

## In This Issue:

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- Textile & Apparel Industries in Southeast Asia

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2020-V Issue No. 730



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## Interview with Oerlikon Manmade Fibers “COVID-19 Pandemic Period and Afterwards Market Evaluation”

We talked to Georg Stausberg, Segment CEO, and André Wissenberg, Head of Marketing, Corporate Communications and Public Affairs, about the current corona situation and how it was handled at Oerlikon Manmade Fibers Segment and what impact it had on business.

### **Mr. Stausberg, what kind of precautions did you take as a company during the COVID-19 pandemic? What has changed in your production process?**

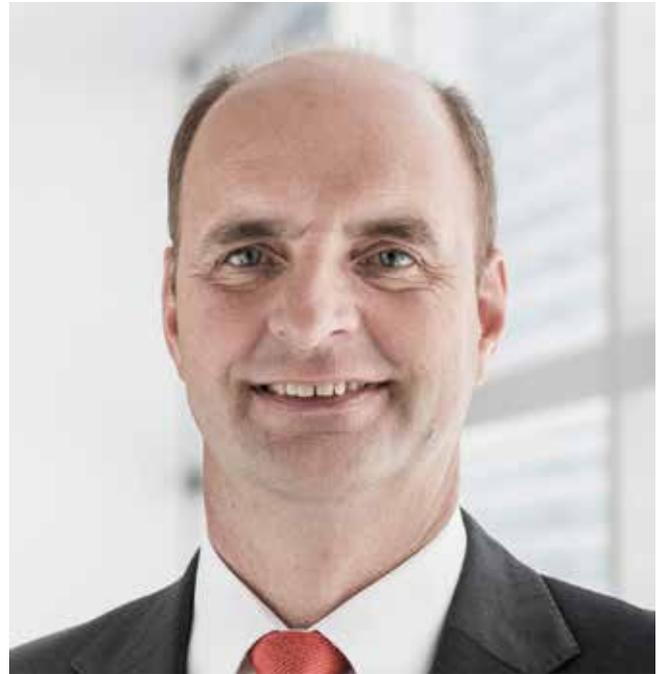
Oerlikon actively began reacting to the coronavirus situation from a very early stage, deploying crisis teams at group and segment levels. Extreme transparency, a high level of decisiveness and swift, pragmatic action were, and remain, the keys to successfully fighting the spread of coronavirus. The, in part radical, measures taken – such as wearing masks, social distancing, adjusting shift schedules, mobile office for hundreds of employees over night – and the seriousness with which all employees have adjusted their personal behavior have ensured that the virus has had no chance to manifest itself at the Oerlikon Manmade Fibers sites to date. The measures were implemented in China first, followed by the sites in Germany, the U.S. and India over the course of March. Maintaining the health of our employees worldwide was and still is the top priority.

### **How did your production, sales and order figures progress in the first half of 2020? How much did the pandemic affect your goals?**

The sales markets for manmade fiber systems and equipment have been primarily located in China, India and Turkey for many years now. Together, these markets – above all China – make up the lion's share of the project landscape at Oerlikon Manmade Fibers. And this is paying positive dividends at the moment, because the production facilities of major manmade fiber manufacturers in China have been systematically fired up again over the past few weeks, with capacity utilization increasing consistently. New projects are even being discussed.

### **But why is it so? And why is the manmade fiber industry currently practically going against the flow of the rest of the textile machinery industry?**

The reason is very simple: Long before the coronavirus situation developed, major manmade fiber manufacturers in China had decided to reverse-integrate their production chains to include petrochemicals in order to expand their portfolios with targeted investments, to reduce their dependence on a ‚single product‘, to optimize their costs



Georg Stausberg  
CEO  
Oerlikon Manmade Fibers Segment

and ultimately to acquire greater control over margins in global volume business. Similar processes and decisions – albeit not on the same scale as in China – have also been detected at large manmade fiber manufacturers in India and Turkey. While China is already pursuing and implementing its ‘From Oil to Yarn’ business model, other market players are currently still focusing on the ‘From Melt to Yarn’ concept. Even though businesses in India and Turkey are presently still temporarily severely impacted by the coronavirus situation, their long-term commitment cannot be questioned, as company-internally-agreed master plans will be systematically implemented moving forward.

All this has recently resulted in increased demand for spinning and texturing systems – just like those supplied by total solutions provider and world market leader Oerlikon Manmade Fibers with its Oerlikon Barmag, Oerlikon Neumag and Oerlikon Nonwoven product brands. Investments in petrochemical systems are based on long-term strategic considerations, and are resulting – even during the coronavirus pandemic – neither in short- and medium-term economic dips, nor in changed customer behavior. For these reasons, we are currently continuing to look positively towards the future at Oerlikon Manmade Fibers. With orders on our books until 2023, we have created a very good cushion for ourselves. We have to thank all our customers, who



**André Wissenberg**  
Head of Marketing, Corporate Communications  
and Public Affairs  
Oerlikon Manmade Fibers Segment

have consistently placed their trust in us despite the challenging times we are currently in. We would also like to thank all our employees who remain highly committed at their mobile workstations at home, servicing the markets throughout the world, providing customers with intensive online consultation on technology questions by means of video conferences, continuing to manufacture our high-end technological products in superlative quality under the given coronavirus protection measures at our assembly and production sites worldwide and successfully assembling and commissioning the systems on-site, in part also remotely in collaboration with our clients' staff.

### **With the rebound in global markets, what kind of a return did you make to the production and sales processes? How do you define the new 'normal' conditions?**

Production in China was closed toward the end of January and in February – extended Chinese New Year and lockdowns. Operations started up gradually in March, and have returned to full capacity since the end of that month. Despite the shutdowns in Europe, we operated at full speed in Germany, achieving a record production of winders in March in Remscheid, Germany. The key challenge in Europe has been to secure the supply chain in the challenging COVID-19 environment. We have succeeded in balancing the situation, and are confident of being able to fulfill the planned delivery schedules for 2020. The mid-term outlook for our segment remains unchanged based on current assessments, and the project pipeline has been extended, with deliveries reaching into 2023.

### **In which markets did you observe withdrawal in regard to pandemic?**

While the markets worldwide for our Oerlikon Nonwoven business unit recorded strong growth and the aforementioned major strategic projects in China, Turkey and India continued, we saw different characteristics for our individual product lines in other markets. The U.S. business for BCF carpet yarn plants was already in decline somewhat before the corona situation. This effect intensified further at the beginning of the crisis, but is now on the road to recovery. The markets in the Middle East and South-East Asia are also more subdued, but are also showing the first signs of a recovery.

### **What are your opinions about the recovery process in the markets? Is the market ready for revival in investments?**

Yes, as already mentioned, the first signs of a recovery are beginning to appear in some of the more severely affected markets, although they are smaller for us. The large markets in China, Turkey and India are already back on track to let's say "normal levels".

### **Mr. Wissenberg, many important fairs and events were postponed or cancelled due to the pandemic. What effect did this have on your market work? What did you do to fill this gap?**

In principle, all trade fairs, events and similar get-togethers were put on ice in the middle of March. Most organizers initially repeatedly moved these to later dates in the year in the hope that the pandemic would be quickly contained and the second half of the year could continue as normal. Ultimately, we must all recognize that the coronavirus crisis and its impact on our global coexistence will continue to determine activities for a long time to come. Travel currently continues to be possible only to a limited extent and with restrictions, and it appears that it will be difficult to plan trips for many months yet. However, planning is everything when it comes to the international trade fair and event business – and that applies to both the organizers and, above all, to us as an exhibitor.

