

Global fiber production

Strong PET, PA and CV fiber expansion

According to the World Survey featured by Fiber Organon, the global production of chemical fibers increased in 2013 again by 3.5 million tons or 5.8 % to 63.8 million tons. The global production of textile fibers increased by 2.4 million tons or 2.7 % to 90.9 million tons (Table 1). In total, natural fiber production (cotton, wool, linen, silk) decreased by 1.1 million tons to 27.1 million tons (-3.9 %).

Within chemical fibers, 59.0 million tons (+5.3 %) were synthetic fibers (including PP/PE film fibers/tapes and spunbonds), and 4.8 million tons (+12.2 %) were cellulosic fibers (excluding acetate cigarette filter tow). The production of lyocell staple fibers, however, with a worldwide capacity of 175,000 tons/year in 2013, is not covered by the cellulosic fiber statistic as over 90 % of production is covered by the Lenzing Group (trademark Tencel). Lenzing Group has expanded the Tencel capacity to 220,000 tons/year in 2014 (see p. 127 of this issue).

This 2013 world survey continues to underscore the growing dominance of Asia in the global production of chemical fibers. In 2013, Asia accounted for 87 % of the worldwide chemical fiber production (China 64 %,

India 7 %, Taiwan 3.5 %), the USA for 4.0 % and Western Europe for 3.2 %.

Table 1
Global production of textile fibers 2013

Fibers	million tons	±%
Polyester filament yarns	31.3	+8
Polyester staple fibers	15.4	+2
PP filament yarns ¹⁾	4.3	+3
PP staple fibers	0.7	+3
PA filament yarns	4.2	+7
PA staple fibers	0.2	+1
Acrylic fibers	2.0	+0
Other synthetics ²⁾	1.0	+9
Cellulosic filament yarns	0.4	-5
Cellulosic staple fibers ³⁾	4.4	+14
Cotton	25.6	-4
Wool	1.1	-4
Linen	0.2	+1
Silk	0.1	+5
Total	90.9	+3

Source: Fiber Organon, June 2014

¹⁾ excl. spunbonds, meltblowns, tapes and strapping

²⁾ incl. elastane/spandex yarns, aramid fibers, PTFE, others

³⁾ excl. acetate filter tow and lyocell fibers

Polyester fibers: Chinese share at 72 %

In 2013, global polyester fiber production increased by 6 % or 2.46 million tons to 46.7 million tons. Of this, 31.3 million tons (+8 %) were filament yarns and 15.4 million tons (+2 %) staple fibers. Around the half of global man-made fibers produced in 2013 were polyester filament yarns. Currently polyester fibers accounts for 73 % of total man-made fibers, but a further increase of this share is expected.

All trends of the previous years continued in 2013. China was again on the top of polyester fiber producing countries with a global share in global polyester fiber production of 72 % (filament yarns 76 %, staple fibers 62 %) followed by India with 8 %, the ASEAN countries with 7 % and Taiwan with 3 %. The share of South, South-East and East Asia is now 93 % of the total production. The share of Europe (incl. Turkey) decreased again to only 2.5 %, the USA accounts for 2.7 %. As in the previous years, filament yarn production increased much more strongly than staple fiber production (Table 1).

Expansion of polyester fiber production took place in China (+2.1 million tons, +7 %), the ASEAN countries (+9 %), India (+3 %), the

Table 2
Global production of synthetic fibers (1,000 tons)

	Polyester			Polyolefins ¹⁾			Polyamide			Acrylics		
	2012	2013	±%	2012	2013	±%	2012	2013	±%	2012	2013	±%
Western Europe	486	466	-4	563	561	-0.4	296	283	-4	291	252	-13
Turkey	425	448	+5	611	634	+4	61	65	+6	285	283	-1
Eastern Europe	280	266	-5	228	220	-4	133	131	-2	69	68	-1
USA	1,203	1,261	+5	552	546	-1	562	597	+6	-	-	-
Canada	-	-	-	93	95	+2	100	99	-1	-	-	-
Mexico	126	135	+7	63	64	+2	29	19	-35	54	52	-2
Other Americas	318	336	+6	288	296	+3	76	81	+7	63	64	+2
China	31,327	33,407	+7	871	938	+8	1,876	2,113	+13	691	694	+0.4
India	3,424	3,535	+3	136	137	+1	94	98	+5	78	100	+28
Taiwan	1,500	1,479	-1	162	169	+4	375	385	+3	68	68	±0
Korea	1,406	1,357	-4	128	130	+2	144	132	-9	47	47	+1
Japan	319	294	-8	177	191	+8	100	97	-3	140	147	+5
Other Asia ²⁾	3,092	3,365	+9	455	476	+5	162	172	+6	94	104	+10
Other ³⁾	302	334	+11	529	551	+4	67	69	+2	69	76	+10
Total	44,212	46,683	+6	4,855	5,007	+3	4,074	4,340	+7	1,948	1,956	+0.4

