096		warp	23. 2
		filling	20. 1
Appearance Evaluation The sample has following defects: three lashing-in fillings, two misdraws, and continuous blots (of waterdrop) by selvage.			
Color Fastness to Light (class) JIS L 0842		shade change	more than 4
Color Fastness to Washing (class) JIS L 0844 A-2 method		shade change	4
		staining cotton	4－5
		staining silk	4－5
Color Fastness to Perspiration (class) JIS L 0848	acid	shade change	4－5
		staining cotton	4－5
		staining silk	4
	alkaline	shade change	4－5
		staining cotton	4－5
		staining silk	4
Color Fastness to Rubbing (class) JIS L 0849 Type II		dry	2－3
		wet	2
Shrinkage to Automatic Home Laundering (%) JIS L 0217 103 method		warp	4. 2
		filling	2. 7
Identification of Dyestuff Classes JIS L 1065			naphthol dye
Water Repellency (point) JIS L1092			0
Barium Activity Number JIS L 1096			
Comment The sample is evaluated as C-grade because it has lashing-in fillings and misdraws. It has dyeing defects, too. It has color fastness, except rubbing, and shrinkage percentage up to general standard. It absorbs water easily.			



Item・Methods			10, Homs Spinning & Weaving (1) Cotton Printed Fabric(Flower)
Apparent Yarn Count (Ncc) JIS L 1096		warp	21. 4／1
		filling	18. 2／1
Density (thread／cm) JIS L 1096		warp	24. 8
		filling	14. 7
Appearance Evaluation The sample has following defects: two misdraws and a great many slubs.			
Color Fastness to Light (class) JIS L 0842		shade change	more than 4
Color Fastness to Washing (class) JIS L 0844 A-2 method		shade change	5
		staining cotton	5
		staining silk	5
Color Fastness to Perspiration (class) JIS L 0848	acid	shade change	5
	acid	staining cotton	5
	acid	staining silk	5
	alkaline	shade change	5
	alkaline	staining cotton	5
	alkaline	staining silk	5
Color Fastness to Rubbing (class) JIS L 0849 Type II		dry	4
		wet	4
Shrinkage to Automatic Home Laundering (%) JIS L 0217 103 method		warp	7. 7
		filling	3. 5
Identification of Dyestuff Classes JIS L 1065			naphthol dye
Water Repellency (point) JIS L 1092			0
Barium Activity Number JIS L 1096			92
Comment The sample is evaluated as C-grade because it has misdraws and slubs. It comes up to general standard about color fastness. It absorbs water and shrinks easily.			

Item・Methods			10, Homs Spinning & Weaving (2) Cotton Pigment PrintedFabric①
Apparent Yarn Count (Nec) JIS L 1096		warp	11.8/1
		filling	11.6/1
Density (thread/cm) JIS L 1096		warp	22.0
		filling	11.6
Appearance Evaluation The sample has following defects: large degree of bias filling (7.8%), light dyeing speck, and ten misdraws.			
Color Fastness to Light (class) JIS L 0842		shade change	more than 4
Color Fastness to Washing (class) JIS L 0844 A-2 method		shade change	5
		staining cotton	5
		staining silk	5
Color Fastness to Perspiration (class) JIS L 0848	acid	shade change	5
	acid	staining cotton	5
	acid	staining silk	5
	alkaline	shade change	5
	alkaline	staining cotton	5
	alkaline	staining silk	5
Color Fastness to Rubbing (class) JIS L 0849 Type II		dry	4-5
		wet	2-3
Shrinkage to Automatic Home Laundering (%) JIS L 0217 103 method		warp	3.1
		filling	3.5
Identification of Dyestuff Classes JIS L 1065			pigment resin color
Water Repellency (point) JIS L 1092			0
Barium Activity Number JIS L 1096			
Comment The sample has large degree of bias filling. (the maximum permissible degree is 3%.) many small dyeing specks along the warp, and ten misdraws. Therefore, it is evaluated as C-grade. It comes up to general standard about color fastness and shrinkage percentage. It absorbs water easily.			

Item・Methods			10. Homs Spinning & Weaving (2) Cotton Pigment PrintedFabric②
Apparent Yarn Count (Nec) JIS L 1096		warp	11.9/1
		filling	11.1/1
Density (thread/cm) JIS L 1096		warp	34.3
		filling	11.0
Appearance Evaluation. The sample has follwing defects: three misdraws, a light dyeing speck, and a great many slubs.			
Color Fastness to Light (class) JIS L 0842		shade change	4
Color Fastness to Washing (class) JIS L 0844 A-2 method		shade change	5
		staining cotton	5
		staining silk	5
Color Fastness to Perspiration (class) JIS L 0848	acid	shade change	5
	acid	staining cotton	4
	acid	staining silk	3-4
	alkaline	shade change	5
	alkaline	staining cotton	3-4
	alkaline	staining silk	3-4
Color Fastness to Rubbing (class) JIS L 0849 Type II		dry	5
		wet	3-4
Shrinkage to Automatic Home Laundering JIS L 0217 103 method		warp	0.9
		filling	0.3
Identification of Dyestuff Classes JIS L 1065			reactive dye
Water Repellency (point) JIS L 1092			0
Barium Activity Number JIS L 1096			
Comment The sample is evaluated as C-grade even if it has only a misdraw. It has many light dyeing specks, and is unsuited for garments. It comes up to general standard about color fastness; however, little red dye is left the sample; and shrinkage percentage. It absorbs water efasily.			

Item・Methods			17, United Industrial & Commercial(2) 30/2 X 10 / 40 X 19
Apparent Yarn Count (Nec) JIS L 1096		warp	31.0/2
		filling	10.4/1
Density (thread/cm) JIS L 1096		warp	41.7
		filling	18.3
Appearance Evaluation The sample has following defects: ten misdraws and a great many slubs.			
Color Fastness to Light (class) JIS L 0842		shade change	more than 4
Color Fastness to Washing (class) JIS L 0844 A-2 method		shade change	4-5
		staining cotton	4-5
		staining silk	4-5
Color Fastness to Perspiration (class) JIS L 0848	acid	shade change	4-5
	acid	staining cotton	4-5
	acid	staining silk	4
	alkaline	shade change	4-5
	alkaline	staining cotton	4-5
	alkaline	staining silk	4
Color Fastness to Rubbing (class) JIS L 0849 Type II		dry	4-5
		wet	3
Shrinkage to Automatic Home Laundering JIS L 0217 103 method		warp	7.9
		filling	1.4
Identification of Dyestuff Classes JIS L 1065			naphthol dye
Water Repellency (point) JIS L 1092			0
Barium Activity Number JIS L 1096			
Comment The sample is evaluated as C-grade even if it has only a misdraw. It comes up to general standard about color fastness. It absorbs water and shrinks easily.			

Item・Methods			17. United Industrial & Commercial (3) 24/2 X 12 / 40 X 21
Apparent Yarn Count (Ncc) JIS L 1096		warp	25. 1/2
		filling	11. 4/1
Density (thread/cm) JIS L 1096		warp	42. 5
		filling	20. 5
Appearance Evaluation The sample has following defects: six misdraws, a warp falling, and a great many slubs.			
Color Fastness to Light (class) JIS L 0842		shade change	more than 4
Color Fastness to Washing (class) JIS L 0844 A-2 method		shade change	4 - 5
		staining cotton	4 - 5
		staining silk	4 - 5
Color Fastness to Perspiration (class) JIS L 0848	acid	shade change	4 - 5
	acid	staining cotton	4 - 5
	acid	staining silk	4 - 5
	alkaline	shade change	4 - 5
	alkaline	staining cotton	4 - 5
	alkaline	staining silk	4 - 5
Color Fastness to Rubbing (class) JIS L 0849 Type II		dry	4
		wet	3
Shrinkage to Automatic Home Laundering JIS L 0217 103 method		warp	8. 8
		filling	1. 0
Identification of Dyestuff Classes JIS L 1065			naphthol dye
Water Repellency (point) JIS L 1092			0
Barium Activity Number JIS L 1096			
Comment The sample is evaluated as C-grade even if it has only a misdraw. It comes up to general standard about color fastness. It absorbs water and shrinks easily.			

[redacted]

Item・Methods			17, United Industrial & Commercial (4) 16 X 12 / 16 X 13
Apparent Yarn Count (Nec) JIS L 1096		warp	16. 8／1
		filling	12. 9／1
Density (thread／cm) JIS L 1096		warp	17. 0
		filling	12. 6
Appearance Evaluation The sample has foillowing defects: large degree of bias filling (19.3%), three misdraws, and a great many slubs.			
Color Fastness to Light (class) JIS L 0842		shade change	more than 4
Color Fastness to Washing (class) JIS L 0844 A-2 method		shade change	5
		staining cotton	5
		staining silk	5
Color Fastness to Perspiration (class) JIS L 0848	acid	shade change	5
	acid	staining cotton	5
	acid	staining silk	5
	alkaline	shade change	5
	alkaline	staining cotton	5
	alkaline	staining silk	5
Color Fastness to Rubbing (class) JIS L 0849 Type II		dry	4
		wet	3-4
Shrinkage to Automatic Home Laundering (%) JIS L 0217 103 method		warp	9. 9
		filling	0. 1
Identification of Dyestuff Classes JIS L 1065			naphthol dye
Water Repellency (point) JIS L 1092			0
Barium Activity Number JIS L 1096			
Comment The sample has very large degree of bias filling. (maximum permissible degree is 3%.) and slubs. It comes up to general standard about color fastness. It absorbs water and shrink easily.			

Item・Methods		17, United Industrial & Commercial (6) 14 X 14 / 15 X 14
Apparent Yarn Count (Nec) JIS L 1096	warp	13. 1/1
	filling	14. 3/1
Density (thread/cm) JIS L 1096	warp	15. 3
	filling	15. 3
Appearance Evaluation The sample has a great many slubs.		
Comment The sample is almost good, however, it has a great many slubs.		

Item・Methods		17, United Industial & Commercial (7) 16 X 12 / 18 X 13
Apparent Yarn Count (Nec) JIS L 1096	warp	14. 9/1
	filling	11. 5/1
Density (thread/cm) JIS L 1096	warp	17. 7
	filling	13. 0
Appearance Evaluation The sample has following defects: a misdraw, a reed streak, and a great many slubs.		
Comment The sample is evaluated as C-grade, because it has a misdraw.		

Item・Methods			18, United Arab Company for Industrial (1) Gray Fabric
Apparent Yarn Count	(Nec)	warp	27. 4／1
JIS L 1096		filling	30. 7／1
Density	(thread／cm)	warp	30. 0
JIS L 1096		filling	30. 0

Appearance Evaluation
The sample has temple defects.

Comment
The sample is evaluated as C-grade because of temple defects.

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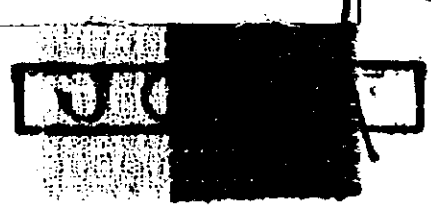
Item・Methods			18, United Arab Company for Industrial (1) Yarn Dyed Fabric ①
Apparent Yarn Count (Nec) JIS L 1096		warp	17.0/1
		filling	white 21.1/1 color 15.8/1
Density (thread/cm) JIS L 1096		warp	24.4
		filling	21.3
Appearance Evaluation The sample has a great many foreign matters.			
Color Fastness to Light (class) JIS L 0842		shade change	more than 4
Color Fastness to Washing (class) JIS L 0844 A-2 method		shade change	5
		staining cotton	5
		staining silk	5
Color Fastness to Perspiration (class) JIS L 0848	acid	shade change	5
	acid	staining cotton	5
	acid	staining silk	5
	alkaline	shade change	5
	alkaline	staining cotton	5
	alkaline	staining silk	5
Color Fastness to Rubbing (class) JIS L 0849 Type II		dry	5
		wet	4-5
Shrinkage to Automatic Home Laundering (%) JIS L 0217 103 method		warp	3.0
		filling	1.6
Identification of Dyestuff Classes JIS L 1065			vat dye
Water Repellency (point) JIS L 1092			0
Barium Activity Number JIS L 1096			
Comment The sample is almost good. However, many foreign matters appear distinctly on it, because gray yarn is used as the filling of the sample. It comes up to general standard about color fastness and shrinkage percentage. It absorbs water easily.			

Item・Methods			18, United Arab Company for Industrial (1) Yarn Dyed Fabric ②
Apparent Yarn Count (Nec) JIS L 1096		warp	white 10.9/1 color 12.3/1
		filling	white 7.1/1 color 12.0/1
Density (thread/cm) JIS L 1096		warp	18. 6
		filling	15. 8
Appearance Evaluation The colored yarn of the sample has distinct slubs.			
Color Fastness to Light (class) JIS L 0842		shade change	more than 4
Color Fastness to Washing (class) JIS L 0844 A-2 method		shade change	4－5
		staining cotton	5
		staining silk	5
Color Fastness to Perspiration (class) JIS L 0848	acid	shade change	5
	acid	staining cotton	4－5
	acid	staining silk	4－5
	alkaline	shade change	5
	alkaline	staining cotton	4－5
	alkaline	staining silk	4－5
Color Fastness to Rubbing (class) JIS L 0849 Type II		dry	4－5
		wet	3－4
Shrinkage to Automatic Home Laundering (%) JIS L 0217 103 method		warp	15. 1
		filling	14. 8
Identification of Dyestuff Classes JIS L 1065			vat dye
Water Repellency (point) JIS L 1092			0
Barium Activity Number JIS L 1096			
Comment The sample is good about weaving and color fastness. The shrinkage percentage and water repellency of the sample is uncertain because it has not finished.			



Silk

SILK YARN INSPECTION RESULT

		Syrian Raw Silk	Syrian Degummed Yarn
Average Size (1,000 fila)	(d)	49.29 (100 fila)	117.94 (81 fila)
Size Deviation	(d)	4.12	18.06
Maximum Size Deviation	(d)	12.39	34.70
Neatness Defect Points (1,000 panel)	(point)	81.75 (20 panel)	-
Yarn Count Variation (2nd)	(pcs)	2	-
Yarn Count Variation (3rd)	(pcs)	4	-
Major & Minor Defect Points	(point)	Reffer other page	-
Elongation	(%)	19.88	14.71
Strength	(gf/d)	3.68	3.15
Young Rate	(kgf/mm^2)	847	337

* Strength, Elongation and Young Rate are tested by "Tensilon"

INSPECTION RESULT

Applicant	UNICO International Corp.
Application Number	Syria (Raw Silk)
Inspected Date	15-Apr-97
Inspected Place	Silk Science Laboratory

Yarn Count Variation Test

Yarn Count Variation (2nd)	2 pcs
Yarn Count Variation (3rd)	4 pcs

Neatness Defects Inspection

Points	Number of Panel
100	
95	
90	1
85	9
80	6
75	4
70	
65	
60	
Total	20 Panel
Average Point	81.75 Points

Ref: As shown on the pattern sheet super major defects are numerous. Major and minor defects were shown by 20 panels total loss points.