For us, the focus is more than ever on intensively maintaining contact with our customers and partners. Here, it is about providing information on new products and services, commercial clarification for business already being conducted, the implementation of and support for machines and systems to be installed and commissioned and also maintaining excellent customer relations.

Here, we are using – insofar as possible – all modern digital means of communication such as Skype, MS Teams, Zoom, etc. Ultimately, it is about how those persons involved in this digital world open up and interact with these communication methods. Undoubtedly a question

of generation. If at all possible, hybrid customer support solutions with local employees from the company-internal local network and participating experts are currently probably the best alternative.

Technology webinars – as recently also initiated by the VDMA with a new series and as they will also be offered by Oerlikon Manmade Fibers in the second half of the year – help convey detailed information, predominantly on focus topics, to existing and potential customers. While the didactic focus of webinars is generally more likely to resemble university lectures, regardless of how creative these might be, and the dialog takes a backseat here – not least also due to the fact that the participants are competing with each other – new, currently nascent digital communication platforms in the form of virtual trade fairs could represent an invaluable addition for all market players.

In addition to the purely unidirectional transfer of information using attractively designed websites with – in the best case – state-of-the-art virtual reality technologies, there will also be bidirectional communication possibilities available using scheduled video chats between customers and company experts. Conferences and seminars generally round off the program. A hugely attractive offering for all participants – as long as sufficient numbers take part on both sides. Because it is only if the benefit of a 'real trade fair' is created – the possibility to compare products and solutions from different suppliers and the offerings on a digital communication platform designed in this manner and to collate all relevant information for making a purchase decision in a timely and efficient way, i.e. by means of downloads – will suppliers and visitors be able to acquire long-term added value. With its 'Innovate Textile & Apparel Virtual Trade Show', WTIN will – between October 15th and 30th, 2020 – be one of the very first organizers within the textile machinery industry to take this new digital step. And we at Oerlikon Manmade Fibers are thrilled to be part of this and to welcome our customers to a new virtual world.

**Mr. Stausberg, is there a point where the pandemic period has a positive contribution? For example, restructuring the organization in the company, reviewing the production processes and maintenance, studies for R&D and new application areas, etc.**

If the corona situation has changed anything, then one thing above all: speed. We have to be extremely focused during this time, do the right things, make decisions quickly and implement them pragmatically. So far, we have managed to do this by and large,

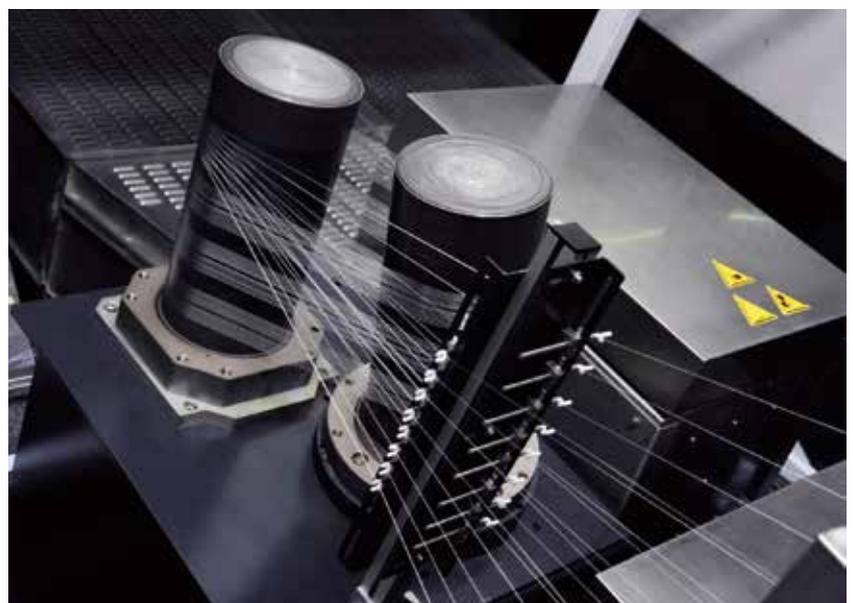
together with all those involved and in harmony with our suppliers and above all our customers. It goes without saying that not everything here runs smoothly and that understanding and willingness to compromise are required on all sides, but at the same time we are showing the will to implement them consistently. Here we would like to thank everyone involved.

**Mr. Wissenberg, the global pandemic has shown us the importance of digital solutions once again. In this context, what steps will you take towards digitalization?**

As a result of Oerlikon Manmade Fibers delving into the digital age years ago, we have experienced the intensive and short-term benefit from all the measures, in part also in its processing of customer projects. Admittedly, the coronavirus situation has accelerated this digital transformation to an extreme extent. But it is working and the coronavirus crisis will also allow us to utilize many positive experiences we have made in our digitally networked world to help us move forward. Thanks to the intensive collaboration among all stakeholders, new working hour models were implemented in a very short period of time, and employees were able to work "remotely" from home – worldwide. The digital infrastructure for this was already extensively available at Oerlikon Manmade Fibers. Now, it has unexpectedly had to subject itself to serious testing.

**If you both have a point to add, or if you have a message to market, please specify.**

We wish all market participants one thing above all: health. We hope that the economic situation will recover quickly for all concerned, and that we can look forward together to a positive future for the textile industry.



## 2019 Textile Machinery Shipments

### Shipments Decrease but Asia Retains Predominant Shares

According to the 42nd International Textile Machinery Shipment Statistics released from the International Textile Manufacturers Federation (ITMF), 2019 global shipments of new spinning, texturing, weaving, knitting and finishing machines decreased on average compared to 2018.

Shipments of new short-staple spindles, open-end rotors and long-staple spindles dropped by 20%, 20% and 66%, respectively. The number of shipped draw-texturing spindles declined by 4.5%, and shipments of shuttleless looms decreased by 0.5%. Shipments of large circular machines decreased by 1.2%, while those of flat knitting machines fell 40%. The sum of shipments in the finishing machinery segment also dropped 2% on average.

Shipments to Asia accounted for a predominant share in each of these categories.

The 2019 survey was compiled in cooperation with more than 200 textile machinery manufacturers representing a comprehensive share of the world's production.

### Spinning Machines

The total number of short-staple spindles shipped in 2019 decreased by about 1.7 million spindles to a level of 6.96 million, 92% of which went to Asia & Oceania. Shipments to Asia & Oceania dropped 20% in 2019. The six largest investors in

short-staple spindles were China, India, Uzbekistan, Vietnam, Pakistan and Bangladesh.

A total of 563,600 open-end rotors were shipped worldwide in 2019. This represents a drop of 147,500 spindles compared to 2018. Ninety percent of the global shipments went to Asia & Oceania, but 2019 shipments to this region fell 21% to 517,000 rotors. Indonesia and Pakistan, the world's fifth and sixth largest investors in open-end rotors, increased their investments by 120% and 15%, respectively, while China, Vietnam, India and Uzbekistan, the world's first to fourth largest investors in 2019, reduced their investments by 48% on average.

Global shipments of long-staple (wool) spindles decreased by 66% from 120,000 in 2018 to nearly 40,000 in 2019. This was attributed mainly to a fall in shipments to Europe (down 72%) and South America (down 80%). Eighty percent of the total shipments went to China and India.