Source: Fiber Organon, June 2014

¹⁾ excl. spunbonds, meltblowns, tapes and strapping

²⁾ mainly Indonesia, Thailand, Pakistan, Malaysia, Vietnam, Bangladesh (see Table 5)

³⁾ mainly Iran, Egypt, Israel, Saudi Arabia, South Africa (see Table 5)

Table 3
Global synthetic fiber production ¹⁾
Top producing countries 2013

Country	Production (1,000 tons)	Change 12/13 (±%)	Share 2013 (%)
China	39,991	+7.8	68.1
India	4,183	+4.7	7.1
Taiwan	2,073	0.4	3.5
USA	2,013	+4.7	3.4
Indonesia	1,801	+8.8	3.1
South Korea	1,563	-3.5	2.7
Western Europe	1,469	-5.1	2.5
Thailand	872	-1.7	1.5
Turkey	811	+3.0	1.4
Japan	657	-2.0	1.1
Pakistan	589	+14.8	1.0
Vietnam	395	+15.8	0.7
Malaysia	384	-0.5	0.7
Brazil	327	+5.8	0.6
CIS	305	-5.8	0.5
Iran	250	+5.9	0.4
Mexico	202	-1.2	0.4
Others	871	+4.2	1.5
Total	58,765	+6.0	100.0

Source: Fiber Organon, June 2014

¹⁾ filament yarns, staple fibers, tows and fiberfil;
excluding polyolefins (PP, PE)

Middle East and North Africa (+9%), Turkey (+5%) and in the Americas (+5%). In most of the old economies, production of polyester fibers decreased (Western Europe, Eastern Europe, Japan, Korea, Taiwan; Table 2). Capacity utilization 2013 in China reached 74% for filament yarns and only 68% for staple fibers. Due to strong capacity expansion in the last years, global utilization rate went down for filament yarns to 73% (2012: 75%) and was 72% for staple fibers. Increasing overcapacities will induce a further decrease in utilization rates in the near future. Worldwide polyester fiber capacities are already predicted by Fiber Organon to be 64.1 million tons/year at the beginning of 2014 and 67.7 million tons/year at the end of 2015. Polyester staple fibers will account for 51% of this expansion, polyester filament

Fig. 1
Global production of synthetic fibers 2013 (excluding polyolefin)

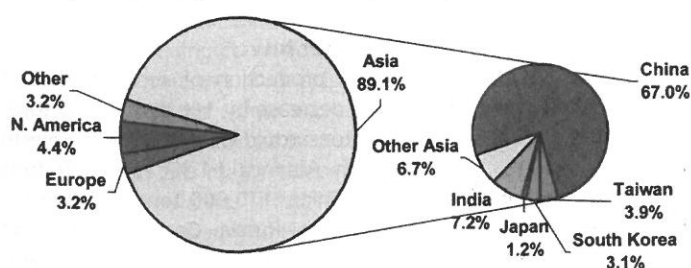


Table 4
China: production of chemical fibers 2013

	1,000 tons	±%
Synthetics		
PET filament yarns	23,919	+9
PET staple fibers	9,487	+1
PA filament yarns	2,025	+13
PA staple fibers	88	+4
Acrylic fibers	694	±0
PP filament yarns	829	+7
PP staple fibers	109	+14
Other synthetics	632	+18
Cellulosics ¹⁾		
Staple fibers	2,930	+21
Filament yarns	215	-10

Source: Fiber Organon, June 2014

¹⁾ see Table 8

yarns for 49%. 79% of this expansion will take place in China.

PP fibers +3%

World production of polyolefin fibers (mainly PP) including film fibers increased by 150,000 tons or 3.1% to 5.01 million tons in 2013. PP filament yarns (including monofilaments and film fibers) increased to 4.35 million tons (+3.1%), whereby mono- and multifilaments rose by only 0.8% to 1.72 million tons while PP film fibers grew 4.7% to 2.63 million tons. PP staple fibers reached 658,000 tons (+3.3%, Table 7).

