

ECONOMICS, MANAGEMENT, MARKETING

ANALYSIS OF CHEMICAL FIBRE PRODUCT PRODUCTION

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In 2000-2007, the Russian textile market changed as demand for finished products fluctuated as a function of the degree of saturation of the raw-material base, raw-material quality, and resource possibilities of the conserving enterprises. Technical and economic development was only observed for isolated enterprises specializing in production and processing of chemical fibres. The purpose of this article is to inform our readers about the status, dynamics, and structure of use of chemical fibres and thread in manufacture of a commercial line of textile products and garments in the RF in the indicated period.

Table 1 shows that the total production of fibres and thread and fabrics fluctuated with their use in Russian companies. Although 2329 million m² of fabrics was processed in 2000, 2869 million m² was made in 2003, and 2735 million m² in 2007, which was respectively 86.6, 106.7, and 101.7% of the 2004 level. Based on Rosstat preliminary data, 2463 million m² of fabric was manufactured in 2008, which was respectively 105.8 and 91.56% of the 2000 and 2004 level.

The production volumes in the analyzed period are compared by product type with the 2004 production level in Fig. 1: chemical fibres and thread, fabrics using chemical fibres and thread. As we can see, the dependences of the line reflecting chemical fibre production as a function of the path characterizing production of fabrics using chemical fibres and thread intensified markedly in 2007.

The production dynamics and structure of chemical fibres and thread in the Russian Federation for 2000-2007 presented in Tables 1 and 2 were prepared from statistical data [1, p. 424; 2, p. 220; 3; 5, p. 403, 414].

Chemical fibre production in Russia is in a stage of technical and economic decline. The total volume of production of this product in 2007 was 9.8% lower than in 2000 and 4.6 times lower than in 1990 (673,000 tons).

However, consumption of chemical fibres for production of nonwovens and knits increased. As the data in Table 3 indicate [4, 5], production of nonwovens of the fabric type using chemical fibres increased from 2,459,100 running m in 2000 to 126,756,000 running m in 2007, or by 5.1 times. The proportion of nonwovens of the fabric type approximately doubled, i.e., from 24.84% in 2000 to 48.98% in 2007.

The production volume of knits using chemical fibres increased by 84.3% in 2007 in comparison to 2000, as Table 3 shows. The share of knits using chemical fibres approximately doubled.

The decrease in chemical fibre production from 164,000 tons in 2000 to 145,000 tons in 2007, the change in the structure of production (Table 2), and the increase in the volumes of their use in fabrication of knits and nonwovens (Table 3) were reflected in the production and structure of the assortment of fabrics using chemical fibres and thread. These and other changes in the textile raw material market affected the dynamics and structure of production of cotton, wool, and linen fabrics using chemical fibres (Table 4).

The positive dynamics persisted at the beginning of 2008 for finished cotton fabrics. As Table 4 shows, manufacture of these fabrics increased in comparison to 2000, from 24.91% in 2003 to 5.82% in 2007.

However, production of finished linen fabrics decreased in this period. The decrease in production is due to a change in the market conditions and the deliveries of fabrics for export in the form of unbleached cloth, since the possibilities for finishing and dyeing of linen fabrics are limited in Russian enterprises because of the shortage of modern equipment.

As for production of fabrics using chemical fibres and thread, the picture periodically changed. The information in Table 4 indicates that the production volume of cotton fabrics using chemical fibres and thread increased by 19.85% in 2004

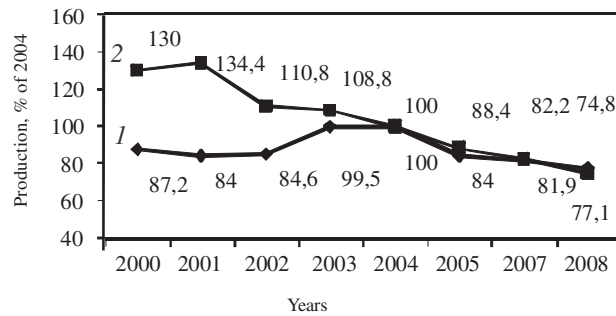


Fig. 1. Production of chemical fibres and thread (1) and fabrics using them (2) in % of 2004 level.