### Texturing Machines

Global shipments of single-heater draw-texturing spindles (mainly used for processing nylon filaments) increased by 12%

### Shipments of Draw-Texturing Machines to Asia, 2019

Major Destinations	False Twist		Total
	Single Heater	Double Heater	
World	25,496	463,696	489,192
Asia & Oceania	22,568	418,312	440,880
China	14,580	322,972	337,552
India	264	5,016	5,280
Indonesia	480	9,120	9,600
Iran	312	5,928	6,240
Japan	1,404	23,268	24,672
Pakistan	144	2,736	2,880
Saudi Arabia	120	2,280	2,400
Singapore	312	5,928	6,240
Taiwan	2,888	1,848	4,736
Vietnam	1,584	30,096	31,680

Source: ITMF

to 25,500 in 2019. With a share of 88%, Asia & Oceania was the largest market for single-heater draw-texturing spindles. China and Taiwan were the main investors in this segment with shares of 64% and 12%, respectively.

In the category of double-heater draw-texturing spindles (mainly for polyester filaments), global shipments decreased by 5% to a level of 464,000 spindles. Asia's share of worldwide shipments decreased to 90%. China remained the largest investor accounting for 77% of global shipments.

### Weaving Machines

2019 worldwide shipments of shuttleless looms decreased by 0.6% to 133,250 looms. Shipments of air-jet looms de-

### Shipments of Spinning Machines to Asia, 2019

Major Destinations	Spindles		Rotors
	Short-Staple	Long-Staple	
World	6,962,990	40,632	573,652
Asia & Oceania	6,406,570	30,048	517,400
Bangladesh	281,408		8,340
China	3,573,880	26,208	330,000
India	977,646	3,840	41,492
Indonesia	59,832		26,220
Iran	40,564		744
Pakistan	374,152		15,384
Thailand	5,760		
Turkmenistan	23,712		
U.A.E.	19,200		1,476
Uzbekistan	534,612		29,364
Vietnam	509,300		61,532

Source: ITMF

### Shipments of Shuttleless Looms to Asia, 2019

Major Destinations	Air-Jet	Rapier & Projectile	Water-Jet	Total
World	30,216	25,144	77,918	133,248
Asia & Oceania	28,136	21,768	76,963	126,867
Bangladesh	198	4,442	108	4,748
Cambodia		114		114
China	21,686	6,761	67,138	95,585
India	3,365	6,566	5,285	16,216
Indonesia	400	945	443	1,788
Japan	286	71	209	566
Korea	40	100	199	339
Malaysia	50		61	111
Pakistan	704	280	824	1,808
Taiwan	207	89	856	1,152
Thailand	72	41	96	209
U.A.E.		231		231
Uzbekistan	695	881	20	1,596
Vietnam	374	946	705	2,025

Source: ITMF

## Shipments of Large Circular Knitting Machines to Asia, 2019

Major Destinations	Single		Double		Total	Electronic Needle Selection (Jacquard)
	Up to 24"	26" or Over	Up to 24"	26" or Over		
World	2,352	6,221	273	18,051	26,897	266
Asia & Oceania	1,999	5,014	228	16,020	23,261	146
Bangladesh	99	350	7	583	1,039	24
Cambodia	11	22	1	86	120	
China	1,149	2,501	129	9,322	13,101	42
India	196	705	21	1,743	2,665	6
Indonesia	58	156	12	421	647	16
Iran	12	30	1	103	146	1
Korea	5	25	5	80	115	4
Malaysia	11	22	1	88	122	
Myanmar	22	43	2	172	239	
Pakistan	57	242	6	466	771	2
Philippines	45	55	5	192	297	
Sri Lanka	9	37	1	86	133	
Tadzhikistan	18	36	2	144	200	
Taiwan	33	98	4	351	486	31
Thailand	15	24	1	75	115	12
Uzbekistan	39	155	4	307	505	
Vietnam	193	429	21	1,565	2,208	4

Source: ITMF

## Shipments of Electronic Flat Knitting Machines to Asia, 2019

Major Destinations	Up to 70"	70" or Over	Total
World	95,883	41	95,924
Asia & Oceania	88,629	18	88,647
Bangladesh	812	6	818
Cambodia	1,810		1,810
China	68,757		68,757
Hong Kong	876		876
India	6,819	12	6,831
Indonesia	914		914
Iran	206		206
Japan	195		195
Korea	586		586
Malaysia	272		272
Myanmar	1,627		1,627
Pakistan	206		206
Taiwan	486		486
Sri Lanka	125		125
Thailand	327		327
Uzbekistan	651		651
Vietnam	3,570		3,570

Source: ITMF

creased by 7.7% to 30,200, and rapier/projectile looms fell 22% to 25,000. Shipments of water-jet looms increased by 12% to 78,000 looms. The main market for shuttleless looms in 2019 was Asia & Oceania accounting for 95% of all worldwide shipments. 98%, 93% and 86% of all water-jet, air-jet and rapier/projectile looms went to that region. The main investors were China and India in all three sub-categories. Shipments of looms to these two countries accounted for 89% of total deliveries. Bangladesh further played an important role in the rapier/projectile loom segment with a 20% share of global shipments.

## Circular &amp; Flat Knitting Machines

Global shipments of large circular

knitting machines grew by 1.8% to 26,900 in 2019. Asia & Oceania was the world's leading investor in this category occupying 86% of worldwide shipments. Occupying 60% of all shipments (i.e., 13,143 machines), China was the most favored destination. India and Vietnam ranked second and third with 2,670 and 2,210 machines, respectively.

2019 shipments of electronic flat knitting machines decreased by 40% to around 96,000. Asia & Oceania was the main market with a share of 92% of world shipments. China remained the world's largest investor with an 80% share, despite a 44% decrease in shipments to 68,760 machines.

## Finishing Machinery

In the category of continuous fabric finishing machinery, shipments of stenters and washing (stand-alone) grew 34% and 0.6%, respectively. The growth in stenter shipments is mainly explained by the addition of ITMF's estimate for the number of stenters. Shipments of stenters totaled 1,700 units, and thus represented an estimate of the total market for this category.

As for discontinuous fabric finishing machinery, shipments of jigger dyeing/beam dyeing machines rose 35% to 561 machines.

Shipments in all other machine categories in both finishing sub-segments (i.e., continuous and discontinuous) decreased in 2019.

## Shipments of Finishing Machines to Asia, 2019

Major Destinations	Fabric Continuous (Wovens & Knits)							Fabric Discontinuous (Wovens & Knits)			
	Bleaching Lines	Dyeing Lines (CPB)	Dyeing Lines (Hotflue)	Mercerizing Lines	Relax Dryers/Tumblers	Sanforizers/Compacters	Stenters	Washing (Stand-Alone)	Air-Jet Dyeing	Jigger Dyeing/Beam Dyeing	Overflow Dyeing
World	60	35	46	51	78	74	1,700	164	1,218	561	1,689
Asia & Oceania	49	21	33	32	59	58	880	128	1,028	463	1,349
Bangladesh		5	1	1	6	15	47	5		17	63
China	40	4	27	27	26	24	735	116	1,008	357	1,229
India	2	4	1	2	12	9	32	2	4	27	15
Indonesia	2				2		13	2	7	5	8
Pakistan	3	6	2	1	2	5	15	1			3
Uzbekistan	2	1		1	1	1	3	1			
Vietnam					8	3	23	1	9	55	25

Source: ITMF

# Japanese Textile Machinery Makers

## Their Strength Is the Superiority to Continue Pursuing High Performance

Japanese textile machinery manufacturers are highly appreciated worldwide. This is because of their superior ability to pursue high performance and continuous developments of new models. In Japan, synthetic fiber producers, cotton yarn and fabric manufacturers, machine shops, knitters and dyeing and processing houses are developing cutting-edge technology and products. Meeting their needs also supports the superiority of local textile machinery builders. This is considered the strength of Japanese textile machinery manufacturers. Herein, their leading-edge models and sales strategies for the growing Chinese and Asian markets are introduced.