The largest filament yarn producers remain unchanged: China, Turkey, Western Europe, and the USA (including BCF carpet yarns). Production was stable in Europe and slightly declining in Eastern Europe and in the USA. All other countries and regions registered growth rates with China and Japan at the top. The shares of Asia increased from 52% in 2012 to 53% in 2013.

For PP staple fibers, the nonwovens and nee-

Table 5
Other Asia and Africa:
synthetic fiber ¹⁾ production 2013

Country	1,000 tons	±%
Indonesia	1,307	+7
Thailand	792	+7
Pakistan	589	+15
Vietnam	395	+16
Malaysia	384	-1
Iran	250	+6
Bangladesh	181	+6
Egypt	92	+5
Saudi Arabia	41	+23
Israel	34	+5
South Africa	23	+35
Morocco	16	+2
Nigeria	12	+11
Singapore	11	-32

Source: Fiber Organon, June 2014

¹⁾ filament yarns, staple fibers, tows and fiberfil; excluding polyolefins (PP, PE)

dle-felt carpet regions outside from Asia have still a respectable share but with decreasing tendency. Highest growth was seen in China, Japan, Taiwan and Southeast Asia. The share of Asia was already 43%.

Worldwide, total capacities of PP fibers (without spunbonds, meltblowns, ribbon yarns and tapes) for the beginning of 2014 are estimated at 6.9 million tons and will increase at the end of 2015 only by 64,000 tons. The capacity utilization rate for PP fibers stays very low (2013: 74% for filament yarns and only 65% for staple fibers), but with wide variation from country to country (between 55% and 82%). The highest utilization rate for staple fibers was achieved by Japan with 84% and for filament yarns by Turkey with 82%. The USA shows the lowest utilization rates for both, filament yarns with 67% and staple fibers with only 55%.

Fig. 2
Cellulosic staple fiber production 1990-2013 by region (1,000 tons)

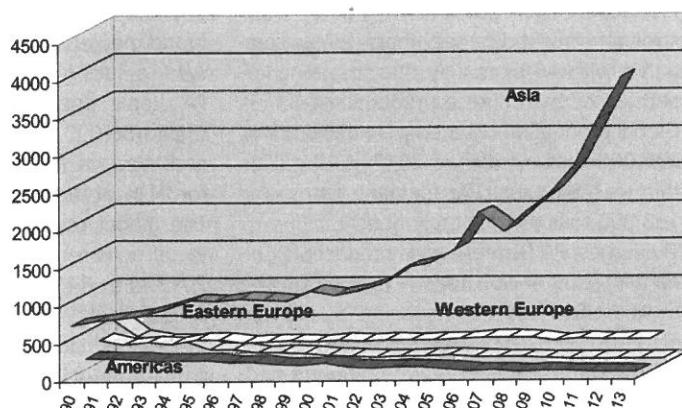


Table 7

Global production of polyolefin fibers (PP, PE) 2013

	Yarns ¹⁾		Staple fibers		Total		Capacity December 2015	
	1,000 tons	±%	1,000 tons	±%	1,000 tons	±%	1,000 tons	±2013/2014
Western Europe	515	±0	46	±0	561	±0	820	±0
Turkey	597	+4	37	+6	634	+4	785	±0
Eastern Europe	174	-3	46	-4	220	-4	371	+19
USA	398	-2	148	+2	546	-1	841	±0
Canada	54	+6	41	-2	95	+2	142	±0
Mexico	50	+4	14	-7	64	+2	86	±0
South America	254	+2	42	+5	296	+3	421	±0
China	829	+7	109	+14	938	+8	1,324	+4
Japan	135	+7	56	+12	191	+8	260	±0
Taiwan	156	+4	13	+8	169	+4	235	+4
India	130	+1	7	±0	137	+1	182	±0
South Korea	114	+3	16	-6	130	+2	165	±0
Other Asia	459	+4	17	+6	476	+5	577	-10
Middle East, Africa	484	+5	67	±0	551	+4	771	+2
Total	4,349	+3	658	+3	5,007	+3	6,980	+1

Source: Fiber Organon, June 2014

¹⁾ filament yarns (incl. BCF), monofilaments, slit films; excluding spunbonds, meltblown, ribbon yarn, and tapes