Defect Inspection

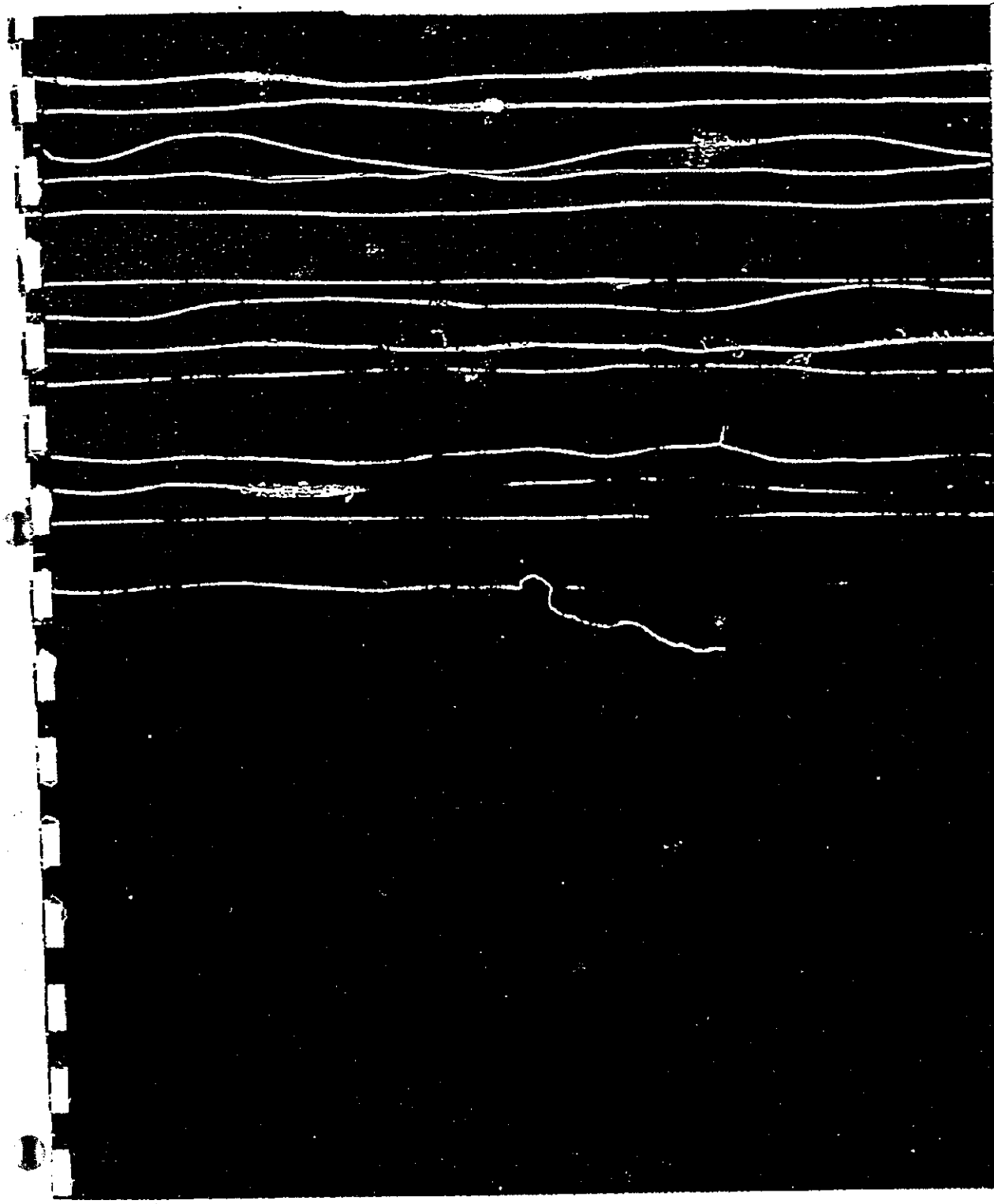
Kind (Point)		PCS	Point
Super Major Defects (1.0)		28	28.0
Major Defects	Waste (0.4)		
	Large Slug (0.5)	10	5.0
	Bad Cast (0.4)	3	1.2
	Very Ling Knot (0.4)		
	Heavy Corkscrew (0.4)	1	0.4
	Total	14	6.6
Minor Defects	Small Slug (0.15)	2	0.3
	Long Knot (0.1)	3	0.3
	Heavy Corkscrew (0.1)		
	Long Loop (0.1)	4	0.4
	Loose End (0.1)	4	0.4
	Total	13	1.4
Neatness Defects	75 Point Panel (0.25)	4	1.0
	70 Point Panel (0.25)		
	65 Point Panel (0.25)		
	60 Point Panel (0.25)		
	55 Point Panel (0.25)		
	50 Point Panel (0.25)		
Total Loss Points		37	
Defect Point			

No.

DATE :
MILL'S NAME :
:
YARN TESTED :
WINDING SPEED:
INSPECTOR :

Silk Science Laboratory

SELETEX TYPE :
GRADE/ϕ :
U/DS % :
D % :
S % :
MS/L.V. :
SL/T % :



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NOTE:

Wool

試 験 成 績 書

Messrs.Toyobo Engineering TEST REPORT
東洋紡エンジニアリング㈱ 殿

平成９年１０月２７日

ご提出の試料に対する試験結果は下記の通りです。

受 付 月 日　　平成９年１０月１５日
品名・品番　　Syrian Wool
数　　量　　1

〒540 大阪市中央区上町１丁目18番15号
財団法人 日本紡績検査協会
大阪事業所
TEL 大阪 (06) 762-[illegible] (代表)
FAX 大阪 (06) 762-[illegible]

Japan Spinners' Inspection Foundation

試験項目：下記試験結果欄記載の通り
試験方法：ＪＩＳ　Ｌ　１０１５　化学繊維ステープル試験方法準用
試験結果：

項目 / 試料	平均繊維長（mm） Mean staple length(mm)	見掛繊度（D） Apparent fineness
Syrian Wool	９４．３	１９．６４

試験室：温度 ２０℃ 関係湿度 ６５％

試験番号	２０７７８

本試験結果はご提出の試料に対するものであって、荷口を代表するものではありません。

試 験 成 績 書

Messrs. Toyobo Engineering Co.
東洋紡エンジニアリング㈱殿

TEST REPORT

平成　9年10月22日

ご提出の試料に対する試験結果は下記の通りです。

受 付 月 日　平成　9年10月15日

品名・品番　Syrian Wool

数　　量　1

〒540 大阪市中央区上町[illegible]
財団法人 日本紡績検査協会
近畿事業所
TEL 大阪 (06) 762[illegible]
FAX 大阪 (06) 762[illegible]

Japan Spinners' Inspection Foundation

試験項目

1．油脂分

2．灰　分

試験方法

1．ソックスレー抽出器を用いて石油エーテルにより、3時間抽出した。

2．試料を絶乾後、灰化させ定量した。

試験結果
Test result

1．油脂分 …… 0．45 %
Fatty matter content

2．灰　分 …… 2．28 %
Ash content

提出試料

試験番号　20778

本試験結果はご提出の試料に対するものであって、荷口を代表するものではありません。

ANNEX-3 Import of Textiles to Syria Based on Exporting Countries Statistics

Contents

Table A3-1 IMPORT OF TEXTILES TO SYRIA BASED ON EXPORTING COUNTRIES STATISTICS (1)

(tons/y)

	1992						1993						1994					
	Industrialized Nations	Taiwan	Korea	Hong Kong + Singapore	Turkey	Total	Industrialized Nations	Taiwan	Korea	Hong Kong + Singapore	Turkey	Total	Industrialized Nations	Taiwan	Korea	Hong Kong + Singapore	Turkey	Total
Staple Fiber (a)																		
Cotton Waste	132.0					**132.0**						**0.0**						**0.0**
Wool	353.0				137.4	**490.4**	666.0				142.0	**808.0**	1,496.0				17.7	**1,513.7**
Rayon SF	479.0	200.0				**679.0**	6.0				26.0	**32.0**	16.0					**16.0**
Polyester SF	234.0	266.8			96.0	**596.8**	536.0	53.3	20.0		226.2	**835.5**	336.0	401.9	40.0		161.5	**939.4**
Nylon SF	45.0				18.0	**63.0**					12.4	**12.4**						**0.0**
Nylon Tow	9.0					**9.0**						**0.0**						**0.0**
Acrylic SF	282.0					**282.0**	492.0	6.3			80.9	**579.2**	469.0				70.2	**539.2**
Acrylic Tow						**0.0**	44.0					**44.0**						**0.0**
Synthetic SF	81.0				0.6	**81.6**	90.0				12.5	**102.5**	177.0					**177.0**
Rayon Waste	37.0					**37.0**						**0.0**						**0.0**
Synthetic Waste	123.0					**123.0**	833.0					**833.0**	703.0					**703.0**
Fiber Waste	16.0					**16.0**	30.0			7.6		**37.6**	169.0			18.0		**187.0**
Total	**1,791.0**	**466.8**	**0.0**	**0.0**	**252.0**	**2,509.8**	**2,697.0**	**59.6**	**20.0**	**7.6**	**500.0**	**3,284.2**	**3,366.0**	**401.9**	**40.0**	**18.0**	**249.4**	**4,075.3**
Spun Yarn (b)																		
Cotton	431.5	200.6	410.7		1.1	**1,043.9**	564.6	177.1	133.9		10.9	**886.5**	461.4	61.8	183.8		50.5	**757.5**
Wool	117.0				36.7	**153.7**	359.0		6.4		21.6	**387.0**	59.0				7.8	**66.8**
Animal Hair	38.0				5.1	**43.1**	93.0				5.0	**98.0**	4.0				4.0	**8.0**
Flax	72.0					**72.0**						**0.0**						**0.0**
Rayon SF	74.5	938.4				**1,012.9**	98.5	753.7		14.5	68.4	**935.1**	138.0	728.4			37.8	**904.2**
Polyester SF		2,055.7	868.5		121.1	**3,045.3**		1,705.1	270.2		108.0	**2083.3**		1,471.2	364.8		15.8	**1,851.8**
Nylon SF										308.6		**308.6**				71.1		**71.1**
Acrylic SF		19.7	229.5		5,783.2	**6,032.4**		38.1	1,816.3		10,057.2	**11911.6**			584.5		13,075.6	**13,660.1**
Synthetic SF	1,697.5	25.8		2,025.3	1,185.2	**4,933.8**	1,831.1	25.2		984.4	1,343.5	**4184.2**	889.4	16.9		494.3	1,575.2	**2,975.8**
Others	668.5			1,074.4	263.2	**2,006.1**	724.8		3.0	506.4	291.6	**1525.8**	306.2			258.0	248.8	**813.0**
Sub-Total	**3,099.0**	**3,240.2**	**1,508.7**	**3,099.7**	**7,395.6**	**18,343.2**	**3,671.0**	**2,699.2**	**2,229.8**	**1,813.9**	**11,906.2**	**22,320.1**	**1,858.0**	**2,278.3**	**1,133.1**	**823.4**	**15,015.5**	**21,108.3**
FY (c)																		
Rayon FY	422.0			12.4	22.9	**457.3**	689.0	8.2		5.7	171.8	**874.7**	613.0				12.4	**625.4**
Polyester FY			491.7		306.2	**797.9**		54.7	2,673.3		428.1	**3156.1**		15.0	2,742.0		1,293.3	**4,050.3**
Nylon FY	2,522.0		26.9			**2,548.9**	3,743.0				30.0	**3773.0**	4,480.0	20.7			26.1	**4,526.8**
Synthetic FY	588.0	14.0	444.2		12.0	**1,058.2**	1,580.0	3.3	10.6		35.0	**1628.9**	1,607.0	28.6	103.0		34.4	**1,773.0**
Sub-Total	**3,532.0**	**14.0**	**962.8**	**12.4**	**341.1**	**4,862.3**	**6,012.0**	**66.2**	**2,683.9**	**5.7**	**664.9**	**9,432.7**	**6,700.0**	**64.3**	**2,845.0**	**0.0**	**1,366.2**	**10,975.5**
Textured FY (d)																		
Polyester Textured	3,179.0	1,733.4	29.0		9,607.2	**14,548.6**	3,133.0	11,781.1	259.0		8,979.4	**24152.5**	4,121.0	5,578.1	141.2		10,938.4	**20,778.7**
Nylon Textured	2,090.0	5,698.3			11.4	**7,799.7**	2,344.0	12,736.4			320.9	**15401.3**	2,165.0	10,366.6			78.8	**12,610.4**
Synthetic Textured		26.5			67.6	**94.1**		86.1			180.9	**267.0**		34.5				**34.5**
Sub-Total	**5,269.0**	**7,458.2**	**29.0**	**0.0**	**9,686.2**	**22,442.4**	**5,477.0**	**24,603.6**	**259.0**	**0.0**	**9,481.2**	**39,820.8**	**6,286.0**	**15,979.2**	**141.2**	**0.0**	**11,017.2**	**33,423.6**
Total (b+c+d)	**11,900.0**	**10,712.4**	**2,500.5**	**3,112.1**	**17,422.9**	**45,647.9**	**15,160.0**	**27,369.0**	**5,172.7**	**1,819.6**	**22,052.3**	**71,573.6**	**14,844.0**	**18,321.8**	**4,119.3**	**823.4**	**27,398.9**	**65,507.4**

Source : UN, Trade of the Industrialized Nations with Eastern Europe, the former USSR and the Developing Nations, Supplement to the World Trade Annual

Exports from Australia, Austria, Belgium-Luxembourg, Canada, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Israel, Italy, Japan, Netherlands, New Zealand, Norway, Portugl, Spain, Sweden, Switzerland, the United Kingdom and the United States of America.

Trade Statistics of Taiwan, Korea, Hong Kong, Singapore and Turkey.

Table A3-1 IMPORT OF TEXTILES TO SYRIA BASED ON EXPORTING COUNTRIES STATISTICS (1)

(tons/y)

	1992						1993						1994					
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Staple Fiber (a)																		
Cotton Waste	132.0					**132.0**						**0.0**						**0.0**
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Rayon SF	479.0	200.0				**679.0**	6.0				26.0	**32.0**	16.0					**16.0**
Polyester SF	234.0	266.8			96.0	**596.8**	536.0	53.3	20.0		226.2	**835.5**	336.0	401.9	40.0		161.5	**939.4**
Nylon SF	45.0				18.0	**63.0**					12.4	**12.4**						**0.0**
Nylon Tow	9.0					**9.0**						**0.0**						**0.0**
Acrylic SF	282.0					**282.0**	492.0	6.3			80.9	**579.2**	469.0				70.2	**539.2**
Acrylic Tow						**0.0**	44.0					**44.0**						**0.0**
Synthetic SF	81.0				0.6	**81.6**	90.0				12.5	**102.5**	177.0					**177.0**
Rayon Waste	37.0					**37.0**						**0.0**						**0.0**
Synthetic Waste	123.0					**123.0**	833.0					**833.0**	703.0					**703.0**
Fiber Waste	16.0					**16.0**	30.0			7.6		**37.6**	169.0			18.0		**187.0**
Total	**1,791.0**	**466.8**	**0.0**	**0.0**	**252.0**	**2,509.8**	**2,697.0**	**59.6**	**20.0**	**7.6**	**500.0**	**3,284.2**	**3,366.0**	**401.9**	**40.0**	**18.0**	**249.4**	**4,075.3**
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Polyester SF		2,055.7	868.5		121.1	**3,045.3**		1,705.1	270.2		108.0	**2083.3**		1,471.2	364.8		15.8	**1,851.8**
Nylon SF										308.6		**308.6**				71.1		**71.1**
Acrylic SF		19.7	229.5		5,783.2	**6,032.4**		38.1	1,816.3		10,057.2	**11911.6**			584.5		13,075.6	**13,660.1**
Synthetic SF	1,697.5	25.8		2,025.3	1,185.2	**4,933.8**	1,831.1	25.2		984.4	1,343.5	**4184.2**	889.4	16.9		494.3	1,575.2	**2,975.8**
Others	668.5			1,074.4	263.2	**2,006.1**	724.8		3.0	506.4	291.6	**1525.8**	306.2			258.0	248.8	**813.0**
Sub-Total	**3,099.0**	**3,240.2**	**1,508.7**	**3,099.7**	**7,395.6**	**18,343.2**	**3,671.0**	**2,699.2**	**2,229.8**	**1,813.9**	**11,906.2**	**22,320.1**	**1,858.0**	**2,278.3**	**1,133.1**	**823.4**	**15,015.5**	**21,108.3**
FY (c)																		
Rayon FY	422.0			12.4	22.9	**457.3**	689.0	8.2		5.7	171.8	**874.7**	613.0				12.4	**625.4**
Polyester FY			491.7		306.2	**797.9**		54.7	2,673.3		428.1	**3156.1**		15.0	2,742.0		1,293.3	**4,050.3**
Nylon FY	2,522.0		26.9			**2,548.9**	3,743.0				30.0	**3773.0**	4,480.0	20.7			26.1	**4,526.8**
Synthetic FY	588.0	14.0	444.2		12.0	**1,058.2**	1,580.0	3.3	10.6		35.0	**1628.9**	1,607.0	28.6	103.0		34.4	**1,773.0**
Sub-Total	**3,532.0**	**14.0**	**962.8**	**12.4**	**341.1**	**4,862.3**	**6,012.0**	**66.2**	**2,683.9**	**5.7**	**664.9**	**9,432.7**	**6,700.0**	**64.3**	**2,845.0**	**0.0**	**1,366.2**	**10,975.5**
Textured FY (d)																		
Polyester Textured	3,179.0	1,733.4	29.0		9,607.2	**14,548.6**	3,133.0	11,781.1	259.0		8,979.4	**24152.5**	4,121.0	5,578.1	141.2		10,938.4	**20,778.7**
Nylon Textured	2,090.0	5,698.3			11.4	**7,799.7**	2,344.0	12,736.4			320.9	**15401.3**	2,165.0	10,366.6			78.8	**12,610.4**
Synthetic Textured		26.5			67.6	**94.1**		86.1			180.9	**267.0**		34.5				**34.5**
Sub-Total	**5,269.0**	**7,458.2**	**29.0**	**0.0**	**9,686.2**	**22,442.4**	**5,477.0**	**24,603.6**	**259.0**	**0.0**	**9,481.2**	**39,820.8**	**6,286.0**	**15,979.2**	**141.2**	**0.0**	**11,017.2**	**33,423.6**
Total (b+c+d)	**11,900.0**	**10,712.4**	**2,500.5**	**3,112.1**	**17,422.9**	**45,647.9**	**15,160.0**	**27,369.0**	**5,172.7**	**1,819.6**	**22,052.3**	**71,573.6**	**14,844.0**	**18,321.8**	**4,119.3**	**823.4**	**27,398.9**	**65,507.4**

Source : UN, Trade of the Industrialized Nations with Eastern Europe, the former USSR and the Developing Nations, Supplement to the World Trade Annual
Exports from Australia, Austria, Belgium-Luxembourg, Canada, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Israel, Italy, Japan, Netherlands, New Zealand, Norway, Portugl, Spain, Sweden, Switzerland, the United Kingdom and the United States of America.
Trade Statistics of Taiwan, Korea, Hong Kong, Singapore and Turkey.