TABLE 1. Fabric and Chemical Fibre and Thread Production in Russian Enterprises in 2000-

Year	Fabrics			Chemical fibres and thread			Fabrics using chemical fibres and thread		
	Output, millions of m	% of 2000	% of 2004	Output, thousands of tons	% of 2000	% of 2004	output, thousands of running m	% of 2000	% of 2004
2000	2329	100.0	86.6	164	100.0	87.2	248181	100.0	130.0
2001	2625	112.7	97.6	158	96.3	84.0	256593	103.4	134.4
2002	2783	119.5	103.5	159	96.9	84.6	211576	85.3	110.8
2003	2869	123.2	106.7	187	114.0	99.5	207583	83.6	108.8
2004	2690	115.5	100.0	188	114.6	100.0	190877	76.9	100.0
2005	2785	119.6	103.5	158	96.3	84.0	168797	68.0	88.4
2006	2804	120.4	104.2	154	93.9	81.9	156973	63.2	82.2
2007	2735	117.4	101.7	145	88.4	77.1	142761	57.5	74.8

*Summarized data in Table 4 and Table 7.

in comparison to 2000, and decreased by 28.72% in 2007. Manufacture of wool fabrics using chemical fibres and thread gradually decreased in 2002-2007 and was 62.17% of the 2000 level in 2007.

The total increase in the production volume of fabrics using chemical fibres and thread in comparison to 2000 was basically attained due to an increase in production of “strong” fabrics.

For the analyzed period, the processing volume of fabrics using chemical fibres and thread decreased from 248,181,000 running m in 2000 to 142,761,000 running m in 2007, or by 42.5%. Purchase of raw materials by foreign manufacturers tended to increase. This took place on the internal and external market against the background of a decrease in the competitiveness of domestic chemical fibres and thread.

The share of products utilizing chemical fibres and thread by the three product groups is shown in Fig. 2. Hosiery production is in first place with respect to the index of the relative capacity for use of chemical fibres and thread, production of finished wool fabrics is in second place, and production of nonwoven fabrics is in third place. The value of this index was higher in 2007 for each type of product in comparison to 2000. This took place as a result of the following changes (Tables 3 and 4):

- increase in the amount of hosiery using chemical fibres by 18,323,000 items, or by 7.91%;
- decrease in production volumes of wool fabrics using chemical fibres by 7,127,000 running m, or by 37.83%;
- significant increase in production of nonwoven fabrics using chemical fibres by 102,165,000 running m, or by 415.46%.

The relative indexes on the dynamics and structure of production of cotton fabrics using chemical fibres in the Russian Federation for 2000-2007 are reported in Tables 5 and 6 based on the statistical data in [4]. The production volume

TABLE 2. Dynamics and Structure of Chemical Fibre and Thread Production in the Russian Federation for 2000-2007

Product	2000	2001	2002	2003	2004	2005	2006	2007
Chemical fibres and thread , thousands of tons, total	164	158	159	187	188	158	154	148
% of 2000	100.00	96.34	96.95	114.02	114.63	96.34	93.90	90.2
including:								
Man-made fibres and thread , thousands of tons	59.1	42.9	53.3	59.9	65.3	38.5	38.4	36.3
% of 2000.	100.00	72.59	90.19	101.35	110.49	65.14	64.97	61.42
share in volume of chemical fibres and thread, %	36.0	27.2	33.5	32.1	35.0	24.6	24.8	25.6
of them:								
fibres, thousands of tons	35.0	32.3	42.7	50.3	58.1	37.5	37.5	35.6
textile thread, thousands of tons	22.6	10.6	10.6	9.6	7.2	1.0	1.0	0.7
thread for cord fabric and industrial articles, thousands of tons	1.5	-	-	-	-	-	-	...
Synthetic fibres and thread , thousands of tons	105	115	106	127	122	119	116	111
% of 2000	100.00	109.52	100.95	120.95	116.19	113.33	110.48	105.71
share in volume of chemical fibres and thread, %	64.0	72.8	66.5	67.9	65.0	75.4	75.2	75.0
of them:								
fibres, thousands of tons	18.4	21.9	25.6	38.8	42.1	36.7	40.4	42.9
textile thread, thousands of tons	18.3	18.4	14.3	14.0	12.1	11.3	11.9	13.3
thread for cord fabric and industrial articles, thousands of tons	68.2	74.9	65.9	74.4	68.0	70.8	62.6	54.4
film fibres, thousands of tons								

TABLE 3. Dynamics of Production of Nonwoven Materials, Knits, and Hosiery Using Chemical Fibres and Thread in the Russian Federation in 2000-2007