### H1 Textile Machinery Production

#### Fiber Making Equipment Rises Sharply, While Looms and Knitting Machines Suffer Setbacks

Japanese textile machinery production during January-June 2020 differed markedly among the types of machinery. Production increased for fiber making equipment and spinning machinery, while it drastically decreased for weaving preparatory equipment (yarn winding machines and other preparation machines), looms and knitting machines.

First-half production of fiber making equipment climbed 88.9% year-on-year to 7,221 units. 2019 production reached the highest level in ten years, and 2020 production has enough momentum to surpass this level. The production of spinning machinery also increased by 3.9% to 238 units. But even at this rate, spinning machinery will be far below the peak of 835 units reached in 2011.

Weaving preparatory equipment, looms and knitting machines had a rough time. The production of weaving preparatory equipment fell 43.1% to 600 units, that of looms dropped 43.1% to 3,771 machines, and knitting machines plunged 66.8% to 3,066 machines. At these rates, looms are estimated to amount to slightly over 7,500 for the whole year, less than half the 2011 volume of 16,887 looms (the highest in the last decade). Knitting machine production might also drop to one-third of the 2017 peak of 18,998 machines.

### Poor Performance of Four Listed Textile Machinery Makers

#### COVID-19 Has Impact on Business

The business performances of Japanese textile machinery manufacturers are not so good. Affected by the globally spreading COVID-19, four listed companies suffered setbacks. Toyota Industries Corporation (IFRS) and Shima Seiki Mfg., Ltd. reported operating losses for the April-June 2020 period, and Hisaka Works, Ltd. posted a double-digit decrease in its fiscal first-quarter operating profits. Tsudakoma Corp. reported operating losses for the first half of the current fiscal year (December 2019 to May 2020).

The textile machinery business of Toyota Industries registered a 46% decrease in consolidated net sales to 8,074 million yen, and segment losses of 1,014 million yen, as compared with segment profits of 696 million yen in the year before. The poor performance was attributable to decreases in sales of looms and yarn quality measurement instruments.

Shima Seiki reported a 41.0% drop in consolidated net sales to 4,954 million yen, and operating losses increased to 1,970 million yen from 827 million yen in the same before. COVID-19 increased uncertainties, and the weak desire to make capital investments also had an impact on its business. Sales of flat knitting machines fell 44.4% to 3,286 million yen, with segment losses of 418 million yen, as compared with segment profits of 692 million yen in the year before. The design system-related business was also sluggish, with sales falling 43.3% to 403 million yen, but segment profits amounted to 13 million yen, which is significantly higher than the 4 million yen in the year before. Sales of glove and sock knitting machines fell 71.1% to 340 million yen, and segment losses increased to 63 million yen from 9 million yen in the year before.

Hisaka's consolidated net sales decreased 13.6% to 6,642 million yen, and operating profits declined 14.9% to 548 million yen. Sales in the process engineering business segment, including dyeing and finishing equipment, fell 20.3% to 2,737 million yen, and segment profits decreased 17.2% to 144 million yen, but orders for this business increased 27.4% to 4,389 million yen. The acquisition of large-scale orders for dyeing and finishing equipment from China also contributed to its business performance.

According to Tsudakoma, its fiscal first-half net sales (December 2019 to May 2020) dropped 43.2% to 11,548 million yen, with operating losses of 1,530 million yen, as compared with operating profits of 640 million yen in the year before. Sales of textile machinery fell 44.2% to 8,951 million yen, with operating losses of 862 million yen (operating profits of 807 million yen in the year before). Business showed signs of an improvement during the fiscal first quarter, such as the signing of contracts with new customers in China, but the coronavirus made it difficult to continue business negotiations globally, including the main markets of China and India.

## Awa Spindle

### Active Response to Replacement Demand by Customization of Interlace Nozzles

Awa Spindle Co., Ltd. is accelerating the customization of migration and interlace nozzles for synthetic fiber spinning systems in response to increasing demands for higher productivity and quality. In addition to the mainstay line for processing apparel fibers, the company has started developments for various industrial fiber applications. In addition, it will work to improve the functionality of spinners for pin-type false twisting machines.

The company's nozzles are reputed for reducing the rate of airflow and preventing fluffs, and boast a high share as they are used as the genuine parts of spinning systems and looms by machinery makers.

In recent years, sales have been strong supported by the renewal of equipment in China. Seizing this as an opportunity, the company is actively responding to requests for the replacement of only the nozzles. Productivity and quality can be improved without changing the layout of existing equipment, and replacement demand is expected to be high among medium-sized manufacturers in West Asia and China, which are slow in renewing their equipment. One of Awa Spindle's advantages is that it can plan and manufacture ceramic nozzles that meet the needs of individual customers by making use of its proven knowhow in processing textile machinery parts. For custom products, it is possible to design the pitch, etc. with specifications that anticipate not only the replacement of current equipment, but also use after renewal.

In migration nozzles, Awa Spindle has been selling the MF series, of which the shape, pitch and orifice diameter can be customized for each customer. The latest TA series realizes a reduction of airflow and improvement of entanglement performance, and can be used for both interlacing and migration. Since this series can process a wider range of yarn types thanks to the accumulation knowhow, the company will start



The new TA-2 interlace/migration nozzle was well received when it made its debut at ITMA 2019

offering custom products based on this series.

Awa Spindle started developments for industrial fiber applications from the end of last year. For industrial applications which required the processing of heavy-denier synthetic fibers, the company has been dealing only with migration nozzles, but in response to requests from machinery builders, it is in the process of developing interlace nozzles for tire cords and fishing nets. As with apparel applications, it is accelerating the development of nozzles that can reduce airflow and achieve high entanglement performance.

Even for pin-type false twisting spinners, inquiries are increasing in Asia and Europe, and Awa Spindle is taking this opportunity to work on improving performance. Normally, the spinners are generally used at 600,000 rpm, but the company aims to achieve a constant speed of 1 million rpm. In addition to productivity improvement by increasing the speed, abrasion is to be suppressed during low-speed operation for extending the life of parts.



**AWA SPINDLE CO., LTD.**

<http://www.awa-spindle.com/>



**TA-2** 50% higher Interlacing performance

Interlace / Migration Nozzle

**TA type**

High Function  
High Performance  
High Efficiency



**TA-3**  
Custom model designed for each system



YouTube



Twitter



Official Website

### Kasen Nozzle

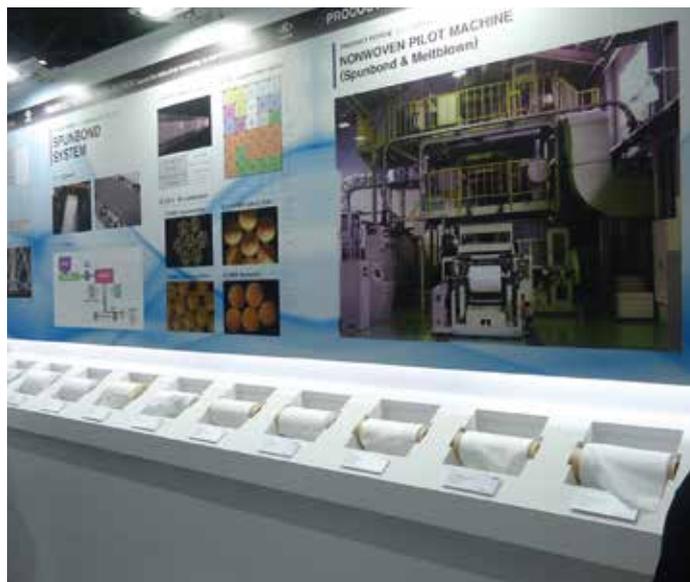
- Orders Increase for Meltblow Spinnerets and Die Heads
- Replacement Demand Expected Thanks to Its High Quality

According to Kasen Nozzle Mfg. Co. Ltd., orders continue to increase for spinnerets and die heads for the manufacturing of meltblown fabrics. Because of the globally spreading COVID-19, demand for nonwoven masks is rapidly growing worldwide. With the growing demand, equipment for producing meltblown fabrics for use in masks are being newly installed or increased one after another. Meltblown microfiber fabrics affect the filtering performance of nonwoven masks. The most important components in the production of meltblown fabrics are the spinneret and die head.