Table A3-1 IMPORT OF TEXTILES TO SYRIA BASED ON EXPORTING COUNTRIES STATISTICS (2)

	1992						1993						1994					
	Industrialized Nations	Taiwan	Korea	Hong Kong + Singapore	Turkey	Total	Industrialized Nations	Taiwan	Korea	Hong Kong + Singapore	Turkey	Total	Industrialized Nations	Taiwan	Korea	Hong Kong + Singapore	Turkey	Total
Woven Fabric																		
Spun Woven (e)																		
Cotton	401.8	79.3	39.4	33.4	178.6	**732.5**	356.0	32.7	61.4	135.5	227.7	**813.3**	404.6	67.3	14.4	25.2	312.3	**823.8**
Flax, Ramy	13.0			5.2	0.2	**18.4**			10.9			**10.9**	3.0	13.0	8.6			**24.6**
Wool	294.5		35.7			**330.2**	786.0	7.4	47.8			**841.2**	423.0		32.0		2.3	**457.3**
Rayon SF	135.9	225.1	102.7	92.7	144.4	**700.8**	178.1	187.8	378.7	138.7	377.4	**1260.7**	205.0	139.8	478.4	196.1	446.4	**1,465.7**
Polyester SF		187.2	29.9	17.4	29.7	**264.2**		205.6	46.5	177.8	33.4	**463.3**		153.3	27.7	37.9	15.5	**234.4**
Acrylic SF						**0.0**			16.4			**16.4**			18.5		25.3	**43.8**
Man-Made SF	5.0	11.4	24.7			**41.1**		5.1	38.7	16.7		**60.5**		7.1	5.7		19.4	**32.2**
Synthetic SF	402.8	116.5		14.0	0.2	**533.5**	768.3	560.6	4.5		0.3	**1,333.7**	374.4	341.8			1.2	**717.4**
Other than Flax				2.8		**2.8**						**0.0**						**0.0**
Other than R,C,W	5.6					**5.6**	12.9					**12.9**	21.0					**21.0**
Other than C,W,M				7.5		**7.5**						**0.0**						**0.0**
Other than S,C,W	57.4	3.7				**61.1**	43.7					**43.7**	7.0	8.4				**15.4**
Unknown	49.0	8.7	4.8			**62.5**	123.0	5.9	31.7	6.3		**166.9**	123.0	7.0	128.0	1.5		**259.5**
Sub-Total	1,365.0	631.9	237.2	173.0	353.1	2,760.2	2,268.0	1,005.1	636.6	475.0	638.8	5,023.5	1,561.0	737.7	713.3	260.7	822.4	4,095.1
FY Woven (f)																		
Silk	1.0					**1.0**	1.0		0.2			**1.2**	1.0		0.7			**1.7**
Rayon FY	236.0	9.1	58.0		14.1	**317.2**	383.0	17.8	187.7		32.9	**621.4**	327.0	33.5	187.4	11.4	25.8	**585.1**
Polyester FY			440.0			**440.0**		27.0	1,059.1		0.6	**1,086.7**			2,204.6			**2,204.6**
Nylon FY		52.9	141.7		0.7	**195.3**		30.0	136.3		23.0	**189.3**		44.7	130.1		23.4	**198.2**
Man-Made FY		8.6	6.3		2.0	**16.9**		11.3	16.2		1.8	**29.3**		18.4	46.1		2.6	**67.1**
Synthetic FY	452.0	58.2	128.3			**638.5**	630.0	26.6	367.7			**1,024.3**	871.0	142.2	1,057.9	3.0	1.1	**2,075.2**
Sub-Total	689.0	128.8	774.3	0.0	16.8	1,608.9	1,014.0	112.7	1,767.2	0.0	58.3	2,952.2	1,199.0	238.8	3,626.8	14.4	52.9	5,131.9
Others Woven (g)																		
Polyester Textured		146.4	76.9		1.0	**224.3**		163.0	98.5		2.0	**263.5**		53.5	245.9		6.7	**306.1**
Man-Made		83.6	2.1			**85.7**		100.3			8.7	**109.0**		89.2		3.3	1.0	**93.5**
Sub-Total	0.0	230.0	79.0	0.0	1.0	310.0	0.0	263.3	98.5	0.0	10.7	372.5	0.0	142.7	245.9	3.3	7.7	399.6
Total (e+f+g)	2,054.0	990.7	1,090.5	173.0	370.9	4,679.1	3,282.0	1,381.1	2,502.3	475.0	707.8	8,348.2	2,760.0	1,119.2	4,586.0	278.4	883.0	9,626.6
Knitted Fabric (h)																		
Cotton					38.4	**38.4**					33.7	**33.7**		12.9			11.0	**23.9**
Silk		5.7				**5.7**		5.3				**5.3**						**0.0**
Man-Made		32.1	2.9			**35.0**		76.0	5.5			**81.5**		65.8	54		18.2	**138.0**
Other than Silk						**0.0**		3.5				**3.5**						**0.0**
Unknown	660.0	44.1		20.3		**724.4**	937.0	25.1				**962.1**	919				5.2	**924.2**
Total	**660.0**	**81.9**	**2.9**	**20.3**	**38.4**	**803.5**	**937.0**	**109.9**	**5.5**	**0.0**	**33.7**	**1,086.1**	**919.0**	**78.7**	**54.0**	**0.0**	**34.4**	**1,086.1**
Garment, Woven (i)																		
Wool						**0.0**	10.0					**10.0**						**0.0**
Synthetic						**0.0**					0.1	**0.1**	3.0				1.2	**4.2**
Unknown	18.0			7.3	0.3	**25.6**	1.0					**1.0**	7.0					**7.0**
Sub-Total	**18.0**	**0.0**	**0.0**	**7.3**	**0.3**	**25.6**	**11.0**	**0.0**	**0.0**	**0.0**	**0.1**	**11.1**	**10.0**	**0.0**	**0.0**	**0.0**	**1.2**	**11.2**
Garment, Knitted (j)																		
Cotton						**0.0**						**0.0**		0.2				**0.2**
Synthetic FY		0.8			0.1	**0.9**						**0.0**					1.5	**1.5**
Man-Made						**0.0**		1.1				**1.1**						**0.0**
Unknown	11.0	3.2			0.1	**14.3**	2.0	0.4		2.1		**4.5**	14.0					**14.0**
Sub-Total	**11.0**	**4.0**	**0.0**	**0.0**	**0.2**	**15.2**	**2.0**	**1.5**	**0.0**	**2.1**	**0.0**	**5.6**	**14.0**	**0.2**	**0.0**	**0.0**	**1.5**	**15.7**

Table A3-1 IMPORT OF TEXTILES TO SYRIA BASED ON EXPORTING COUNTRIES STATISTICS (2)

	1992						1993						1994					
	Industrialized Nations	Taiwan	Korea	Hong Kong + Singapore	Turkey	Total	Industrialized Nations	Taiwan	Korea	Hong Kong + Singapore	Turkey	Total	Industrialized Nations	Taiwan	Korea	Hong Kong + Singapore	Turkey	Total
Woven Fabric																		
Spun Woven (e)																		
Cotton	401.8	79.3	39.4	33.4	178.6	**732.5**	356.0	32.7	61.4	135.5	227.7	**813.3**	404.6	67.3	14.4	25.2	312.3	**823.8**
Flax, Ramy	13.0			5.2	0.2	**18.4**			10.9			**10.9**	3.0	13.0	8.6			**24.6**
Wool	294.5		35.7			**330.2**	786.0	7.4	47.8			**841.2**	423.0		32.0		2.3	**457.3**
Rayon SF	135.9	225.1	102.7	92.7	144.4	**700.8**	178.1	187.8	378.7	138.7	377.4	**1260.7**	205.0	139.8	478.4	196.1	446.4	**1,465.7**
Polyester SF		187.2	29.9	17.4	29.7	**264.2**		205.6	46.5	177.8	33.4	**463.3**		153.3	27.7	37.9	15.5	**234.4**
Acrylic SF						**0.0**			16.4			**16.4**			18.5		25.3	**43.8**
Man-Made SF	5.0	11.4	24.7			**41.1**		5.1	38.7	16.7		**60.5**		7.1	5.7		19.4	**32.2**
Synthetic SF	402.8	116.5		14.0	0.2	**533.5**	768.3	560.6	4.5		0.3	**1,333.7**	374.4	341.8			1.2	**717.4**
Other than Flax				2.8		**2.8**						**0.0**						**0.0**
Other than R,C,W	5.6					**5.6**	12.9					**12.9**	21.0					**21.0**
Other than C,W,M				7.5		**7.5**						**0.0**						**0.0**
Other than S,C,W	57.4	3.7				**61.1**	43.7					**43.7**	7.0	8.4				**15.4**
Unknown	49.0	8.7	4.8			**62.5**	123.0	5.9	31.7	6.3		**166.9**	123.0	7.0	128.0	1.5		**259.5**
Sub-Total	1,365.0	631.9	237.2	173.0	353.1	2,760.2	2,268.0	1,005.1	636.6	475.0	638.8	5,023.5	1,561.0	737.7	713.3	260.7	822.4	4,095.1
FY Woven (f)																		
Silk	1.0					**1.0**	1.0		0.2			**1.2**	1.0		0.7			**1.7**
Rayon FY	236.0	9.1	58.0		14.1	**317.2**	383.0	17.8	187.7		32.9	**621.4**	327.0	33.5	187.4	11.4	25.8	**585.1**
Polyester FY			440.0			**440.0**		27.0	1,059.1		0.6	**1,086.7**			2,204.6			**2,204.6**
Nylon FY		52.9	141.7		0.7	**195.3**		30.0	136.3		23.0	**189.3**		44.7	130.1		23.4	**198.2**
Man-Made FY		8.6	6.3		2.0	**16.9**		11.3	16.2		1.8	**29.3**		18.4	46.1		2.6	**67.1**
Synthetic FY	452.0	58.2	128.3			**638.5**	630.0	26.6	367.7			**1,024.3**	871.0	142.2	1,057.9	3.0	1.1	**2,075.2**
Sub-Total	689.0	128.8	774.3	0.0	16.8	1,608.9	1,014.0	112.7	1,767.2	0.0	58.3	2,952.2	1,199.0	238.8	3,626.8	14.4	52.9	5,131.9
Others Woven (g)																		
Polyester Textured		146.4	76.9		1.0	**224.3**		163.0	98.5		2.0	**263.5**		53.5	245.9		6.7	**306.1**
Man-Made		83.6	2.1			**85.7**		100.3			8.7	**109.0**		89.2		3.3	1.0	**93.5**
Sub-Total	0.0	230.0	79.0	0.0	1.0	310.0	0.0	263.3	98.5	0.0	10.7	372.5	0.0	142.7	245.9	3.3	7.7	399.6
Total (e+f+g)	2,054.0	990.7	1,090.5	173.0	370.9	4,679.1	3,282.0	1,381.1	2,502.3	475.0	707.8	8,348.2	2,760.0	1,119.2	4,586.0	278.4	883.0	9,626.6
Knitted Fabric (h)																		
Cotton					38.4	**38.4**					33.7	**33.7**		12.9			11.0	**23.9**
Silk		5.7				**5.7**		5.3				**5.3**						**0.0**
Man-Made		32.1	2.9			**35.0**		76.0	5.5			**81.5**		65.8	54		18.2	**138.0**
Other than Silk						**0.0**		3.5				**3.5**						**0.0**
Unknown	660.0	44.1		20.3		**724.4**	937.0	25.1				**962.1**	919				5.2	**924.2**
Total	660.0	81.9	2.9	20.3	38.4	803.5	937.0	109.9	5.5	0.0	33.7	1,086.1	919.0	78.7	54.0	0.0	34.4	1,086.1
Garment, Woven (i)																		
Wool						**0.0**	10.0					**10.0**						**0.0**
Synthetic						**0.0**					0.1	**0.1**	3.0				1.2	**4.2**
Unknown	18.0			7.3	0.3	**25.6**	1.0					**1.0**	7.0					**7.0**
Sub-Total	18.0	0.0	0.0	7.3	0.3	25.6	11.0	0.0	0.0	0.0	0.1	11.1	10.0	0.0	0.0	0.0	1.2	11.2
Garment, Knitted (j)																		
Cotton						**0.0**						**0.0**		0.2				**0.2**
Synthetic FY		0.8			0.1	**0.9**						**0.0**					1.5	**1.5**
Man-Made						**0.0**		1.1				**1.1**						**0.0**
Unknown	11.0	3.2			0.1	**14.3**	2.0	0.4		2.1		**4.5**	14.0					**14.0**
Sub-Total	11.0	4.0	0.0	0.0	0.2	15.2	2.0	1.5	0.0	2.1	0.0	5.6	14.0	0.2	0.0	0.0	1.5	15.7

Table A3-1 IMPORT OF TEXTILES TO SYRIA BASED ON EXPORTING COUNTRIES STATISTICS (3)

	1992						1993						1994					
	Industrialized Nations	Taiwan	Korea	Hong Kong + Singapore	Turkey	Total	Industrialized Nations	Taiwan	Korea	Hong Kong + Singapore	Turkey	Total	Industrialized Nations	Taiwan	Korea	Hong Kong + Singapore	Turkey	Total
Garment, Unknown (k)																		
Man-Made						0.0						0.0		0.1				0.1
Unknown	3.0				9.6	12.6	14.0	0.3				14.3	41	86.7				127.7
Sub-Total	**3.0**	**0.0**	**0.0**	**0.0**	**9.6**	**12.6**	**14.0**	**0.3**	**0.0**	**0.0**	**0.0**	**14.3**	**41.0**	**86.8**	**0.0**	**0.0**	**0.0**	**127.8**
Total (i+j+k)	**32.0**	**4.0**	**0.0**	**7.3**	**10.1**	**53.4**	**27.0**	**1.8**	**0.0**	**2.1**	**0.1**	**31.0**	**65.0**	**87.0**	**0.0**	**0.0**	**2.7**	**154.7**
Others																		
Carpet (Woven)												0.0						0.0
Wool	1.0				0.2	1.2	23.0				0.2	23.2	7.0			0.1	1.3	8.4
Man-Made	36.0					36.0	93.0					93.0	13.0					13.0
Other than C,M		5.8				5.8						0.0						0.0
Unknown	9.0					9.0	16.0					16.0						0.0
Cordage												0.0						0.0
Nylon, Polyester			56.5			56.5			115.0			115.0						0.0
Unknown	24.0	6.6				30.6	3.0			75.0		78.0						0.0
Embroidery																		0.0
Man-Made									0.2			0.2		15.7	5.2			20.9
Unknown	14.0					14.0	15.0	0.2	0.1			15.3	26.0	0.4				26.4
Lace												0.0						0.0
Man-Made		6.3	0.2			6.5		3.0				3.0		0.7				0.7
Unknown			4.0			4.0	3.0	11.1				14.1	13.0	20.2				33.2
Non-Woven												0.0						0.0
Nylon			13.3			13.3						0.0			0.3			0.3
Man-Made		18.2				18.2		57.2				57.2		74.1				74.1
Other than Man-Made		104.8				104.8		218.9				218.9		32.3				32.3
Unknown					189.6	189.6					159.6	159.6					23.5	23.5
Tyre Cord Woven																		
Synthetic FY	33.0				245.0	278.0	170.0				402.9	572.9	35.0				319.7	354.7
Rayon FY						0.0					78.6	78.6					187.0	187.0
Belt						0.0					0.1	0.1	7.0					7.0
Blanket	27.0					27.0						0.0					3.0	3.0
Bonded	220.0					220.0	154.0					154.0	155.0					155.0
Braided					0.7	0.7						0.0		20.3				20.3
Felt	112.0	16.3			16.8	145.1	144.0					144.0	14.0					14.0
Fishing Net						0.0						0.0			4.2			4.2
For Machinery	19.0				1.9	20.9	35.0				3.3	38.3	27.0	0.1				27.1
Hosepiping	18.0	7.6				25.6	10.0					10.0	46.0					46.0
Label				0.6		0.6						0.0						0.0
Magic Tape						0.0		5.6				5.6		8.2				8.2
Netting	3.0					3.0	14.0					14.0	29.0	37.0				66.0
Quilt					23.0	23.0					0.1	0.1		14.7				14.7
Ribbon		15.0				15.0		138.3				138.3		47.6				47.6
Rope, Cable						0.0						0.0	5.0	6.7				11.7
Tapestry						0.0		8.0				8.0						0.0
Trimming						0.0		5.0				5.0		17.1				17.1
Wadding	101.0				24.0	125.0	36.0	0.1			15.9	52.0	84.0				0.7	84.7
Wicking				58.4		58.4				14.1		14.1						0.0
Sub-Total	**617.0**	**180.6**	**74.0**	**59.0**	**501.2**	**1431.8**	**716.0**	**447.4**	**115.3**	**89.1**	**660.7**	**2028.5**	**461.0**	**295.1**	**9.7**	**0.1**	**535.2**	**1301.1**
Grand Total	**17,054.0**	**12,436.4**	**3,667.9**	**3,371.7**	**18,595.5**	**55,125.5**	**22,819.0**	**29,368.8**	**7,815.8**	**2,393.4**	**23,954.6**	**86,351.6**	**22,415.0**	**20,303.7**	**8,809.0**	**1,119.9**	**29,103.6**	**81,751.2**