Product	2000	2001	2002	2003	2004	2005	2006	2007
Nonwoven materials of the fabric type, thousands of running meters	99017	113539	119868	118808	125320	177930	221935	258800
% of 2000.	100.00	114.67	121.06	119.99	126.56	179.70	224.14	261.37
proportion using chemical fibres, thousands of running m	24591	33739	38498	41133	44151	79734	111968	126756
% of 2000	100.00	137.20	156.55	167.27	179.54	324.24	455.32	515.46
share in production of nonwovens of the fabric type, %	24.84	29.72	32.12	34.62	35.23	44.81	50.45	48.98
Knits, thousands of items	120791.3	129958.9	132157.6	130578.6	121740.3	115926.6	113548.6	111392
% of 2000	100.00	107.59	109.41	108.10	100.79	95.97	94.00	92.22
proportion using chemical fibres, thousands of items	3231.9	2671.6	2613.4	3379.7	4162.0	5212.6	5587.1	5956.3
% of 2000	100.00	82.66	80.86	104.57	128.78	161.29	172.87	184.30
share in production of knits, %	2.68	2.06	1.98	2.59	3.42	4.50	4.92	5.35
items made of man-made fibres, thousands of items	562.4	517.7	496.9	486.8	699.9	763.5	711.9	1394.6
% of 2000	100.00	92.05	88.35	86.56	124.45	135.76	126.58	247.97
items made of synthetic fibres, thousands of items	2669.5	2153.9	2116.5	2892.9	3462.1	4449.1	4875.2	4561.7
% of 2000	100.00	80.69	79.28	108.37	129.69	166.66	182.63	170.88
Hosiery, thousands of pairs	290979	281704	296786	274256	242430	281590	325335	327716
% of 2000.	100.00	96.81	102.00	94.25	83.32	96.77	111.81	112.63
using chemical fibres, thousands of pairs	231629	220861	214124	183556	174371	181044	201514	249952
% of 2000	100.00	95.35	92.44	79.25	75.28	78.16	87.00	107.91
share in production of hosiery, %	79.60	78.40	72.15	66.93	71.93	64.29	61.94	76.27

of fabrics using chemical fibres also decreased and in 2007 in comparison to the 2000 level, it was as follows by assortment groups: garments, 0%; clothing, 81.55%; furniture-decorative, 89.37%; industrial, 38.89%.

The structure of production of cotton fabrics using chemical fibres in 2007 (Table 6) changed toward an increase in the share of clothing (64.79%) and furniture-decorative (5.87%) fabrics.

TABLE 4. Production of Cotton, Wool, and Linen Fabrics Using Chemical Fibres in the Russian Federation in 2000-2007

Product	2000	2001	2002	2003	2004	2005	2006	2007
Finished cotton fabrics, thousands of running	1882011	2171564	2325194	2350867	2160811	2196717	2139599	1991524
% of 2000	100.00	115.39	123.55	124.91	114.81	116.72	113.69	105.82
using chemical fibres, thousands of running m	40364	48960	41171	45088	48377	36958	32845	28771
% к 2000 г.	100.00	121.30	102.00	111.70	119.85	91.56	81.37	71.28
share of fabrics using chemical fibres, %	2.14	2.25	1.77	1.92	2.24	1.68	1.54	1.44
Finished wool fabrics, thousands of running m	38004	39235	35030	30987	25327	21610	20549	20442
% к 2000 г.	100.00	103.24	92.17	81.54	66.64	56.86	54.07	53.79
% of 2000	18842	20941	18050	16905	15821	11629	11633	11715
using chemical fibres, thousands of running m	100.00	111.14	95.80	89.72	83.97	61.72	61.74	62.17
% к 2000 г.	49.58	53.37	51.53	54.56	62.47	53.81	56.61	57.31
Finished linen fabrics, thousands of running m	94034	108488	120411	128071	129924	103617	105078	87794
% к 2000 г.	100.00	115.37	128.05	136.20	138.17	110.19	111.74	93.36
% of 2000	1768	5090	8005	5314	4607	9782	9542	1
using chemical fibres, thousands of running m	100.00	287.90	452.77	300.57	260.58	553.28	539.71	0.06
% к 2000 г.	1.88	4.69	6.65	4.15	3.55	9.44	9.08	0.00

TABLE 5. Dynamics of Production of Cotton Fabrics Using Chemical Fibres in the Russian Federation for 2000-2007 (in % of 2000)

Fabrics	2001	2002	2003	2004	2005	2006	2007
Garment	32.16	22.91	30.84	4.41	0.00	0.00	0.00
Clothing	126.21	103.59	121.34	127.34	101.31	90.15	81.55
Furniture-decorative	129.03	136.12	149.87	166.95	121.95	93.65	89.37
Industrial	92.50	89.46	82.16	106.23	137.14	78.00	38.89
Total							
Fabrics using chemical fibres	121.30	102.00	111.70	119.85	91.56	81.37	71.28
Fabrics with inclusion of polyester and high-modulus viscose fibres	126.28	98.43	102.49	123.02	113.66	107.05	102.85

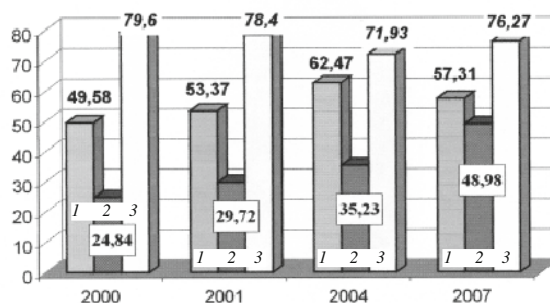


Fig. 2. Share of products using chemical fibres and thread, % of total production of the corresponding type of product. 1) Finished wool fabrics; 2) fabric nonwovens; 3) hosiery.