The spinneret and die head have holes for blowing molten polymer such as polypropylene, and are components that greatly influence the quality of the meltblown fabric. Kasen Nozzle's meltblow spinnerets and die heads are recognized worldwide for their high quality, and inquiries for its spinnerets and die heads have been vigorous since this February with the global spread of COVID-19. Even now new orders are coming in. In addition to newly adding and increasing meltblow equipment, replacement demand is growing for its spinnerets and die heads for producing higher quality meltblown fabrics.

Kasen Nozzle can undertake high-precision nozzle processing extensively ranging from 200 mm width for research and development to wide-width production extending over 6 meters. The company has been supplying its spinnerets around the world together with key components such as die heads and air lips.

Currently, inquiries for spinnerets, air lips and die heads are being received from all countries and regions around the world, including China, Japan, Europe, South America



Kasen Nozzle can undertake high-precision nozzle processing

and the Middle East. Inquiries for these vital components have rapidly increased during the last six months, including a major order for 15 or 16 sets.

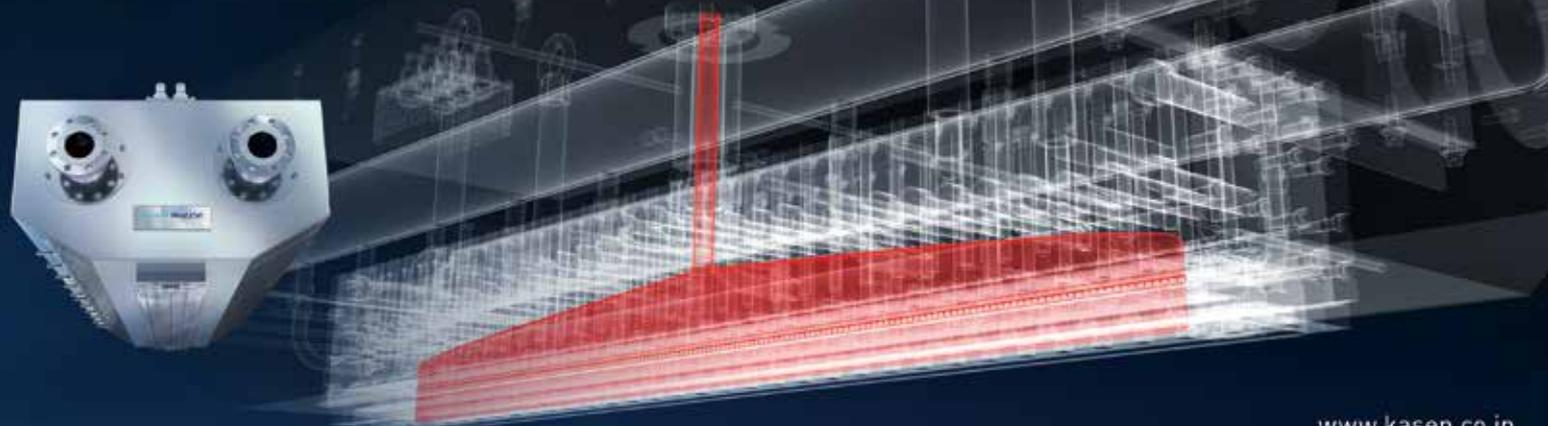
In response to growing demand, the Higashiebara Factory, which is located in Ihara City, Okayama Prefecture and manufactures spinnerets, air lips and die heads, installed more processing equipment such as boring machines and grinders this spring, increasing its production capacity by nearly 10%. Still, the delivery date for recent orders is scheduled to be April and May 2022.

Nevertheless, the company has a cautious view that such a rapid increase in orders for spinnerets, air lips and die heads is unlikely to last forever. Although its other major business line, spinnerets for textiles such as conjugate spinnerets are struggling at the moment, this business line is expected to recover. In preparation for a demand recovery in spinnerets for textiles, the company is focusing on the development of new types of spinnerets.

KASEN MELTBLOWN SYSTEM

## NOZZLE & DIE COMPONENTS

Kasen Nozzle  
DESIGN OF MITSUBISHI



[www.kasen.co.jp](http://www.kasen.co.jp)

Kasen has been supplying high precision meltblown dies that is a key component for nonwoven production to all over the world.

Kasen Nozzle Mfg.Co.Ltd.

6-3-17 Nishitenma, Kita-ku,  
Osaka Japan 5300047

## Fukuhara

- Improving Customer Satisfaction
- China and Taiwan Increase in Share

For next year, circular knitting machine maker Fukuhara Industrial & Trading Co., Ltd. plans to further promote an improvement of customer satisfaction and strengthening its Made-in-Japan technical capabilities to increase its corporate value and avoid being engulfed in price competition. This was disclosed by Masanori Fukuhara, who became the new president of the company on July 29th.

According to President Fukuhara, in the previous fiscal year ending in May 2020, the coronavirus had an impact on its business, but its sales decreased by only a few percent thanks to brisk business during the fiscal first half. By market, exports to China were vigorous, while those to India, Bangladesh and other countries were in a stagnant condition. Usually, China and Taiwan, other Asian countries and Europe each account for one-third of its sales, but in the previous fiscal year, the shares were 50% for China and Taiwan, 20% for other Asian countries and 30% for Europe.

As for the current fiscal year, President Fukuhara expects that the share of China is likely to increase further, as the coronavirus has stagnated the market for textile machinery. However, in Europe Turkey has been showing remarkable movements during the last few months. Since it is a market where electronic jacquard knitting machines account for a high share, the company intends to focus more on this market in the current fiscal year.

In addition, Fukuhara plans to endeavor at improving customer satisfaction as an important challenge. President Fukuhara says with emphasis, "Business cannot continue for long without improving the satisfaction of customers. It is important that the customer thinks it's good to use our knitting machines including after-sales service."

Furthermore, Fukuhara will further promote Made-in-Japan technical capabilities. In the market, the rise of Chinese-made machines has intensified price competition. Since German makers are also moving to assemble their machines and produce parts in China, Fukuhara intends to promote its technical strength and avoid falling into price competition.

Sectors where importance will be attached to product development in the future are electronic jacquard



A circular knitting machine that was popular at ITMA 2019

knitting machines and ultra-high-gauge machines, where endeavors are to be made for achieving even higher performance on the premise of stability. Electronic jacquard knitting machines consist of machines for apparel and home textile applications, and developments will be made in accordance with the respective application. As for high-gauge machines, 36- and 40-gauge machines have come into widespread use in the market. Because the needles



Fukuhara prides itself in being a worldwide leader in the manufacturing of circular knitting machines as well as knitting needles/sinkers.

In fact, we are the only machine manufacturer in the world producing both circular knitting machines and needles/sinkers. We are fully committed to not only developing new products to meet ever-changing market demands, but also to providing the best full technical support possible to our global network of customers.