Table A3-1 IMPORT OF TEXTILES TO SYRIA BASED ON EXPORTING COUNTRIES STATISTICS (3)

	1992						1993						1994					
	Industrialized Nations	Taiwan	Korea	Hong Kong + Singapore	Turkey	Total	Industrialized Nations	Taiwan	Korea	Hong Kong + Singapore	Turkey	Total	Industrialized Nations	Taiwan	Korea	Hong Kong + Singapore	Turkey	Total
Garment, Unknown (k)																		
Man-Made						**0.0**						**0.0**		0.1				**0.1**
Unknown	3.0				9.6	**12.6**	14.0	0.3				**14.3**	41	86.7				**127.7**
Sub-Total	**3.0**	**0.0**	**0.0**	**0.0**	**9.6**	**12.6**	**14.0**	**0.3**	**0.0**	**0.0**	**0.0**	**14.3**	**41.0**	**86.8**	**0.0**	**0.0**	**0.0**	**127.8**
Total (i+j+k)	**32.0**	**4.0**	**0.0**	**7.3**	**10.1**	**53.4**	**27.0**	**1.8**	**0.0**	**2.1**	**0.1**	**31.0**	**65.0**	**87.0**	**0.0**	**0.0**	**2.7**	**154.7**
Others																		
Carpet (Woven)												**0.0**						**0.0**
Wool	1.0				0.2	**1.2**	23.0				0.2	**23.2**	7.0			0.1	1.3	**8.4**
Man-Made	36.0					**36.0**	93.0					**93.0**	13.0					**13.0**
Other than C.M		5.8				**5.8**						**0.0**						**0.0**
Unknown	9.0					**9.0**	16.0					**16.0**						**0.0**
Cordage												**0.0**						**0.0**
Nylon, Polyester			56.5			**56.5**			115.0			**115.0**						**0.0**
Unknown	24.0	6.6				**30.6**	3.0			75.0		**78.0**						**0.0**
Embroidery																		**0.0**
Man-Made									0.2			**0.2**		15.7	5.2			**20.9**
Unknown	14.0					**14.0**	15.0	0.2	0.1			**15.3**	26.0	0.4				**26.4**
Lace												**0.0**						**0.0**
Man-Made		6.3	0.2			**6.5**		3.0				**3.0**		0.7				**0.7**
Unknown			4.0			**4.0**	3.0	11.1				**14.1**	13.0	20.2				**33.2**
Non-Woven												**0.0**						**0.0**
Nylon			13.3			**13.3**						**0.0**			0.3			**0.3**
Man-Made		18.2				**18.2**		57.2				**57.2**		74.1				**74.1**
Other than Man-Made		104.8				**104.8**		218.9				**218.9**		32.3				**32.3**
Unknown					189.6	**189.6**					159.6	**159.6**					23.5	**23.5**
Tyre Cord Woven																		
Synthetic FY	33.0				245.0	**278.0**	170.0				402.9	**572.9**	35.0				319.7	**354.7**
Rayon FY						**0.0**					78.6	**78.6**					187.0	**187.0**
Belt						**0.0**					0.1	**0.1**	7.0					**7.0**
Blanket	27.0					**27.0**						**0.0**					3.0	**3.0**
Bonded	220.0					**220.0**	154.0					**154.0**	155.0					**155.0**
Braided					0.7	**0.7**						**0.0**		20.3				**20.3**
Felt	112.0	16.3			16.8	**145.1**	144.0					**144.0**	14.0					**14.0**
Fishing Net						**0.0**						**0.0**			4.2			**4.2**
For Machinery	19.0				1.9	**20.9**	35.0				3.3	**38.3**	27.0	0.1				**27.1**
Hosepiping	18.0	7.6				**25.6**	10.0					**10.0**	46.0					**46.0**
Label				0.6		**0.6**						**0.0**						**0.0**
Magic Tape						**0.0**		5.6				**5.6**		8.2				**8.2**
Netting	3.0					**3.0**	14.0					**14.0**	29.0	37.0				**66.0**
Quilt					23.0	**23.0**					0.1	**0.1**		14.7				**14.7**
Ribbon		15.0				**15.0**		138.3				**138.3**		47.6				**47.6**
Rope, Cable						**0.0**						**0.0**	5.0	6.7				**11.7**
Tapestry						**0.0**		8.0				**8.0**						**0.0**
Trimming						**0.0**		5.0				**5.0**		17.1				**17.1**
Wadding	101.0				24.0	**125.0**	36.0	0.1			15.9	**52.0**	84.0				0.7	**84.7**
Wicking				58.4		**58.4**				14.1		**14.1**						**0.0**
Sub-Total	**617.0**	**180.6**	**74.0**	**59.0**	**501.2**	**1431.8**	**716.0**	**447.4**	**115.3**	**89.1**	**660.7**	**2028.5**	**461.0**	**295.1**	**9.7**	**0.1**	**535.2**	**1301.1**
Grand Total	**17,054.0**	**12,436.4**	**3,667.9**	**3,371.7**	**18,595.5**	**55,125.5**	**22,819.0**	**29,368.8**	**7,815.8**	**2,393.4**	**23,954.6**	**86,351.6**	**22,415.0**	**20,303.7**	**8,809.0**	**1,119.9**	**29,103.6**	**81,751.2**

Table A3-2 IMPORT OF TEXTILES TO SYRIA BASED ON EXPORTING COUNTRIES STATISTICS

(1) Total

(t)

		'92	'93	'94
Cotton, Wool, Silk, Man-Made		2,509.8	3,284.2	4,075.3
FY, Textured-FY, Spun-Yarn		45,647.9	71,573.6	65,507.4
Woven Fabric		4,679.1	8,348.2	9,626.6
Knitted Fabric		803.5	1,086.1	1,086.1
Garment	Woven	25.6	11.1	11.2
	Knitted	15.2	5.6	15.7
	Unknown	12.6	14.3	127.8
	Sub-Total	(53.4)	(30.9)	(154.7)
Others		1,431.8	1,867.5	1,301.1
Total		55,125.5	86,190.5	81,751.2

(2) Staple Fibers

(t)

		'92	'93	'94
Wool		490.4	808.0	1,513.7
SF	Rayon	679.0	32.0	16.0
	Polyester	596.8	835.5	939.4
	Nylon	72.0	12.4	-
	Acrylic	282.0	623.2	539.2
	Synthetic	81.6	102.5	177.0
	Sub-Total	1,711.4	1,605.6	1,671.6
Waste	Cotton	132.0	-	-
	Rayon	37.0	-	187.0
	Synthetic	123.0	833.0	703.0
	Unknown	16.0	37.6	-
	Sub-Total	308.0	870.6	890.0
Total		2,509.8	3,284.2	4,075.3

Source : UN Trade of the Industrialized Nations with Eastern Europe, the former USSR and the Developing Nations, Supplement to the World Trade Annual Exports from Australia, Austria, Belgium-Luxembourg, Canada, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Israel, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, the United Kingdom and the United States of America.
Trade Statistics of Taiwan, Korea, Hong Kong, Singapore and Turkey.

Table A3-2 IMPORT OF TEXTILES TO SYRIA BASED ON EXPORTING COUNTRIES STATISTICS

(3) Yarns

(t)

		'92	'93	'94
FY	Rayon	457.3	874.7	625.4
	Polyester	797.9	3,156.1	4,050.3
	Nylon	2,548.9	3,773.0	4,526.8
	Synthetic	1,058.2	1,628.9	1,773.0
	Sub-Total	4,862.3	9,432.7	10,975.5
Textured	Polyester	14,548.6	24,152.5	20,778.7
	Nylon	7,799.7	15,401.3	12,610.4
	Synthetic	94.1	267.0	34.5
	Sub-Total	22,442.4	39,820.8	33,423.6
Spun-Yarn	Cotton	1,042.8	886.5	757.5
	Wool	196.8	485.0	66.8
	Flax, Ramie	72.0	-	8.0
	Rayon	1,012.9	935.1	904.2
	Polyester	3,045.3	2,083.3	1,851.8
	Nylon	-	308.6	71.1
	Acrylic	6,032.4	11,911.6	13,660.1
	Synthetic	4,933.8	4,184.2	2,975.8
	Others	2,006.1	1,525.8	813.0
	Sub-Total	18,342.1	22,320.1	21,108.3
Total		45,646.8	71,573.6	65,507.4

Table A3-2 IMPORT OF TEXTILES TO SYRIA BASED ON EXPORTING COUNTRIES STATISTICS

(4) Woven Fabrics

(t)

		'92	'93	'94
Silk		1.0	1.2	1.7
Cotton		732.5	813.3	823.8
Wool		330.2	841.2	457.3
Flax, Ramie		18.4	10.9	24.6
SF	Rayon	700.8	1,260.7	1,465.7
	Polyester	264.2	463.3	234.4
	Acrylic	-	16.4	43.8
	Man-Made	41.1	60.5	32.2
	Synthetic	533.5	1,333.7	717.4
	Sub-Total	1,539.6	3,134.6	2,493.5
FY	Rayon	317.2	621.4	585.1
	Polyester	440.0	1,086.7	2,204.6
	Nylon	195.3	189.3	198.2
	Synthetic	638.5	1,024.3	2,075.2
	Man-Made	16.9	29.3	67.1
	Sub-Total	1,607.9	2,951.0	5,130.2
Textured-FY	Polyester	224.3	263.5	306.1
Man-Made (SF, FY)		85.7	109.0	93.5
Others		139.5	223.5	295.9
Total		4,679.1	8,348.2	9,626.6

(5) Knitted Fabrics

(t)

	'92	'93	'94
Silk	5.7	5.3	-
Cotton	38.4	33.7	23.9
Man-Made	35.0	81.5	138.0
Unknown	724.4	965.6	924.2
Total	803.5	1,086.1	1,086.1

Table A3-2 IMPORT OF TEXTILES TO SYRIA BASED ON EXPORTING COUNTRIES STATISTICS

(6) Clothing/Woven

(t)

	'92	'93	'94
Wool	-	1.0	-
Synthetic	-	0.1	4.2
Unknown	25.6	10.0	7.0
Total	25.6	11.1	11.2

(7) Clothing/Knitted

(t)

	'92	'93	'94
Cotton	-	-	0.2
Synthetic	0.9	-	1.5
Man-Made	-	1.1	-
Unknown	14.3	4.5	14.0
Total	15.2	5.6	15.7

(8) Clothing/Unknown

(t)

	'92	'93	'94
Man-Made	-	-	0.1
Unknown	12.6	14.3	127.7
Total	12.6	14.3	127.8

Table A3-2 IMPORT OF TEXTILES TO SYRIA BASED ON EXPORTING COUNTRIES STATISTICS

(9) Other Textile Products

(t)

		'92	'93	'94
Carpet	Woven, Wool	1.2	23.2	8.4
	Man-Made	36.0	93.0	13.0
	Cotton, Other than Man-Made	5.8	-	-
	Unknown	9.0	16.0	-
Cordage	Nylon, Polyester	56.5	115.0	-
	Unknown	30.6	78.0	-
Embroidery	Man-Made		0.2	20.9
	Unknown	14.0	15.3	26.4
Lace	Man-Made	6.5	3.0	0.7
	Other than Man-Made	4.0	-	-
	Unknown	-	14.1	33.2
Non-Woven	Nylon	13.3	-	0.3
	Man-Made	18.2	57.2	74.1
	Other than Man-Made etc.	294.4	378.5	55.8
Tyre-Cord, Woven	Synthetic FY	278.0	419.9	354.7
	Rayon		78.6	187.0
Belt	Unknown	-	0.1	7.0
Blanket	Wool	27.0	-	3.0
Bonded	Unknown	220.0	154.0	155.0
Braided	Unknown	0.7	-	20.3
Netting	Unknown	3.0	14.0	66.0
Felt	Unknown	145.1	144.0	14.0
Fishing Net	Nylon	-	-	4.2
For Machinery	Unknown	20.9	38.3	27.1
Hosepiping	Unknown	25.6	10.0	46.0
Label	Unknown	0.6	-	-
Magic Tape	Unknown	-	5.6	8.2
Quilt	Unknown	23.0	0.1	14.7
Ribbon	Man-Made	15.0	138.3	47.6
Rope, Cable	Unknown	-	-	11.7
Tapestry	Unknown	-	8.0	-
Trimming	Unknown	-	5.0	17.1
Wadding	Unknown	125.0	52.0	84.7
Wicking	Unknown	58.4	14.1	-
	Total	1,431.8	1,875.5	1,301.1

Table A3-3 PRODUCTION OF FIBERS AND TEXTILES IN SYRIA

(t)

		1989	1990	1991	1992	1993	1994	1995
Cotton	10^3t	430.7	441.2	555.1	688.6	639	-	-
Wool Wasted	t	14,936	15,698	16,586	17,571	11,116	12,291	13,321
Hair	t	700	603	595	575	857	653	685
Silk Cocoon	t	99	93	118	79	65	89	68
Ginned Cotton	10^3t	119	132	120	162	200	236	209
Cotton Yarn	10^3t	39	37	39	38	33	37	-
Silk and Cotton Textiles	10^3t	30	27	28	26	29	27	-
Wool Yarn	10^3t	1	1	1	1	1	2	-
Woolen Cloth	t	448	533	61	498	660	424	-
Nylon Industrial Thread	t	103	82	37	533	319	-	-
Silk Yarn	t	10	6	5	11	3	3	-
Underwear	10^3d	2,454	1,552	1,652	1,800	2,045	2,018	-
Stockings	10^3d	4,426	2,509	2,693	3,248	3,391	3,709	-
Wool Carpets	10^3m^2	510	403	491	473	403	776	-
Silk Carpets	10^3m^2	180	227	126	337	253		-
Woolen Blankets	p	41,100	34,200	44,000	-	35,000	-	-
Cotton & Silk Blankets and Sheets	10^3p	993	579	286	2,083	2,522	-	-
Towels & Kaflas	10^3p	5,934	3,839	4,773	7,893	8,248	8,809	-

Source : Syrian Arab Rep. Statistical Abstract

Table A3-4 MAIN MANUFACTURED INDUSTRIAL PRODUCTS OF SYRIA

		1989	1990	1991	1992	1993	1994	1995
Public Sector								
Ginned Cotton	t	119	132	120	162	200		
Cotton Yarn	t	38,549	37,230	39,062	38,121	32,637	37,280	40,417
Cotton & Mixed Textiles	t	20,503	18,879	19,712	18,529	16,804	15,156	16,597
Mixed Woolen Yarn	t	1,283	837	1,305	1,460	1,321	1,571	1,442
Woolen Cloth	t	448	533	61	498	660	424	186
Synthetic Threads	t	103	82	37	533	319	274	129
Underwear	10^3d	1,918	1,300	1,029	859	1,032	867	1,053
Stocking	10^3d	209	235	237	192	151	169	155
Woolen Blankets	p	41,100	34,200	44,000	-	35,000	33,000	41,000
Woolen Carpets	10^3m^2	510	403	191	473	403	514	538
Silk Carpets	10^3m^2	150	148	43	36	31	-	-
Silk Yarn	t			5	3	3	3	3
Private Sector								
Cotton Textiles	10^3m	36,012	31,975	33,058	29,348	45,018		
Silk and Cotton Blankets	10^3p	337	156	155	408	293	428	
Cotton and Silk Bedsheets	10^3p	656	423	131	1,675	2,229	2,966	
Towels & Kaflas	10^3p	5,934	3,839	4,773	7,893	8,248	8,809	
Nylon Textiles	10^3m	2,411	2,463	873	847	1,501		
Tergal and Trevira Textiles	10^3m	1,117	1,577	934	295	879		
Silk Textiles	10^3m	3,514	1,911	1,671	1,519	2,473		
Tricot	10^3m	6,099	5,475	6,767	13,481	15,313	18,408	
Underwear	10^3p	6,426	3,020	7,478	11,296	12,160		
Stockings	10^3d	4,217	2,274	2,456	3,056	3,240	3,540	
Silk Carpet	10^3m^2	30	79	83	301	222	262	
Synthetic Textiles	10^3p			1,128	1,189	1,142	1,042	

Source : Syrian Arab Rep. Statistical Abstract

Table A3-5 IMPORTS OF FIBERS, FABRICS AND GARMENTS TO SYRIA

(t)