Table 8

Global cellulosic fiber production¹⁾ 2013

	Staple		Textile yarns ²⁾		Technical yarns		Acetate yarns ³⁾	
	1,000 tons	±%	1,000 tons	±%	1,000 tons	±%	1,000 tons	±%
Western Europe	347	-2	7	±0	41	+6	7	-4
Eastern Europe	-	-	3	-62	8	-1	6	-1
USA	-	-	-	-	-	-	26	+4
Latin America	8	-60	-	-	-	-	2	±0
China	2,930	+21	215	-10	-	-	-	-
India	387	+15	47	+10	12	-5	-	-
Indonesia	494	+13	-	-	-	-	-	-
Taiwan	119	+21	-	-	-	-	-	-
Japan	38	-1	15	+1	-	-	8	+1
Thailand	80	-47	-	-	-	-	-	-
Total	4,048	+16	287	-8	62	+3	50	+2

Source: Fiber Organon, June 2014

¹⁾ excluding lyocell fibers (global capacity 175,000 tons/year)

²⁾ including cupro yarns

³⁾ textile yarns (excluding acetate filter tow)

Polyamide fibers: China +13%

For polyamide fibers (PA 6, PA 66) 2013 was again a year with strong production increase. Production of polyamide fibers grew stronger than polyester fibers (+7% compared with +6%) mainly due to strong expansion of the Chinese production (+13%). Global production reached 4,34 million tons, 270,000 tons more than 2012. 4.17 million tons (+7%) were PA filament yarns and 168,000 tons (+1%) staple fibers.

The largest PA filament yarn producer is China with 2.03 million tons (+13%), followed by the USA (565,000 tons, +6%), Taiwan (379,000 tons, +2%) and Western Europe (251,000 tons, -4%), but with different end-uses: textile and industrial yarns in Asia and

BCF carpet yarns and technical textiles in the USA and Europe. Since 2010 production in Europe decreased by 17% while production in China increased by 45%. China has now a world market share of 49%!

After a strong cut in 2009/2010 the global PA staple fiber production remains stable. China (88,000 tons), the USA (32,000 tons) and Western Europe (32,000 tons) account for 91% of the global production.

The global capacity utilization for filament yarns increased slightly from 79% to 81% in 2013 with 84% in China, 78% in the USA and 89% in Turkey.

Global PA filament yarn capacity at the beginning of 2014 is estimated at 5.18 million tons. Near future capacity expansion, espe-

Table 6

Global chemical fiber capacities and utilization rate (UR)

Fibers	Capacity 3/2014	Capacity 12/2015	UR 2013
Polyester filament yarns	42.91	44.67	73 %
Polyester staple fibers	21.23	23.06	72 %
PP filament yarns ¹⁾	5.91	5.98	74 %
PP staple fibers	1.01	1.00	65 %
PA filament yarns	5.18	5.25	81 %
PA staple fibers	0.34	0.34	50 %
Acrylic fibers	2.42	2.42	76 %
Other synthetics ²⁾	1.26	1.27	78 %
Cellulosic filament yarns	0.53	0.53	76 %
Cellulosic staple fibers ³⁾	5.79	6.01	81 %

Source: Fiber Organon, June 2014

¹⁾ excl. spunbonds, meltblowns, tapes and strapping

²⁾ incl. elastane yarns, aramid fibers, PTFE, others

³⁾ excluding acetate filter tow and lyocell fibers

cially in China, will considerably exceed the growth of market demand.

Acrylic fibers: stable production

In 2013, global acrylic staple fiber production was stable (+8,000 tons to 1.96 million tons) (Table 2). The main producers are China, Western Europe (Germany), Turkey and Japan. Western Europe lost 13% of production while production in India (+28%), Southeast Asia (+10%) and the Middle East (+10%) show strong increases.

Global acrylic fiber capacity is stable at 2.4 million tons/year with a utilization rate of 81% in 2013 (China 90%, Japan 70%). In Western Europe utilization rate reached only 71% (Turkey 91%).

Cellulosic fibers +12%

Cellulosic fibers have again the highest growth rates of all chemical fibers. Global production of cellulosic fibers (excluding lyocell fibers) increased by 520,000 tons to 4.8 million tons (Table 8) of which 4.4 million tons (+14%) were staple fibers, 287,000 tons textile filament yarns (-8%), 62,000 tons industrial yarns (+3%), and 50,000 tons (+2%) acetate textile yarns. In China, production of viscose staple fibers increased again by 21% or 503,000 tons which stands for just under 97% of the global growth. The capacity for cellulosic at the end of 2015 is estimated to be 6.5 million tons.

Acetate filter tow

Worldwide production of acetate cigarette filter tow decrease by 1% to 923,000 tons. 297,000 tons could be attributed to North and South America (-1%), 321,000 tons (+7%) to China, 170,000 tons (-3%) to Europe (Belgium, Russia, Germany, UK), and 135,000 tons (-1%) to Japan/South Korea.