We are certain you too will appreciate and come to rely upon Fukuhara's unbeatable combination of top quality machines and needles.

[M/C Info.]

**OD7-M2XC-A3.2RE**

Single Knit High Speed Raceway Machine

Diameter:	26" ~ 42"
Feed:	84F ~ 136F
Gauge:	14G ~ 40G



**Fukuhara Industrial & Trading Co., Ltd.**

6-14, KITAHAMA-HIGASHI, CHUO-KU, OSAKA 540-0031, JAPAN  
 TEL: (06) 6943-0691 FAX: (06) 6941-1883  
<http://www.fukuhara.co.jp/>

gain greater importance as the gauge becomes higher, developments will be strengthened by taking advantage of the fact that there is a needle maker within the Fukuhara Group.

In general-purpose knitting machines, Fukuhara developed the M2XC-A3-2RE high-speed single-jersey machine. This model boasts high productivity and energy saving as various internal improvements were made, such as modification of the slider and low-friction cylinder, and therefore high-speed operation of SF 1,350 has been achieved.

The company will put special efforts into China, as there are major enterprises that are firmly carrying out business.

Bangladesh is a market where priority is given to price. High value-added models are used by a major Bangladeshi knitter, which is to be made a model factory.

### Murata

#### VORTEX May Be One of the Answers in New Standard

It is said that the textile industry has been in a tough situation since the latter half of last year. Material prices are not in a good mood, and the machinery industry is also suffering from the severe market. However, in such a situation, we, Murata Machinery, Ltd., received the largest orders for our VORTEX spinning system in the fourth quar-

ter of 2019 and the first quarter of 2020. We could feel some changes in the market, but before we could make sure about the change, COVID-19 hit the market.

We could not understand why the VORTEX market picked up, but we suppose a couple of backgrounds. One is, the material cost. The material cost pushes down the yarn price, but the costs involved in spinning such as energy or manpower costs remain the same or may be increasing year by year. The pressure to reduce the spinning cost may have matched the VORTEX spinning system especially in savings of process, manpower, etc.

Another point may be a change in consumers, especially after COVID-19. More E-commerce and more attention to the product have led consumers to spend more time to examine what they are going to buy. Before, the consumer spent comparison time in the shops, but this had many limitations, such as time, area, the number of shops and so on. E-commerce took out the limitation, and consumers started to spend more time finding and examining the product. This leads the consumer to find some new reasons to buy. Now more keywords, more promotion, more reasons are required to be picked up by consumers. Under such circumstances, VORTEX yarn may help in supplying more reasons to promote its yarn character, and already we saw many promotions in many sites. Typical promotions are less pilling or high durability. More variation in design brings more printing, and this trend is



The advertisement features a small white dog wearing a grey hoodie, looking directly at the camera. In the top left corner is the VORTEX logo, which consists of a stylized blue 'V' shape followed by the word 'VORTEX' in blue capital letters. In the center-left, the text 'VORTEX ?' is written in a light blue font, with 'Is it sustainable ?' written below it in a red font. At the bottom center, a white speech bubble contains the word 'Sure !' in a blue font. At the bottom of the advertisement, the Muratec logo (a blue 'm' in a square) is followed by 'MURATA MACHINERY, LTD.' in blue capital letters.



also welcomed for VORTEX yarn character.

The third point is that more flexibility and speed are required at the same time, by such market changes. The VORTEX spinning system offers less process and higher productivity. The materials themselves show more variation in function or origin. Recycled, biodegradable, more sustainable .... the type of material is already one promotion. This means, the spinner needs to work for many different materials with smaller lots. For such small lots, the VORTEX spinning system can help to reduce the time between lot changes, and save the time in production with

higher speed. In this sense, we can say the VORTEX spinning system can cover mass production and yet be small and flexible.

The flexibility of the VORTEX spinning system over other systems is becoming recognized slowly in the market. We are promoting the Ne 10 – 80 count range in one machine, the widest range in spinning systems. We challenge changing "common sense" in spinning, and now it is the right time.

Thus, the New Standard will change the market, rules and styles of spinning, and we would like to keep VORTEX leading the Changes, to become one of the stars in the New Standard.

## Nippon Nozzle

- **Orders Grow for Meltblow Equipment**
- **China and Taiwan Increase in Share**

Nippon Nozzle Co., Ltd. was founded in 1928 as Japan's first manufacturer of spinnerets. Currently, the company manufactures and sells various types of spinnerets, such as for wet spinning, dry spinning and melt spinning, along with spunlace jetstrips and other related components, as well as meltblow spinnerets and dies and spunbond spinnerets that are indispensable for the manufacturing of spunlaced fabrics. It also offers equipment for the production of meltblown fabrics.

**NIPPON NOZZLE**

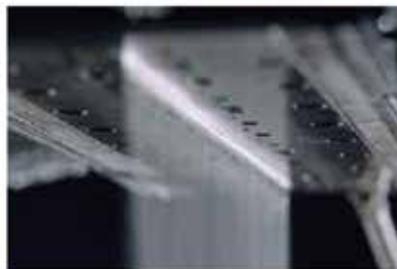
**SINCE 1928**

**Japan Quality**  
Made in Japan



### MELT BLOWN PRODUCTION EQUIPMENT

- Customizable to customer needs
- Standard spec for mask filter



### Non-woven fabric manufacturing test

- Supportable to products development and validation before installation of equipment



### MELT BLOWN SPINNERET AND DIE

- Realization of high aspect ratio hole processing to Nano size fibers
- Standard spec for mask filter



**NIPPON NOZZLE**

1-1, 2-Chome, Murotani, Nishi-ku, Kobe 651-2241  
(Kobe High-Tech Park)

TEL:(+81)78-991-6821 FAX:(+81)78-991-6833

E-mail: [inq@nippon-nz.com](mailto:inq@nippon-nz.com)

URL: [www.nippon-nz.com](http://www.nippon-nz.com)

As a result of the globally spreading COVID-19 pandemic, the production of meltblown fabrics that are indispensable for masks, continues to grow. The company is actively receiving inquiries from around the world for meltblow spinnerets and dies, as well as for meltblow equipment.

Orders for meltblow spinnerets and dies are 10 times greater than usual, and in order to fulfill these orders, the company has increased its production capacity for meltblow spinnerets and dies 6 times, including outsourcing. Its high-quality meltblow spinnerets and dies are highly regarded worldwide. In the future, Nippon Nozzle expects that companies that are having quality problems due to the installation of cheap meltblow equipment are likely to come to them for the replacement of meltblow spinnerets and dies.

Orders for meltblow equipment also are likely to increase sharply. In fact, orders have already been received for a number of plants, and negotiations are continuing with more than 10 companies.

Nippon Nozzle started full-scale sales of meltblow equipment about a decade ago. The company has installed more than 10 plants, including small-scale equipment for research and experiments, and orders began to increase rapidly this year.

The worldwide spread of the coronavirus has rapidly increased demand for meltblown fabrics that are indispensable for masks. Nippon Nozzle offers a standard model of meltblow equipment meeting mask specifications with a minimum delivery time of six months. Ancillary equipment is also offered, such as equipment for electret treatment, inspection and slitting.

Furthermore, custom designing is possible according to customer needs. Meltblow equipment for masks is being expanded or newly installed all over the world. With the rapid increase in supply, equipment specifications aimed at developing applications other than masks are becoming increasingly important.