SITC. Rev.3		1990	1991	1992	1993	1994	1995
651.21	Cotton Sewing Thread	554	215	483	315	373	203
50	Synthetic FY	18,355	35,382	30,353	54,808	51,782	42,141
59	Other Synthetic FY	1,083	14,166	22,351	25,038	25,853	29,955
71	Yarn of Artificial FY	1,684	964	1,141	1,803	1,467	740
72	Textured Yarn, not for Retail	402	461	526	750	863	251
81	Yarn Containing 85% or more Synthetic	1,784	1,099	1,384	1,313	1,282	799
653.10	Fabrics, Woven of Synthetic	781	698	1,876	2,352	5,093	5,901
40	Fabrics, Woven of Synthetic	2,856	2,288	3,470	4,154	3,168	2,803
50	Fabrics, Woven of Artificial	455	873	1,315	2,120	2,537	876
654.21	Fabrics, Woven of Carded	875	122	413	1,035	486	519
657.32	Textile Fabrics Impregnated	6,602	8,114	10,237	12,853	11,121	9,185
71	Wadding of Textile materials	451	936	706	396	53	517
93	Tyre Cord Fabrics	256	288	208	849	581	24
	Total	36,138	65,606	74,463	107,786	104,659	93,914

Source: Syrian Arab Republic, Statistical Abstract

Table A3-6 EXPORTS OF FIBERS, FABRICS AND GARMENTS FROM SYRIA (1)

SITC. Rev.3		1990	1991	1992	1993	1994	1995
263.10	Raw Cotton	66,193	81,202	134,924	158,923	150,595	123,660
31	Yarn Waste of Cotton	18,656	17,384	18,582	21,916	8,178	9,660
39	Other Cotton Waste	6,972	4,247	1,656	2,808	6,543	3,123
268.10	Wool Greasy (Washed)	1,770	-	7,626	2,537	3,854	2,626
	Sub-Total (263, 268)	93,591	102,833	162,788	186,184	169,170	139,069
651.21	Cotton Sewing Thread	5,006	2,748	1,866	469	15,662	5,777
652.21	Woven Fabrics of Cotton Unbleached	1,183	701	106	117	7	83
31	Other Woven Fabrics of Cotton, Bleached	108	96	77	23	1	6
32	Other Woven Fabrics of Cotton, Bleached Dyed	54	158	101	49	7	52
34	Other Woven Fabrics of Cotton, Bleached Printed	870	4,563	1,035	865	339	167
60	Other Woven Cotton Fabrics	52	116	-	26	-	4
653.10	Fabrics, Woven of Synthetic Filament Yarn	4,598	3,358	1,144	952	893	1,389
2	Fabrics, Woven of Synthetic cont. 85% fibers	104	87	257	503	919	1,691
4	Fabrics, Woven, of SF Mixed with Other Materials	17	53	154	242	205	159
655.23	Other Fabrics, Warp Knit	2,570	3,234	3,979	7,293	7,781	5,589
656.11	Woven Pile Fabrics and Chenille Fabrics	310	170	166	179	1,108	222
13	Other Woven Fabrics	78	77	71	56	67	73
14	Fabrics Consisting of Warp without Welt	12	3	-	-	-	-
656.30	Gimped yarn Loop Warp Yarn	377	282	301	434	642	552
658.45	Table Linen not Knitted nor Crocheted of Cotton	589	543	627	964	811	554
48	Toilet and Kitchen Linen	125	84	271	449	327	627
659.41	Carpets and Floor Covering of Wool	776	49	234	407	758	1,087
43	Carpets of Other Artificial Textile	441	143	342	144	341	448
60	Carpet of Other Textile Material	542	216	323	847	225	89
841.00	Men's or Boy's Underwear, Knitwear	1,520	2,520	1,844	2,834	4,523	3,842
842.00	Women's or Girls Underwear, Knitwear	1,030	1,734	1,514	2,848	6,128	3,360
843.24	Trousers, Overalls	999	850	682	1,081	1,464	1,354
71	Shirts of Cotton	967	1,427	1,757	2,514	2,360	3,588
845.50	Girdles, Corsets, Garters	253	43	35	37	55	44
846.20	Shawls, Scarves, Knitted	239	306	268	343	14	4
92	Other Gloves, Knitted	104	155	170	389	648	686
93	Shawls, Scarves, Crocheted	10,308	2,814	2,527	5,031	6,690	7,442
	Sub-Total (651-846)	33,232	26,530	19,851	29,096	51,975	38,889
Total		126,823	129,363	182,639	215,280	221,145	177,958

Source: Syrian Arab Republic, Statistical Abstract

Table A3-7 APPAREL FIBER CONSUMPTION OF SYRIA (FAO)

(1,000 ton)

Items	1990	1991	1992
Cotton			
Mill Consumtion	55.0	55.0	55.0
Foreign Trade			
Imports Yarn	0.6	0.2	0.5
Fabrics	0.4	0.2	0.5
Clothing	-	-	-
Other Manufactures	0.6	0.8	0.7
Total (Actual Weight)	1.6	1.2	1.7
Total (Fibre Equivalent)	1.9	1.5	2.1
Exports Yarn	7.6	6.2	5.5
Fabrics	2.4	5.5	1.8
Clothing	2.0	1.0	2.0
Other Manufactures	0.7	0.5	1.0
Total (Actual Weight)	12.7	13.2	10.3
Total (Fibre Equivalent)	14.6	15.4	12.3
Balance (Fibre Equivalent)	-12.8	-13.9	-10.2
Available for Home Use	42.2	41.1	44.8
Wool			
Mill Consumtion	16.0	15.0	13.8
Foreign Trade			
Imports Tops	0.1	0.0	0.0
Noils	-	-	-
Yarn	0.1	0.1	0.1
Fabrics	0.9	0.2	0.6
Clothing	0.0	0.0	0.0
Other Manufactures	0.0	0.0	0.0
Total (Actual Weight)	1.1	0.3	0.7
Total (Fibre Equipvalent)	1.2	0.3	0.8
Exports Tops	-	-	-
Noils	-	-	-
Yarn	-	-	-
Fabrics	-	-	-
Clothing	-	-	-
Other Manufactures	-	-	-
Total (Actual Weight)	-	-	-
Total (Fibre Equipvalent)	-	-	-
Balance (Fibre Equivalent)	1.2	0.3	0.8
Available for Home Use	17.2	15.3	14.6
Flax			
Mill Consumtion	-	-	-
Foreign Trade			
Imports Yarn	-	-	-
Fabrics	-	-	-
Clothing	-	-	-
Other Manufactures	-	-	-
Total (Actual Weight)	-	-	-
Total (Fibre Equivalent)	-	-	-
Exports Yarn	-	-	-
Fabrics	-	-	-
Clothing	-	-	-
Other Manufactures	-	-	-
Total (Actual Weight)	-	-	-
Total (Fibre Equivalent)	-	-	-
Balance (Fibre Equivalent)	-	-	-
Available for Home Use	-	-	-

Items	1990	1991	1992
Cellulosic Fibres			
Mill Consumption Estimate:			
Filament: Production	-	-	-
Imports	1.1	1.2	1.2
Exports	-	-	-
Discontinuous:			
Production	-	-	-
Imports	0.0	1.2	0.7
Exports	-	-	-
Mill Consumption	1.1	2.4	1.9
Foreign Trade			
Imports Spun Yarn	0.2	0.1	0.1
Fabrics	0.1	0.1	0.1
Clothing	-	-	-
Other Manufactures	0.2	0.2	0.2
Total (Actual Weight)	0.5	0.4	0.4
Total (Fibre Equivalent)	0.5	0.4	0.4
Exports Spun Yarn	-	-	-
Fabrics	0.0	0.0	0.0
Clothing	0.0	0.0	0.0
Other Manufactures	0.0	0.0	0.0
Total (Actual Weight)	0.0	0.0	0.0
Total (Fibre Equivalent)	0.0	0.0	0.0
Balance (Fibre Equivalent)	0.5	0.4	0.4
Available for Home Use	1.7	2.8	2.3
Synthetic (Non Cellulosic) Fibres			
Mill Consumption Estimate:			
Filament: Production	-	-	-
Imports	28.0	30.0	29.0
Exports	-	-	-
Discontinuous:			
Production	-	-	-
Imports	0.4	0.4	0.3
Exports	-	-	-
Mill Consumption	28.4	30.4	29.3
Foreign Trade			
Imports Spun Yarn	3.5	1.2	2.3
Fabrics	3.5	4.0	3.5
Clothing	0.0	0.0	0.0
Other Manufactures	2.0	2.2	2.5
Total (Actual Weight)	9.0	7.4	8.3
Total (Fibre Equivalent)	9.8	8.2	9.1
Exports Spun Yarn	-	-	-
Fabrics	5.0	4.5	4.0
Clothing	2.5	2.0	2.0
Other Manufactures	0.4	0.4	0.4
Total (Actual Weight)	7.9	6.9	6.4
Total (Fibre Equivalent)	8.8	7.7	7.1
Balance (Fibre Equivalent)	1.0	0.5	2.0
Available for Home Use	29.4	30.9	31.3
Fibres Available for Home Use	90.5	90.2	93.0
Population (millions)	12.3	12.8	13.2
Availability Per Caput (kgs)			
Cotton	3.4	3.2	3.4
Wool	1.4	1.2	1.1
Flax	-	-	-
Total Natural Fibres	4.8	4.4	4.5
Cellulosic Fibres	0.1	0.2	0.2
Synthetic (Non Celulosic) Fibre	2.4	2.4	2.4
Total Man-Made Fibres	2.5	2.6	2.5
Total Fibres	7.3	7.1	7.0

Source : FAO

Table A3-8 APPAREL FIBER CONSUMPTION OF SYRIA (FAO)
(1990-92 Average)

(1,000 ton)

		Cotton	Wool	Cellulosic	Synthetic	Total
Domestic		55.0	14.8	0.0		69.8
Import	Staple Fiber			0.6	0.4	1.0
	Spun Yarn	0.4	0.1	0.1	2.3	2.9
	Filament Yarn	-	-	1.2	29.0	30.2
	Fabric	0.4	0.6	0.1	3.7	4.8
	Clothing	-	0.0	0.0	0.0	0.0
	Other Manufactures	0.7	0.0	0.2	2.2	3.1
	Total (actual)	1.5	0.7	2.2	37.6	42.0
	Total (Fiber Equivalent)	1.8	0.8	2.2	38.6	43.4
Export	Yarn	6.4	0.0	0.0	-	6.4
	Fabric	3.2	0.0	0.0	4.5	7.7
	Clothing	1.7	0.0	0.0	2.2	3.9
	Other Manufactures	0.7	0.0	0.0	0.4	1.1
	Total (actual)	12.1	0.0	0.0	7.1	19.2
	Total (Fiber Equivalent)	14.1	0.0	0.0	7.9	22.0
Available for Home Use		42.8	15.7	2.2	30.5	91.2

Source : FAO

Table A3-9 PRODUCTION OF YARNS, FABRICS AND GARMENTS IN SYRIA

(10^3t)

	1985	1986	1987	1988	1989	1990	1991	1992	1993	-
Wool Yarn, Pure and Mixed (Total)	2.1	2.1	1.8	1.0	1.3	0.8	1.3	1.5	1.3	1.5
Cotton Yarn, Pure (Total)	34.9	41.5	39.0	36.7	38.5	37.2	39.1	38.1	32.6	37.5
Cotton Woven Fabrics	19.0	30.0	25.0	24.0	30.0	27.0	28.0	26.0	29.0	26.4
Silk Fabrics	-	1,625.0	1,643.0	926.0	3,514.0	1,911.0	1,671.0	1,519.0	2,478.0	1,910.9
Woollen Woven Fabrics	1,673.0	1,405.0	511.0	642.0	448.0	533.0	61.0	498.0	660.0	714.6
Blankets	20.0	29.0	46.0	61.0	41.0	34.0	44.0	-	-	39.3
Bed Linen Articles	74.0	150.0	219.0	285.0	656.0	423.0	131.0	1,675.0	-	451.6
Towelling	5,081.0	5,253.0	5,189.0	5,868.0	5,934.0	3,839.0	4,773.0	7,893.0	8,248.0	5,786.4
Socks and other stockings Except Wemen's Stocking	18.9	21.9	25.6	21.0	53.1	30.1	32.3	39.0	40.7	31.3
Carpets and Rugs of Wool, Knitted	564.0	659.0	595.0	520.0	510.0	403.0	491.0	473.0	403.0	513.1
Carpets and Rugs of Other	266.0	339.0	160.0	57.0	180.0	227.0	126.0	337.0	253.0	216.1
Underwear, Men's and Boy's	35,688.0	32,760.0	27,312.0	24,360.0	29,448.0	18,624.0	19,824.0	21,600.0	-	26,202.0

Source: Industrial Commodity Statistics (U.N)

Table A3-10 IMPORTS OF YARNS, FABRICS AND GARMENTS OF SYRIA

(t)

	1987	1988	1989	1990	1991	1992
651 Textile Yarn	30,103	31,997	40,844	34,781	-	58,402
653 Woven Man-made Fiber Fabric	1,731	1,235	2,960	4,217	-	14,118
657 Special Textile Fabric Products	8,675	7,400	9,768	8,878	-	13,963
658.1 Bags, Sacks of Textiles	26,793	9,810	25,737	16,420	23,203	55,216
Total	67,302	50,442	79,309	64,296	23,203	141,699

Source: International Trade Statistics Yearbook (UN)

Table A3-11 EXPORTS OF YARNS, FABRICS AND GARMENTS OF SYRIA

(t)

	1987	1988	1989	1990	1991	1992
263 Cotton	78,636	46,803	78,151	91,822	-	155,237
268 Wool (excl. tops), Aminal Hair	3,353	2,082	990	1,910	-	-
651 Textile Yarn	6,721	-	4,906	5,197	-	2,045
652 Cotton Fabrics, Woven	9,526	7,506	5,148	2,367	-	1,821
653 Woven Man-made Fiber	598	3,945	9,695	5,024	-	1,919
655 Knitted etc. Fabrics	18	2,937	2,084	2,585	3,234	3,989
658 Textile Articles	559	507	492	1,164	-	-
659 Floor Coverings, etc.	497	1,781	1,321	1,853	-	1,354
842 Mens Outwear not Knit	207	288	666	1,390	2,250	1,783
843 Womens Outwear not Knit	286	424	404	976	1,734	1,386
844 Under Garments not Knit	66	-	156	184	-	189
845 Outwear Knit Nonelastic	582	799	1,846	10,308	-	2,527
846 Undergarments Knitted	1,911	2,468	2,123	1,980	-	2,484
847 Textile Clothing Accessaries	6,310	444	954	666	-	584
Total	109,270	69,984	108,936	127,426	7,218	175,318

Source: International Trade Statistics Yearbook (UN)

ANNEX-4 Diagnostic Study of the State-Owned Textile Companies

List of the Companies

1	Al Shark Underwear's General Company
2	General Company for Carpets
3	General Company for Wool
4	Industrial Company for Ready Made Garment
5	Al Ahlieh Company for Spinning and Weaving
6	Syrian Company for Spinning and Weaving
7	Al Shahba Spinning and Weaving Company
8	Lattakia Weaving Company
9	United Arab Company
10	Jableh Spinning Company
11	Draikeesh Natural Silk Company

1

Al Shark Underwear's General Company

CONTENTS

TECHNICAL DIAGNOSIS FOR AL SHARK UNDERWEAR'S GENERAL COMPANY

Date : 16~18 Aug, 3,4 Sep,1997
Persons in Charge : Arnold Haworth, Yoshimitsu Ishii

1. Present Situation and Problems of the Company

1.1 Location

The factory is conveniently located in an urban district on the outskirts of Damascus approximately 8 km from the center in the southeast direction and 1/2 km from the main highway linking the center of Damascus to the International Airport.

1.2 Outline of the Company

(1) General items

The company was established in 1975 when five private companies were merged together to make the present public sector company, Al Shark. The private companies were Orient, Syrian Company for Underwear, Imperial, Hyder Al Hajjar, and Fauzi and Fisal Al Hafar.

(2) Building site

The site area is about 60 acres (approximately 243,000 square meter) and the building accounts for 30% of it. The principal production building has two floors and its ground floor constitutes a yarn and auxiliary material store, knitting area, dye house area, knitted goods store, waste store and clinic, etc.. In the first floor there are storing areas for bleached and dyed knitted fabrics, a garment making factory and laboratory. The separate three-storied administrative building has offices, utility center, workshop, nursery, etc.. **Appendix A-F-1** shows the arrangement of production areas.

(3) Raw material

Cotton yarn is supplied by Lattakia Spinning Company, Hama Cotton Yarns Company and occasionally by Jableh Spinning Company, Al Waleed Spinning Company and Homs Spinning and Weaving Company. Currently, Ne 24/1 carded yarn is the single most important raw material. Occasionally Ne 30/1 combed yarn from Lattakia and now from Hama may feature.

(4) Product

Traditionally the company has specialized in the production of a wide range of men's, women's and children's knitted underwear and some knitted outerwear. The underwear accounts for 90% of total production, but recently the company has begun to devote its energy to the production of T-shirts. Please see **Appendix A-P-1**.

[Underwear] shorts, running shirts, athletic shirts and semi-sleeve shirts, etc. for men, women and children

[Outerwear] Pajamas, sport pajamas, overall smocks, shirts and vests for children, etc. for men, women and children

[T-shirts] This is an independent garment item, but it is not clearly defined whether it is underwear or outerwear and it is made in both underwear and outerwear making departments.