In 2000-2007, manufacture of cotton blend fabrics including polyester and high-modulus viscose fibres fluctuated in comparison to the volume in 2000 from 126.28% in 2001 to 102.85% in 2007 (Table 5). Their share in the structure of production of cotton fabrics using chemical fibres for this period remained at the level of less than 1% (Table 6).

TABLE 6. Structure of Cotton Fabric Production Using Chemical Fibres in the Russian Federation in 2000-2007 (in % of total in output in thousands of linear m)

Fabric	2000	2001	2002	2003	2004	2005	2006.	2007
Garment	0.56	0.15	0.13	0.16	0.02	0.00	0.00	0.00
Lining	56.63	58.93	57.51	61.52	60.17	62.66	62.74	64.79
Furniture-decorative	4.68	4.98	6.25	6.29	6.53	6.24	5.39	5.87
Industrial	13.87	10.58	12.17	10.20	12.30	20.78	13.30	7.57
Fabrics with embedded polyester and high-modulus viscose fibres	0.66	0.73	0.53	0.54	0.71	0.65	0.63	0.65
Other	23.6	24.63	23.41	21.29	20.27	9.67	17.94	21.12

TABLE 7. Dynamics and Structure of Production of Silk Fabrics Using Chemical Fibres in the Russian Federation for 2000-2007

Product	2000	2001	2002	2003	2004	2005	2006	2007
Fabrics using chemical fibres, thousands of linear m	125358	125530	98994	95411	85760	74780	72891	70586
% of 2000	100.00	100.14	78.97	76.11	68.41	59.65	58.15	56.31
share of output, % of total	67.0	69.1	68.6	68.0	70.3	67.7	70.8	69.0
Fabrics made of chemical fibres, thousands of linear m	58160	53603	42262	38600	33089	31225	29944	31558
% of 2000.	100.00	92.16	72.67	66.37	56.89	53.69	51.49	54.26
share of output, % of total	31.0	29.5	29.3	27.5	27.1	28.3	29.1	30.9
Fabrics made of man-made fibres and blends with other fibres, thousands of linear m	3689	2469	3094	6265	3223	4423	118	130
% of 2000.	100.00	66.93	83.87	169.83	87.37	119.90	3.20	3.52
share of output, % of total	2.0	1.4	2.1	4.5	2.6	4.0	0.1	0.1

The dynamics and structure of Russia production of silk fabrics using chemical fibres for 2000-2007 [4] (Table 7) on one hand reflects the decrease in their production volumes and on the other hand, predominance in the structure of the share of fabrics using chemical fibres.

Based on the data in Table 7, we note the following:

- the production volume of fabrics using chemical fibres decreased from 125,358,000 running m in 2000 to 70,586,000 running m in 2007, i.e., by 43.69%;
- the production volume of fabrics made of chemical fibres decreased from 58,160,000 running m in 2000 to 31,558,000 running m in 2007, i.e., by 45.74%;
- the production volume of fabrics made of man-made fibres and man-made fibres in blends with other fibres decreased from 3,689,000 running m in 2000 to 130,000 running m in 2007, i.e., by 28 times.

According to projections, the share of imports will be greater than the share of domestic production in the structure of internal consumption of chemical fibres and thread by textile and garment manufacturers.

The evolution of textile products for household and industrial applications is thus a function of the dynamics of the production and structure of chemical fibres and thread. Chemical fibres and thread belong to the basic type of raw materials required for satisfying the demand in the fashion industry and industrial textile market. The trend toward replacing natural fibres by chemical fibres is most sharply manifested in production of industrial textiles. Since industrial textiles are a constituent element of the finished product in different sectors of the economy, its evolution is dependent on both a quantitative and qualitative increase in production of chemical fibres and thread in Russia.

The analysis of the statistical information in the article once more indicates the urgent need to accelerate development of chemical fibre and thread production in the country. Important efforts by specialists and the wide involvement of organizational resources are required for restoring Russia's lost leading positions in the raw materials market for textile products.

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