In that respect, Nippon Nozzle's meltblow equipment is capable of also spinning nanofiber and conjugate varieties. The company has been praised for its capability to design exclusively in accordance with customer needs, and this is



Nippon Nozzle is actively receiving inquiries for meltblow-related equipment

attracting attention all over the world. It also has equipment for running meltblow production tests in its own factory. Customers can also carry out test production of meltblown fabrics with the polymer it wants to use. A forte of the company is that custom designing is possible based on the tests.

## Shima Seiki

### New Digital Yarn Sourcing Website

Shima Seiki Mfg., Ltd. announced the launch of its "Yarnbank" yarn sourcing web service.

Yarnbank is the world's first online web service for searching and viewing the latest yarns, developed with cooperation from yarn companies from around the world. Registered users have free access to the Yarnbank archive of yarn information and digital yarn data. Users can also download yarn data for free, for use in fabric simulation and virtual sampling on the SDS-ONE APEX4 design system as well as APEXFiz subscription-based design software.



Users can thereby avoid the need to scan yarn on their own. By using yarn that is available for actual production, users can further rest assured that their simulations created using Yarnbank are not merely realistic images but accurate representations using yarns that can actually be purchased and used in production. Such clear communication is possible with Yarnbank by bringing together each player in the supply chain — spinners, knit manufacturers and apparel companies — and connecting them digitally to eliminate trial-and-error sample making that is the legacy of obsolete analog fashion production.

With its design system and software, Shima Seiki has traditionally been promoting design simulation and virtual sampling as an essential part of its Total Fashion System concept, wherein virtual samples replace physical samples in an effort to reduce time, cost and materials wasted in the sample making phase, further realizing overall efficiency and reduced waste for a sustainable manufacturing supply chain. Now, with the launch of Yarnbank, virtual sampling on Shima Seiki design software provides even more effective digital transformation (DX) for the fashion industry.

Registration is free to APEX users, while yarn companies can choose from different plans for registering their yarns on Yarnbank. For yarn companies, Yarnbank serves as a brand-new promotional platform with the opportunity to present their yarns directly to customers.

## TMT Machinery

- **Strong Business for Polyester POY-Related Equipment for China**
- **Vigorous Inquiries for Heavy-Denier Industrial Yarn Equipment**

Synthetic fiber equipment manufacturer TMT Machinery, Inc. positions China as an extremely important market, as it accounts for 80% to 90% of its exports. Large-scale synthetic fiber producers in China continue to increase their production capacities, and TMT's sales of synthetic fiber equipment have not been affected by the spread of COVID-19. As major Chinese synthetic fiber producers are expected to continue increasing their capacities up to the end of 2022, its sales are likely to continue moving favorably.

The production capacity of synthetic fibers depends on the ability of the take-up winder for winding the fibers. TMT Machinery has a reputation for its high-performance take-up winders. Business is particularly strong for take-up winders for polyester POY. Currently, POY-related take-up winders account for 60% of the production volume.

Previously, take-up winders for FDY accounted for a large share. But amid the favorable performance of sportswear makers in Europe, the U.S. and China, functional yarns have increased, such as moisture-absorbing/quick-drying yarns, and its Eco-ORCA next-generation compact take-up winder for POY, which the company developed a few years

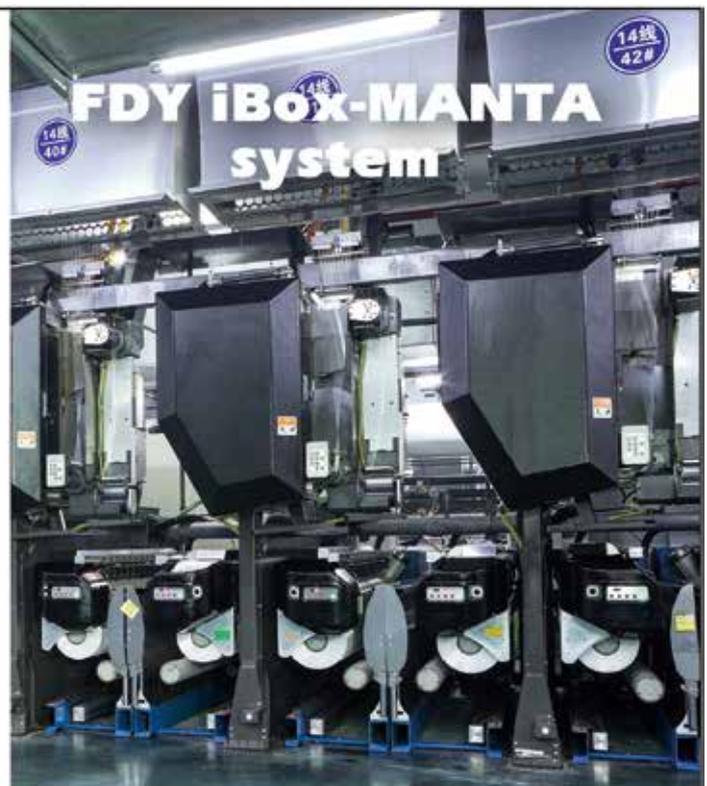
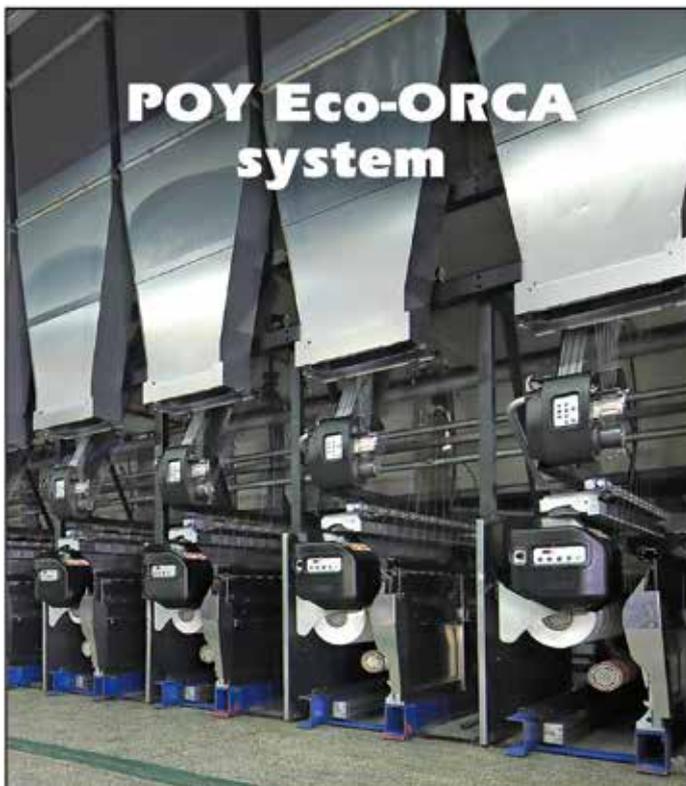
ago, has also been successful. The company expects sales of POY-related take-up winders to increase, as demand for application in POY-DTY for sportswear and sporty casual wear are likely to remain strong hereafter.

The compact design of Eco-ORCA enables operation by one person, and energy and space are also reduced. By extending the take-up winder to 1,800 mm, the number of threads per position increases to 12 ends, thus significantly increasing the production volume as compared with conventional take-up winders.

The iBox-MANTA take-up winder for polyester FDY is highly appraised for its energy efficiency, low floor and easy thread up. However, the demand for polyester FDY lacks enough vigor to grow.

Sales of equipment for producing heavy-denier industrial yarns are also strong, as major Chinese synthetic fiber producers are increasing their production of heavy-denier industrial yarns mainly for application in civil engineering and construction materials.