(5) Sales and stocks

Sales for the past six years have fallen below the planned level and as a result stocks have been very high. Production, sales and stocks in the last 6 years are as follows;

Unit : dozen

	Production/stock brought forward	Sale to local market	Sale to foreign market	Total sales	Term-end stock
1991	1,625,947	566,001(35%)	411,983(25%)	977,984(60%)	647,963(40%)
1992	1,286,251	620,336(48%)	121,419(10%)	741,755(58%)	544,496(42%)
1993	1,331,795	557,262(42%)	232,877(17%)	790,139(59%)	541,656(41%)
1994	1,210,529	632,843(52%)	199,746(17%)	832,589(69%)	377,940(31%)
1995	1,238,570	617,152(50%)	357,013(29%)	974,165(79%)	264,405(21%)
1996	1,179,802	634,964(54%)	180,516(15%)	815,480(69%)	364,322(31%)

Note) The per cent represents the share of sales (export and domestic) and stock.

(6) Production plan and result

Production plan and average of fulfilling the plan over the last 6 years are shown below.

Year	Plan (dozen/y)	Actual (dozen/y)
1991	1,405,588	801,185(57%)
1992	1,031,110	638,288(62%)
1993	1,357,412	787,299(58%)
1994	1,190,845	668,873(56%)
1995	1,178,945	860,630(73%)
1996	1,158,668	915,397(79%)

Note) The % represents the actual production/plan ratio.

(7) Organization and manpower

The organization chart is shown in **Appendix A-F-2.** The number of employees is as follows;

	Male	Female	Total
Managers & staff	45	23	68
Auxiliary section	73	—	73
Others (Service, etc.)	47	24	71
Production	198	755	953
Knitting	(91)	—	(91)
Rubber knitting	(4)	(5)	(9)
Dyeing & bleaching	(54)	—	(54)
Cutting	(9)	(23)	(32)
Outerwear sewing	(5)	(55)	(60)
Underwear sewing	(18)	(468)	(486)
Inspection & pressing	(10)	(114)	(124)
Packaging	(7)	(90)	(97)
Grand Total	363	802	1,165
Male & female/Total	31%	69%	100%

The above employees are aged as follows ;

18 years—20 years	52
21 years—30 years	420 persons
31 years—40 years	310
41 years—50 years	235
51 years—60 years	148

Labor turnover is not very high. Since 1975 the company has had on its books a total of 6,349 persons.

Most of the work force is locally based but a minority travels daily from near the Golan Heights. A total of 18 buses are provided by the company to collect the work force daily. The buses operate under contract and are provided by a public sector company (13 buses) and a private sector company (5 buses). These buses are not used for the night shift workers. The shift workers are collected by 6 microbuses owned by Al Shark.

(8) Production equipment

As shown in Appendix A-T-1.

(9) Utility equipment

As shown in Appendix A-T-1.

2. Present Situation and Problems of Production Process

Overall production flow is shown in Appendix A-F-3, with production quantity of each process.

There is no evidence of rational or innovative product design or development. In almost every instant the company cannot decide the knitting quality by themselves. This is no doubt a consequence of at least two factors.

1) Limited choice of yarns, reliance on gray fabric weight per unit area as the main quality parameter, and excessive reliance on customer's for design information.
2) Absence of any know-how on how to produce fabrics with specific properties after finishing. Much reliance has been placed on past experience and on the recommendation of knitting machine builders.

Garment design appears to be dictated mainly by specific export customers. Technologists do not appear to be conversant with the latest development and production technology. All staff members in all departments seem to be severely underexposed to the technical and or aesthetic requirements of the European

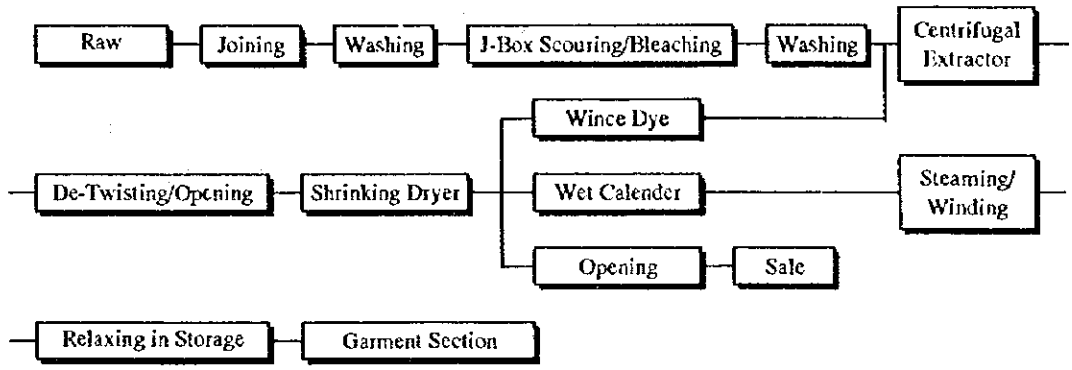
market. This lack of access to both market and technical intelligence and expertise was recognized by each department to be an important limitation.

2.1 Knitting Process

Only 60% can be operable among all knitting machines, due to shortage of spare parts and bad maintenance. Actually, about 40% of the total machines are run by fixed orders.

2.2 Dyeing and Finishing Process

Production flow of the dyeing and finishing process is shown as follows ;
Raw material



Note) In the above, the flow of dyeing process is Wince dye→Centrifugal extractor →De-twisting/opening→Shrinking dryer→Wet calender→..... and the other is the flow of bleaching process.

The production process is a very simplified one, as the production items are few and only cotton is processed. The scouring and bleaching process is a one step process using a J-Box under the processing condition of : NaOH (2.5g/l), H_2O_2 (50% dope, 25g/l), Stabilizer (2.5g/l), Wetting agent (3g/l), 85~90°C×100 min stay, etc.. Dyeing processing is carried out by a wince machine using mainly reactive dyes.

However, the available area 1,500㎡ (35m×42m) is not enough for carrying out modernization from now on. Since there is not enough space for placing gray fabric and finished fabric, it is piled in heaps everywhere. Such

conditions will cause, without doubt, trouble in the quality and conveyance of goods in the factory.

3. Present Situation and Problems of Management in Knitting Process

3.1 Procurement Control

(1) Raw material

① 100% cotton yarn, as raw material, comprising mainly carded and combed Nc 24 and Nc 30 is procured from the domestic spinning factories. A small quantity of rubber for elastic string is imported from Malaysia and Saudi Arabia and nylon and polyester filament, used for the warp, is imported from Turkey. Only the volume is checked and they do not make it a rule to check the quality of raw material.

② The factory sees little point in testing yarns supplied by another public sector company, under the pretext of the incoming yarns being checked by the supplying company. Furthermore, no inspection certificate is attached to the delivery by the supplying company and the receiving company does not demand it, either. Such being the case, any problem arising from the raw material is neither fed back to nor claimed on the supplier. No such system or commercial custom exists.

③ Emphasis appears to be laid not on the quality but on the quantity of raw material..

(2) Spare parts

① Long delivery time of the spare parts of the machines of age more than twenty years is one reason of low operation ratio. High price of such parts raises the production cost.

② Procurement should be implemented on the basis of an accurate parts list and information showing frequency of use (i.e., durable length of time) of spare parts.

3.2 Inventory control

① The stock of raw material, midway products and finished products is managed by the person in charge in each section. The current method of stock control

is ordinary but the production site and warehouse are cluttered with the stocks because of quantity-wise unsatisfactory orders and no practice of production adjustment.

② Therefore, keeping conditions of stocks have resulted in bad in terms of quality preservation. Please see Appendix A-P-2. Old yarn stocks, which are extremely old, should be cleared out.

3.3 Process Control

① The production is not managed by using "the schedule plan" (rough - medium - in depth). There is neither progress management nor "come up system" (methodology to ensure the delivery due date prior to expiry) required to match the delivery time. Such documents at site as progress card, production instructions, working slip, working report, notice board, etc. relating to the process management are not made the most of. At present, it does not lead to the problem, as the number of production items is few and there is no delivery deadline to abide by. Bit, it is essential to adopt the schedule plan system and come up system in order to cope with market demand and quick response from now on.

② It is a good practice that a monitor display installed in the room of the General Manager enables him to watch the working attitude of workers in several garment making processes by changeover TV monitor cameras. Please see Appendix A-P-3.

③ The garment and knitting departments are not being issued with correct quality targets and is not using the correct control parameters. This is due to a reflection of the commercial departments inability to supply the knitting department and the other departments with clear quality targets.

④ The garment customers furnish the manufacturer with quality parameters and they try to monitor their orders. But, the company's own commercial department does not influence the specifications because the commercial people cannot have direct contact with the market for which the garments are destined. Thus, the demand of the market (quality, design, delivery) does not reach the company and it is not conveyed to the production process.

⑤ The main criticism is the yarn and fabric handling in the knitting room.

⑥ Recently the bar and line graph showing the result of quality and productivity has started to be displayed to the persons involved. Please see Appendix A-

P-4. Such activity should be enlarged and the company target and slogan, production plan and result, etc. should be notified and be brought home to all the employees.

3.4 Equipment Control

① Equipment control of the knitting department and the garment making department are generally well organized and compare favorably with similar departments in other Middle Eastern countries. The knitting machines are well maintained and technically correct.

② But, preventive maintenance and periodical cleaning of the mechanism appears not to be carried out strictly. Every machine, floor, duct, etc. has cotton waste and fly, attached to them.

③ Air circulation by air ventilation is carried out in the summer season. The air is supplied from ceiling ducts and is returned through floor outlets. And in the winter season, the air, heated by steam, also circulates the work site. But, much cotton fly attaches to the air outlets and inlets. Accumulation of cotton fly in the air inlets and outlets may be attributable to the imperfect function of dust the collecting system (filters and bags being choked by fly, etc.).

④ As shown in **Appendix A-P-5**, there are no tubes covering the yarn coming from the cone in the creel and the supplied yarn is exposed defenseless to the fly. This should be made and installed under the collaboration of the machine makers.

3.5 Quality Control

① Regarding the incoming raw material (yarn), there is neither test report of suppliers (spinning companies) nor inspection of incoming yarn by Al Shark. In such situation, it cannot blame the suppliers of the defects in the knitted gray fabric arising from the yarn faults. It is expected to be carried out without fail for the quality upgrading. For further detail, please see the paragraph of Procurement Control.

② In fact, not only "knitting bar" faults (at interval of 2-3 cm) caused by uneven draft of yarn but also defects caused by neps, contamination and slubs in the yarn are frequently observed in the knitted fabric, but this is taken for granted and no efforts to get rid of the causes are observed.

③ Yarn bags received from the spinners are being stacked too high resulting in deformed cones of bad quality. The spinning companies should adopt the carton box package even for the local market.

④ In order to have quality acceptable for export, a great deal of inspection is being carried out. All gray fabric is inspected by inspecting machines. Likewise, in the garment making process the inspection for all number of garments is carried out on 8 inspecting tables. But, it is not obvious whether its result is fed back to the previous processes to eradicate the causes and inspection information is made the most of, and the standard applied is suitable. Inspection cannot improve quality. It is important to follow the inspection results.

3.6 Education and Training

① No education and training other than the basic training for newcomers carried out by managers or skilled employees during 1-3 months is carried out. There is no programmed or organized scheme/system for training.

4. Present Situation and Problems of Management in Dyeing and Finishing Process

4.1 Procurement Control

(1) Raw material

① The raw material of this section is in-house manufactured knitted fabric. Testing and inspection for incoming knitted gray fabric is not being carried out.

(2) Spare parts

① No availability for spare parts of old machines. So, necessary parts are self-supplied by in house-manufacture. However, as it is impossible to supply all the necessary parts, it is resulting in low operation ratio due to occurrence of stopped machines and makeshift operation by applying parts of other stopped machines and adverse effect on the quality by skipping necessary process.

4.2 Process Control

① As it is stated in the paragraph of Process Control of Knitting Process, it is doubtful if the processing conditions are clearly established. And there are not exist any instruction notes stating clearly such processing conditions. Consequently, there is no knowing whether the goods are processed as indicated by the processing conditions. It is necessary to organize, codify and put into a booking system, the processing conditions traditionally transmitted.

② At present, there is not enough space to place raw materials and products in the processing site. The materials and products heaped in the site are hindering the smooth process flow. Therefore, it is urgent to prepare a provisional materials and products stores outside the building.

③ There lacks awareness of tidiness, cleanliness and orderliness in the working site. It is necessary to develop "5S" Activity.

④ Uneven whiteness and dyeing specks are frequently generated because of inadequate process control.

⑤ The faults in this process and inadequate storage of processed fabric result in press marks in the sewing section. Please refer to **Appendix A-P-7**.

4.3 Equipment Control

① There is frequent fluctuation of supply steam pressure, adversely affecting the evenness of dyed shade. It is likely due to the bad performance of reduction valves, which should be replaced or repaired as early as possible.

② It appears that the generator does not automatically start and stop in case of power failure. This retards the switchover of power supply, affecting the dyeing quality.

③ Preventive maintenance is not carried out for bleaching and dyeing process.

④ Raw water is taken in from 2 deep wells of 90 m in depth having capacity of 30 m^3×2/hr and 400-500 ppm total hardness. Meanwhile, the capacity of the installed water softener is estimated as approx. 30 m^3/hr., running short of 30 m^3/hr. It gets 50 ppm total hardness, pH7 and non iron. Please see **Appendix A-P-6**.

4.5 Quality Control

① Bleached and dyed fabric undergoes a mere visual check due to the lack of the standard lighting boxes required for implementing whiteness and shade difference inspection, which should be installed.

② No care is taken about the preservation of quality of gray fabric waiting to be processed (Risked to be degraded by oil stain or long term storage).

4.6 Education and Training

① Many employees appear to lack fundamental knowledge of bleaching and dyeing technology (e.g.: pickup, concentration, chemical reaction, influence on the quality by water quality and processing conditions, mechanism and performance of machinery, etc.), because of shortage of education and training.

② For employees, there is a lack of opportunity to know information about technology because of unavailability of foreign technical information, catalogues, specifications, drawings and manuals, etc.

4.7 Environmental Preservation

① There are no safety devices or fences in the machine zone.

② Drains are diverted into the drain treatment pit of about 10 m deep leading to the city channel, after only adjusting pH, as shown in **Appendix A-P-8**.

5. Modernization Plan

5.1 Modernization of Production Management

(1) Procurement control

① Feedback and claims to the yarn suppliers about low quality yarn.

② Requirements to the state-owned yarn suppliers to attach inspection certificate.

③ Testing and inspection of all incoming yarns (at least, yarn strength, yarn count CV%, twist, "scriplane" test).

④ Likewise, testing and inspection of gray fabric should be implemented.

(2) Stock control

① Implementation of production adjustment on account of high stock.

② Clearing out of old yarn stocks by all means. Its quality declines as time passes.

③ Correct handling of raw materials, semi-processed and final products.

(3) Process control

① It is essential to adopt "schedule plan system" and "come up system" in order to cope with the market demand with quick response.

② The process should be managed using production instruction, progress card, working slip, working report, notice board, relating to the work instruction and its progress. Please refer to 12.1.1 of Final Report.

③ Processing should be done in accordance with the established processing conditions. Various equipment and instruments are required to establish the processing conditions, such as manual concentration analyzer, reagents, pickup measuring device, electronic balance, moisture meter, thermometer, tachometer, etc..

④ To issue correct quality targets and control parameters for the knitting production section.

⑤ Countermeasure for uneven whiteness : Current adjustment of concentration by different speed of roll should be replaced by method of preparing recipe for each weight of fabric.

⑥ Countermeasure for dyeing specks : To test to minimize the fabric loading quantity in J-box.

⑦ Countermeasure for press mark in the sewing section : To release excessive tension on the fabric in the steaming and winding machines and stop the current practice of piling up the finished fabric rolls in heaps.

⑧ To practice "5S" activity for maintaining the factory clean and with orderliness. To train thoroughly all the workers to have awareness of tidiness and cleanliness in the working site.

⑨ To secure enough space for holding gray and finished fabric in the dyeing section, so as to avoid it damaged and deteriorating by piling it without care and a disorderly.

(4) Equipment control

① To maintain the steam pressure stable by replacing defective reduction valves.

② To make sure automatic start and stop of the generator in case of power failure.

③ To carry out strict preventive maintenance and periodical lubrication and machine cleaning.

④ Upgrading of fabric handling and correct weight control should be practiced by use of the overfeeding function of shrinkage dryer. At present, this machine is used without this function.

⑤ As the fly piles in the air inlet and outlet grills adversely affect the air conditioning equipment, the function of dust collecting equipment should be checked and dust choking its filters and bags should be removed.

⑥ Tubes to cover the yarn coming from the creel exposed to the air should be set up. The parts can be fabricated under collaboration of the knitting machine manufacturer.

(5) Quality control

① As stated in the paragraph "procurement control", it should be required that the yarn suppliers (state-owned spinning companies) provide inspection certificates of the yarn. Or the company itself should implement the test and inspection of all incoming yarns.

② To ask the yarn suppliers to package the yarn not in bags but in carton boxes. While storing or transporting the yarn inside the factory, the bag should not be used. These terribly damage the yarn quality.

③ Carriers should be used for internal-transport of raw materials and midway and final products, in place of dragging bags on the floor, in order to maintain the quality of products.

④ The company should claim the right to pick out suppliers of good quality yarn among the many state-owned spinning companies.

⑤ The dyeing section should be equipped with the standard lighting boxes required for implementing inspection of whiteness and shade difference of the fabric.

⑥ At the same time, it should intensify the testing equipment indispensable for quality check, such as laundry shrinkage tester, fade-O-meter, launder-O-

meter, color fastness tester to rubbing, microscope, electronic instrument, and computer-controlled color matching system in the future.

(6) Education and training

① Programmed and organized training schemes/systems aiming at furnishing the employees with basic and further intensified knowledge about technology, maintenance skill and quality control methodology should be intended. For such purpose, a building or center specialized for the purpose should be established and personnel engaged only in training should be recruited. The current orientation program only for newcomers is not enough.

② To build up an information control system in which drawings, manuals and spare parts catalogues for the equipment at site are available at hand to all staff.

③ To analyze the possibility to adopt the promotion system of employees by training and its results.

(7) Environmental Preservation

① To put up covers and fences for dangerous parts of machinery and to put insulation to the high temperature piping.

② To establish safety promotion organization and develop campaigns for safety for employees.

③ To analyze the installation of a full scale dye-house effluent treatment system in stead of the current discharging of effluent.

5.2 Modernization of Dyeing and Finishing Process

① Countermeasures on process control for the improvement of dyeing quality, eliminating uneven whiteness/color shade and dyeing specks were stated in 5.1(3). Such defects cannot be eradicated, however, by whatsoever efforts, if under the current conditions of worn out equipment. The key machines affecting the quality should be renewed.

② Existing rope-state dyeing and bleaching tends to create the dyeing specks mechanically. It had better to change the mechanism, renewing the machine.

③ It is fundamental to be supplied by fully softened water so that the dyeing process is run with quality stability. Current softeners are short of softening capacity, therefore one more softener should be added.

④ Enhancement of overall dyeing quality. If Al Shark intends to increase the specific weight of made up garments like T-shirts and such items so as to survive with more value added, the current overall dyeing quality must be upgraded by implementing dyeing machinery renewal.

5.3 Modernization of Dyeing and Finishing Equipment

Following is proposed in accordance with 5.2.

(1) Main machinery to be introduced and its main specifications

① Production items shall be of cotton 100% and the finished fabric shall be rolled up in tube.

② Daily production shall be 10 ton per day (currently, 5 ton) and shall be broken down into 60% bleached and 40% dyed.

Machinery for bleaching	Capacity	Set	Machinery for dyeing	Capacity	Set
Jet dyeing machine (Normal pressure)	600kg	2	Jet dyeing machine (Normal pressure)	600kg	1
〃	300kg	1	〃	300kg	2
			〃	100kg	2

(2) Capacity calculation

- Working hours : 24 hr/day
- Bleaching machine : cycle time 6 hr/batch, number of batches- 4/day (including washing), bleaching capacity (600kg × 2m/c × 4 time/d) + (300 × 1 × 4) = 6,000kg/day
- Bleaching & dyeing machine : working hour 8 hr/batch, bleaching and dyeing times 3 times/day, bleaching and dyeing capacity (600 × 1 × 3) + (300 × 2 × 3) + (100 × 2 × 3) = 4,200 kg/day

(3) Layout plan

Please refer to **Appendix A-F-4.**

(4) Auxiliary and utility equipment

① Dosing equipment (Dyestuff mixing equipment) 1 set : Manual dosing and supplying by gravity.

② Testing equipment 1 lot :

- For establishing processing conditions : Manual type instrument for analyzing concentrations, Various reagents, Pickup measuring device, Electronic balance, Moisture meter, Thermometer, Tachometer.
- For general analysis of quality : Launder-O-meter, Laundry shrinkage tester, Fade-O-meter, Tester for color fastness to rubbing, Microscope, Electronic meter.
- For test of whiteness and shade difference : Standard lighting box

③ Inspecting and tube packaging machine 1 set

④ Water softener 1 set : Total capacity : 1,200-1,500 ton/day

⑤ Deep well 1 set : Total capacity : 1,500-1,800 ton/day, Locally supplied.

(5) Erection plan

- Erection time : 50 working days
- Erection supervisors from machine maker : 2 persons × 50 days = 100 man-days
- Works excluded in the contract : building work, machine foundation work, wiring and piping work, supply of electricity, water and steam
- Works included in the contract : test running, operation training (materials used for test running to be supplied by the customer).

(6) Manpower allocation

- Machine operator (men) 8 persons×3 shift = 24 persons
- Operator of dyestuff and chemical mixing (men) 3 persons×3 shift = 9 persons
- Chief and assistant to chief (men) 2 persons×1shift = 2 persons

(7) Estimated investment cost

- Approx. 2.3 million US$

(8) Subsequent modernization plan

• Shrinking dryer	1 set
• Centrifugal hydro-extractor	2 sets
• Scutcher, de-twisting/opening machine, each	1 set
• Steaming & softening machine	1 set
• Special sewing machine for T-shirts making	3 sets
• Singeing machine for tubular knitted fabric	1 set
• Heat setting machine for tubular knitted fabric	1 set

APPENDIX A-T-1 PRODUCTION EQUIPMENT

1-Knitting Section

No.	Machine Name	Q'ty (set)	Mfg.Co.	Model	Specification
1	Circular Knitting M/C (for Interlock)	2	ALBI (Germany)	1976	14",20 Gauge
		9	ALBI (Germany)	1976	16",20 Gauge
		12	ALBI (Germany)	1976	18",20 Gauge
		7	ALBI (Germany)	1976	20",20 Gauge
		3	ALBI (Germany)	1996	22",20 Gauge
		3	ALBI (Germany)	1960	22",20 Gauge
		3	ALBI (Germany)	1960	24",20 Gauge
		1	ALBI (Germany)	1960	26",20 Gauge
		18	ALBI (Germany)	1976	30",20 Gauge
		1	ALBI (Germany)	1976	30",20 Jacquard
	S.Total	59			
2	Circular Knitting M/C (For Rib)	1	ALBI (Germany)	1976	15",14/16 Gauge
		1		1976	16",14/16 Gauge
		1		1976	18",14/16 Gauge
		1		1976	20",14/16 Gauge
		3		1976	30",14/16 Gauge
		1		1976	16",14/16 Gauge
		1		1976	18",14/16 Gauge
		1		1976	20",14/16 Gauge
		3		1976	30",14/16 Gauge
		1		1996	16",14/16 Gauge
		2		1996	18",14/16 Gauge
	S.Total	16			
3	Circular Knitting M/C (for Single Jersey)	1	ALBI (Germany)	1992 1992	18",24 Gauge
		2		1992	20"
		2		1992	22"
		1		1981	24"
		1		1981	30"
		1		1981	14"
		1		1981	15"
		1		1981	30"
	S.Total	11			
4	Additional Knitting M/C	1	Mellor Boomley (England)	1987	13",14 Gauge
		1		1987	14",14 Gauge
		1		1987	15",14 Gauge

	Elastic Knitting M/C	1		1960	22",20 Gauge
		1		1960	23",20 Gauge
		1		1960	24",20 Gauge
	S.Total	6			
5	Inspection M/C	3	Ablalator	-	
	Grand Total	95	37 Sets		

2-Ggarment Section

No.	Machine Name	Q'ty (set)	Mfg.co.	Model	Specification Speed : Max 50m/min.
1	Folding m/C & Table	3	Rimoldi(Italy)	1971	1690 mm,Table length : 20 mm
		3	Manual		
2	Cutting M/C	3	KM.Mack (Japan)	1970	Max,8"Thickness
		3	KM.Mack (Japan)	1970	Max,10"Thickness
3	Sewing M/C	360	Rimoldi(Italy)	1970	In underwear section
4	"	71	Rimoldi(Italy)	1970	In Outwear Section
			PRAFF (Germany)	1970	(33 sets are not used)
			TEXTIMA (E.Germany)		

3-Dyeing & Bleaching Section Machine List

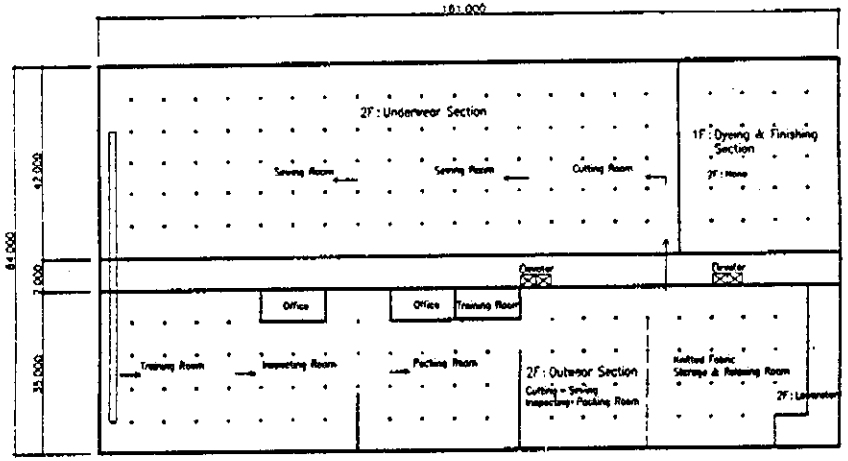
No.	Machine Name	Q'ty	Mfg. co.	model	Working Width	Note
1	Rope washer	2			300	
2	J-Box Souring & Bleaching M/C with Saturater	1	Kleineweffers (Germany)	1976		Speed Max. 60m/min Cap.700Kg.
3	Centrifugal Extracter	2		1960		Cap.100Kg.
4	Shrinking Dryer with Overfeed	1	Kielers (Germany)		1800	Speed max. 60m/min 4 chambers, steam
	Shrinking Dryer with Overfeed	1	Kielers (Germany)		1800	2 chambers, steam
5	Detwisting & Opening & Softening M/C	1	WEISS (Germany)	1996	1500	
6	Detwisting & Steaming M/C	2	WEISS (Germany)	1960	1500	Not used
7	Felt Calender & Opening M/C	1	Monti Antonio (Italy)	1996	1500	Speed:Max. 60 m/min
8	Wince Washing & Dyeing M/C	2	Max. Goller	1975	3000	
9	Wince Washing & Dyeing M/C	4		1970	1000	Not used
10	Circular Mercerizing M/C	1		1983		Not used
11	Steaming & winding M/C	1	Arbach (Germany)	1981	2500	
		1	Arbach (Germany)	1975	2200	
		3	Arbach (Germany)	1975	1400	
12	Scale	1				Cap. 1000k.g
13	Air Compressor (Portable)	2				

4-Utility Equipment:

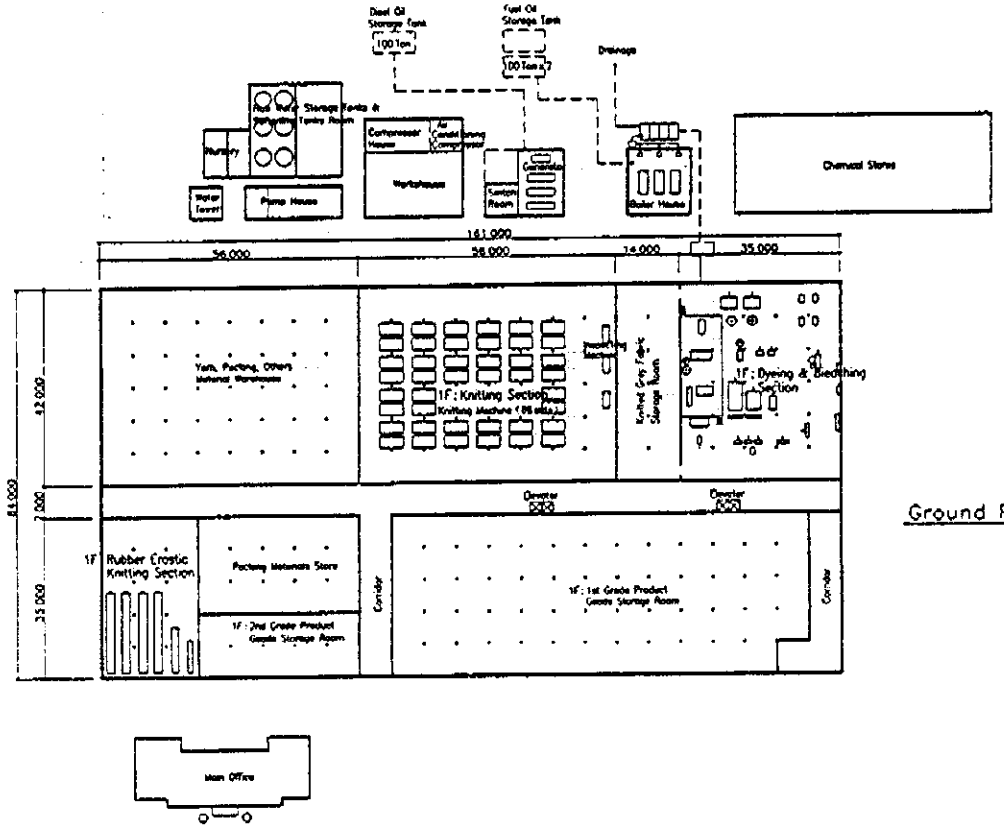
No.	Machine Name	Q'ty (set)	Nfg. co.	model Cap.	Cap.	Note
1	Steam boiler	3	Cochran Thomson MULTIPAC	1970	4 Ton/Hr	Heavy Oil Press, Max 100 lb/in" (1 M/C is stand by)
2	Well	2			30 m /Hr	
3	Generator	3	Dawson-keith	1970	750 KVA	1m/c is not used
		1	Dawson-keith	1970	375 KVA	Diesel oil
4	Fuel Oil Storage Tank	2			100 Ton	under ground
	Disel Oil Storage Tank	1			100 Ton	under ground
5	Work Shop	1 room	Lathe m/c x 1 Milling m/c x 1 Shaper m/c x 1 Grinding m/c x 1 Sawing m/c x 1 E.Welding m/c x 2 G.Cutting m/c 1x1 Drilling m/c x			

APPENDIX A-F-1

Al Shark Underwear's General Company
Factory Layout (Existing)



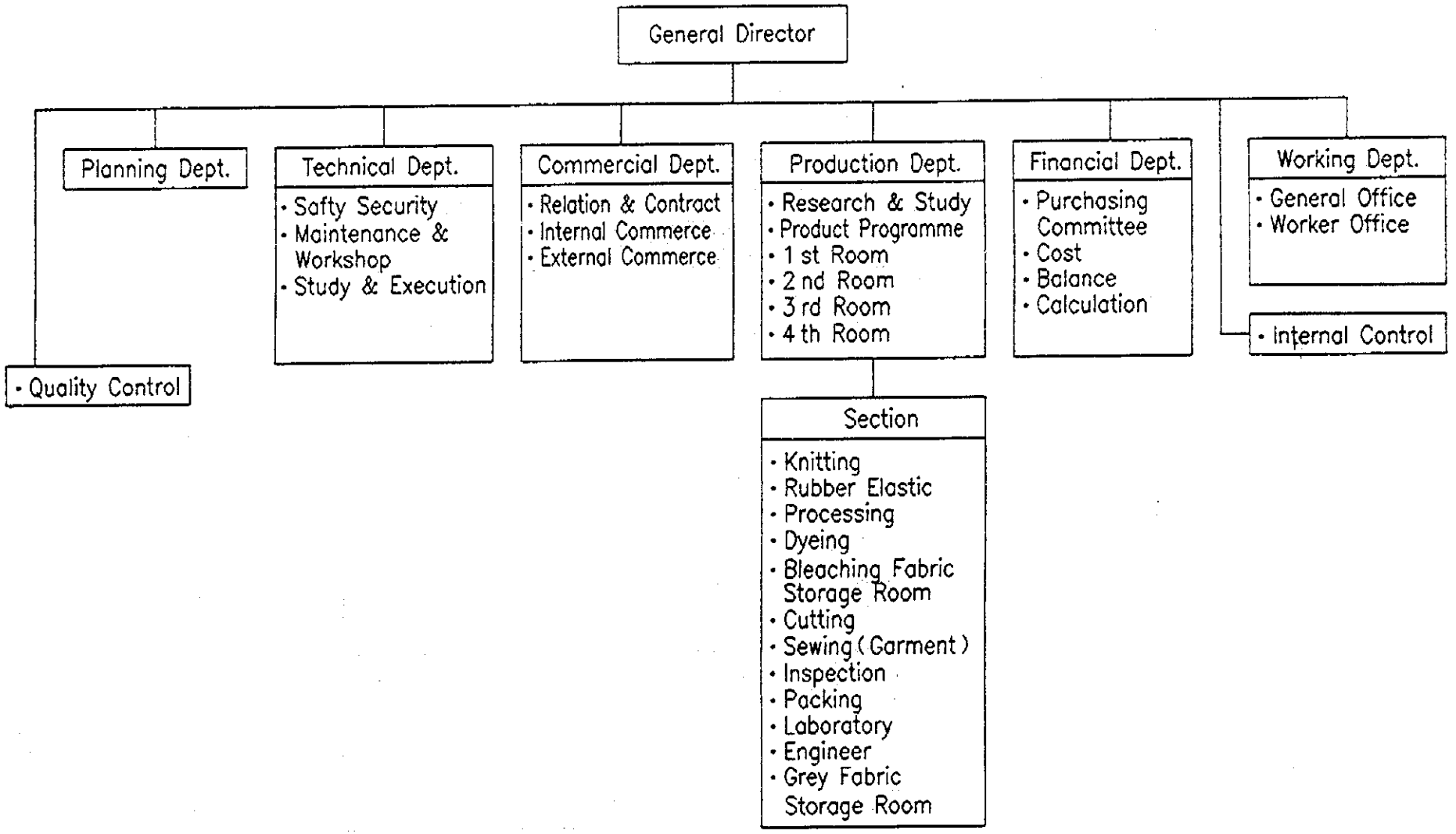
1st Floor



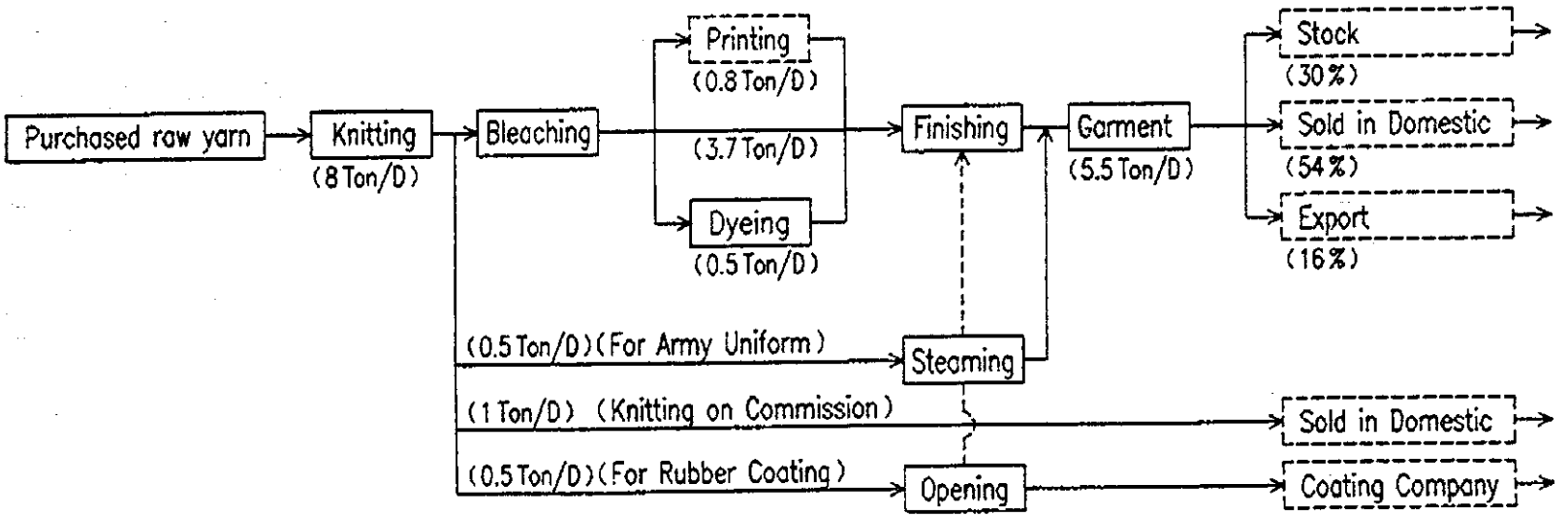
Ground Floor

APPENDIX A-F-2

ORGANIZATION CHART



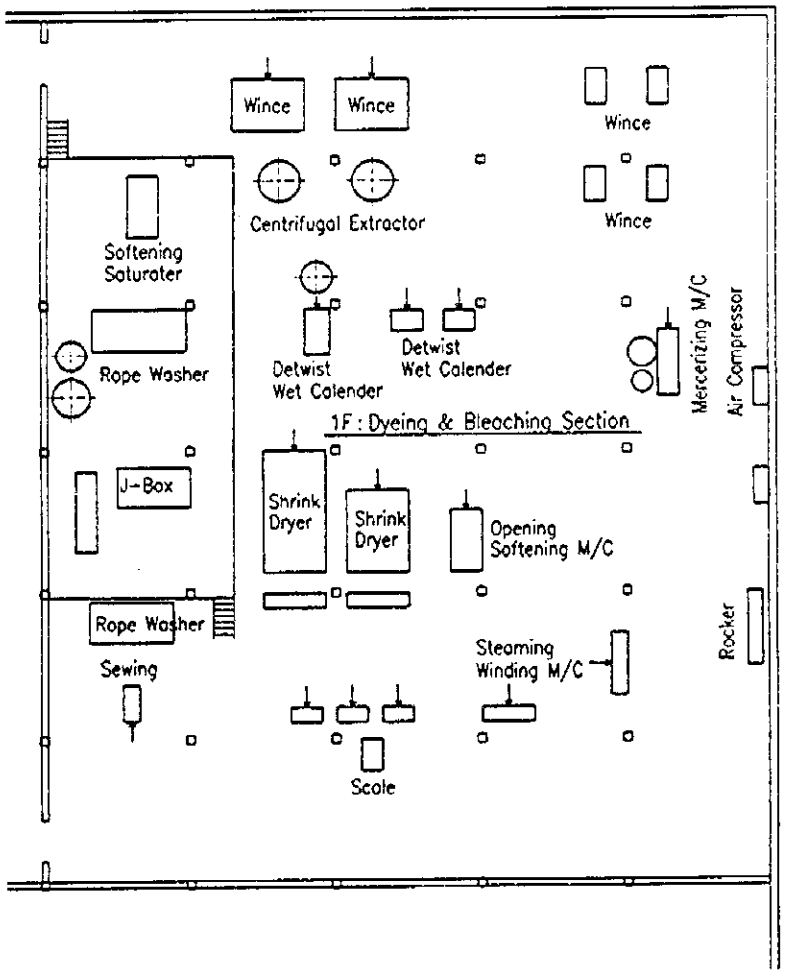
APPENDIX A-F-3 OVERALL PRODUCTION FLOW



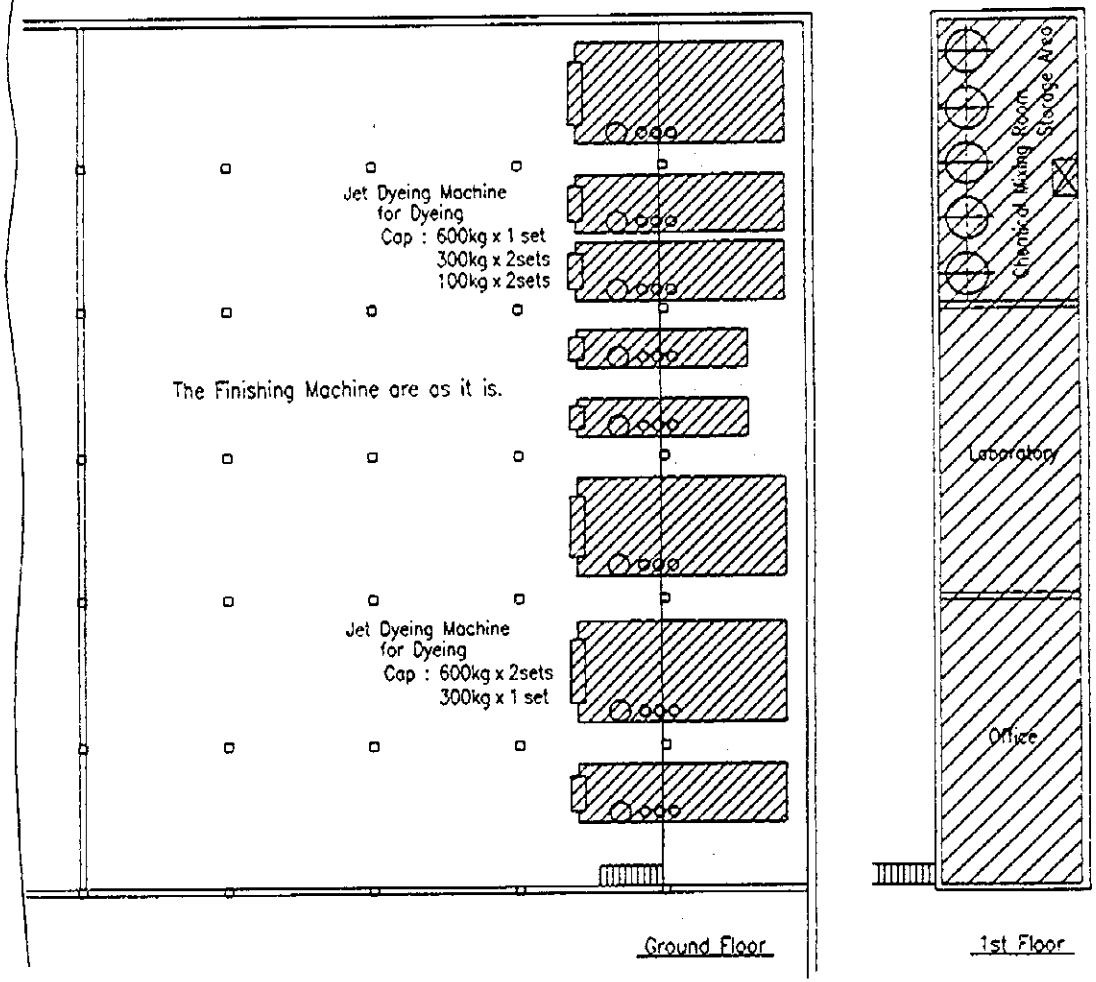
APPENDIX A-F-4

Al Shark Underweara's General Company

D. Finishingg Section Layout(Existing and Modernaization Plan)



Existing Layout



Madernaization Plan Layout

▨ : Newly Replaced Machine & Room

A4-A-24

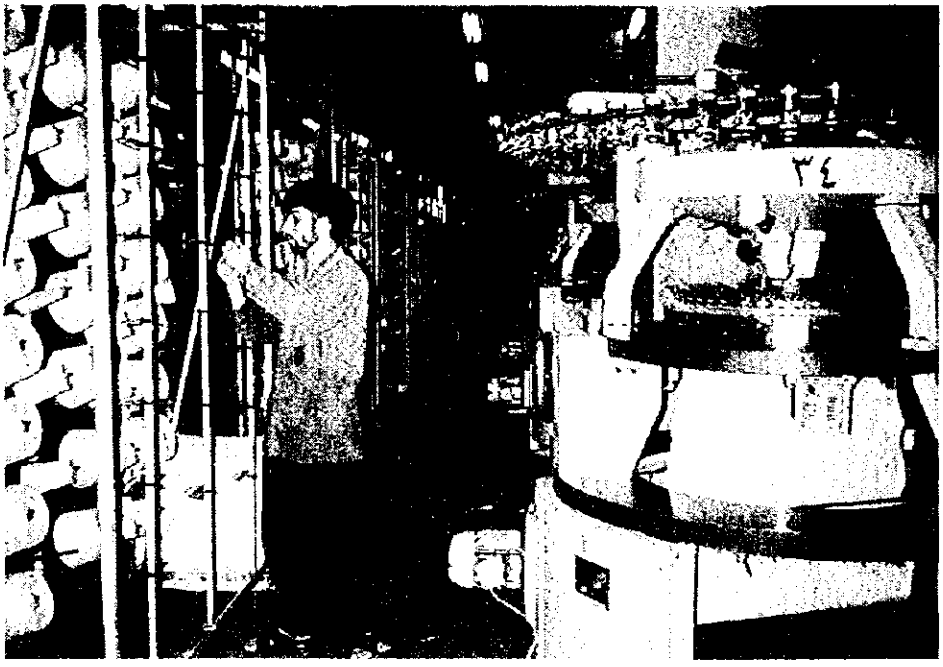
APPENDIX A-P-1 COMPANY'S PRODUCTS

APPENDIX A-P-2 STOCK CONDITION OF MIDWAY PRODUCT

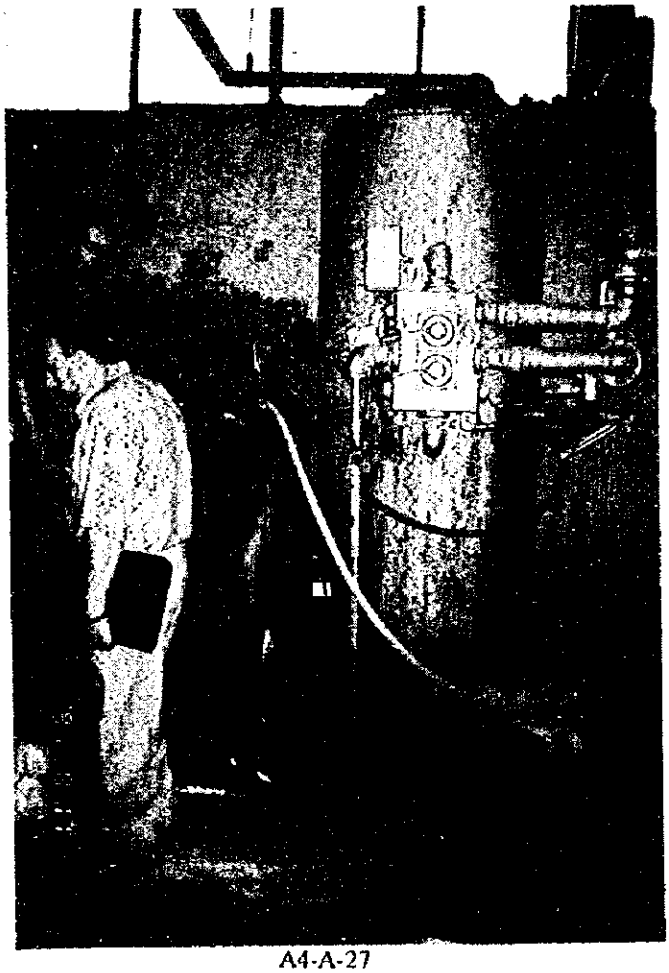
APPENDIX A-P-3 MONITOR CONTROL SYSTEM IN GENERAL MANAGER'S ROOM

APPENDIX A-P-4 QUALITY AND PRODUCTIVITY CONTROL USING BAR AND LINE GRAPH

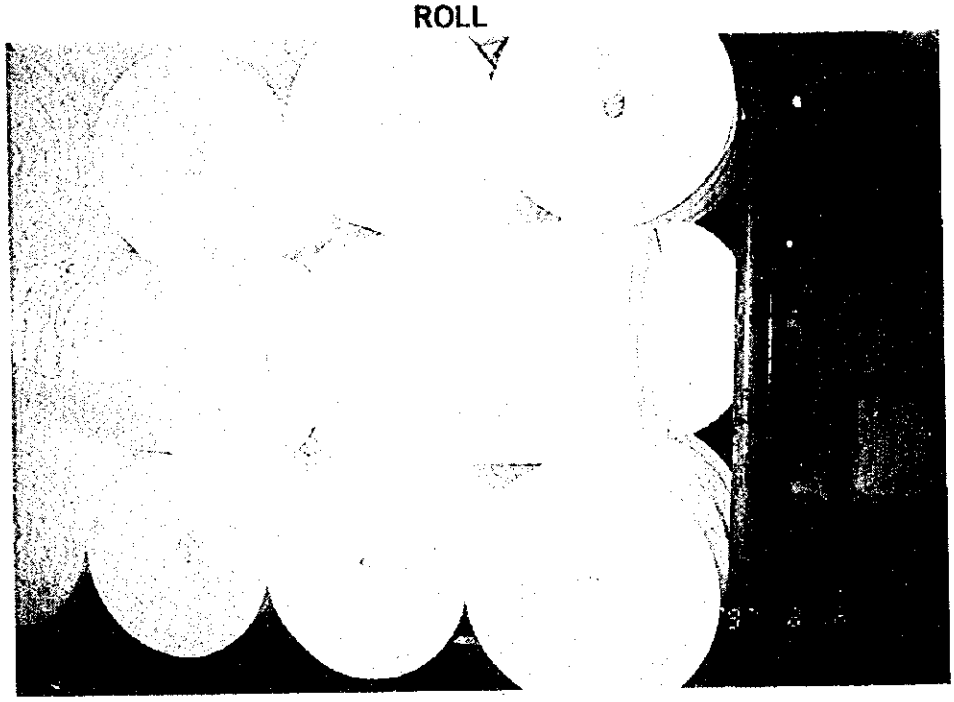
APPENDIX A-P-5 YARN EXPOSED TO THE AIR OF KNITTING MACHINE



APPENDIX A-P-6 WATER SOFTENING EQUIPMENT



APPENDIX A-P-7 INADEQUATE STORAGE OF FINISHED KNITTED ROLL



APPENDIX A-P-8 DRAINS TREATMENT PIT