Despite the strong sales to the most important Chinese market, a matter of future concern is that new orders are scarce due to the COVID-19 pandemic. Because the desire to make capital investments has declined in the midstream sector, this is a concern over the medium to long term, and the company will respond while keeping an eye on the situation.



**tmt**

TMT MACHINERY, INC.

6th Fl., Osaka Green Bldg., 2-6-26, Kitahama,  
Chuo-ku, Osaka 541-0041, JAPAN  
TEL: +81-(0)6-6204-8370 FAX: +81-(0)6-6204-8371  
<http://www.tmt-mc.jp/>

The **One & Only** Technology

## Actual Situation of Factory Operation in ASEAN

- Exports to Europe and U.S. Are Tougher Than to Japan
- Industrial Textiles Show Recovery

The impact of the coronavirus has reduced the factory utilization rates of Japanese-affiliated textile manufacturers in Thailand and Indonesia. In particular, the decreases in exports to Europe and the U.S. are sharp, as lockdowns brought these markets to a stop, and exports to Japan can be said to have been relatively better off. The situation is similar for garment factories in Vietnam, with exports to European and American markets being more severe. The challenges are numerous, including a review of exports to Japan, securing exports to Europe and the U.S. and domestic sales on a medium to long term basis, broadening the fields of business to other than apparel and textiles, etc.

### Thailand

#### Production Rate Drops to 40%

The Thai Toray Group has largely dropped their factory utilization rates. The maximum utilization rate of Toray Textiles (Thailand) Public Co. Ltd. during April-June 2020 decreased to 40% for spun fabrics and 50% for filament fabrics and industrial materials. Because the group exports large amounts of its products, its business was greatly affected by lockdowns in Europe and the U.S. The group expects a recovery to only 70-80% for the whole year. The situation of industrial materials was severe for airbags, but a recovery can be seen from August.

According to Thai Toray Synthetics Co., Ltd., the op-

eration rates during April-June 2020 were 60% for apparel materials and 75% for industrial materials, but its operations have been recovering since July. Especially, automotive-related materials have been recovering at accelerating rates from July, and this is expected to raise the overall rate of industrial materials to 90% in the fourth quarter.

Even for the Teijin Group in Thailand, Teijin Cord (Thailand) Co., Ltd. reduced its production to about 60% as a whole. Thai Asahikasei Spandex Co., Ltd. continues to adjust its production, and its operation rate began to rise from August. Asahi Kasei Spunbond (Thailand) Co., Ltd. has been maintaining full operation.

The utilization rates of Thai Kurabo Co., Ltd. (a textile factory of the Kurabo Group) and Thai Textile Development and Finishing Co., Ltd. (the group's dyeing and processing plant) are about 80%.

According to Tokai Dyeing Co., (Thailand) Ltd., domestic demand was catastrophic, but the company is operating at full capacity thanks to strong sales to Europe and the U.S.

### Indonesia

#### Vigorous Exports of Uniforms to Japan

The factory utilization rates of the Indonesian Toray Group are 50-80%. Their production of fashion materials has decreased sharply for domestic sales, exports to Japan and those to third countries, and the decreases in exports to Europe and the U.S. are particularly sharp.

According to the Indonesian Nisshinbo Group, uniform fabric exports to Japan are vigorous, while shirt fabrics and fabrics catering to domestic demand, exports to Europe, the U.S. and the Middle East are encountering difficulties. The operation rates are around 70-80% for the three companies of P.T. Nikawa Textile Industry, P.T. Nisshinbo Indonesia and P.T. Naigai Shirts Indonesia.

P.T. Teijin Frontier Indonesia is struggling with exports of sportswear fabrics to Japan, materials for the domestic market,



Operation rates declined drastically for factories producing garments for the European and American markets



Textile exports are down in general

and fabrics for traditional garments worn in the Middle East. The operation rates of automotive materials and factory filters for the domestic market have been rising gradually from July.

The Indonesian Toyobo Group reports that the decline in chemical products is particularly sharp. Automotive fabrics for the domestic market were temporarily in a poor state, but a recovery is expected whenever the Indonesian market improves. Sportswear and woven shirts are in an extremely severe situation.

The operating rates of P.T. Shimada Shoji Indonesia's subcontracting factories are 50-80%, but the orders the company is receiving are generally as planned.

According to P.T. Mermaid Textile Industry Indonesia (Mertex), the operation rates during January-August 2020 were 50% for spinning, but those of weaving and processing were high at 100%. The company has been successful in maintaining full operation even with small orders by making adjustments in the weaving and processing stages. It is said that the decline in the spinning utilization rate is not due to the impact of the coronavirus, but to the deterioration of market conditions of uniforms for exports to Japan and fabrics for Middle East traditional clothing.

## Vietnam

### Uncertain Outlook with Second Wave of Coronavirus

Unlike Thailand and Indonesia, a predominant number of Japanese-affiliated companies in Vietnam do not have production facilities, but the situation is the same that exports to Japan are better off than those for Europe and the U.S.

According to Yagi Vietnam Co., Ltd., large-scale fac-

tories producing garments for the European and American markets are suffering from a drastic decline of orders. Many of the factories are taking leave measures, but the operations of garment factories catering to the small orders for exports to Japan have not declined so much. It is also said that there is no trouble in regard to delivery delays and non-arrival of materials.

Toray International Vietnam Co., Ltd. says that in the wake of the second wave of the coronavirus, some factories refuse to accept visits from outside in response to requests from the government and ministries to tighten regulations on the operations of factories throughout the country. However, the regulations do not go so far as to limit operations, so it is not

a major problem for Japanese-affiliated trading firms. Nevertheless, the deterioration of markets in Europe, the U.S. and Japan has resulted in a decrease of orders for the factories, and this is worsening their business performance. Even for the procurement of fabrics and auxiliary materials, there are no major problems. However, air freight costs are more than three times higher than usual, so it is necessary to thoroughly manage deliveries based on marine shipments.

According to a Japanese-affiliated trading company, order cancellation and delivery delays occurred one after another from March. Many garment factories switch to producing masks and protective clothing up to June to compensate for the decline in garment orders, but this reached a level of saturation from July, and many of the factories cannot foresee how the situation will turn out.



Some factories maintain their operation by producing protective clothing and masks

## Thailand

### “Defense” Becomes an Important Management Strategy

The Thai economy was seriously hit by the coronavirus. In March, a large-scale action restriction order was issued due to the declaration of an emergency, which caused severe damage to tourism and other industries and stagnated the domestic economy. The automobile industry was also affected by the worldwide decline in production. Even in the apparel sector, orders fell drastically, mainly for exports to Europe and the U.S. Under such severe circumstances, Japanese-affiliated textile companies in Thailand have strived to overcome the crisis with “defensive” management.

#### Drastic Declines in Apparel & Industrial Textile Production

Currently, the number of people infected with the coronavirus in Thailand is at a low level. For this reason, restrictions on the movement of people were gradually lifted from May, but economic activities have not been fully resumed, as the emergency declaration was extended to the end of September and other factors. The downturn of the domestic economy is serious, and the gross domestic product in 2020 is expected to fall 8% year-on-year.

In the textile and apparel industries as well, the apparel sector is in a dull condition due to a drop in domestic demand and sluggish exports caused by lockdowns in Europe and the U.S. The industrial textile sector was also hit hard. Mainstay automotive products suffered a drop in orders during the April-June period with the decrease in global production.

Under such circumstances, Japanese-affiliated textile companies suffered from a drastic drop in orders. In the Toray Group, textile manufacturer Toray Textiles (Thailand) Public Co. Ltd. and synthetic yarn maker Thai Toray Synthetics Co., Ltd. reported sales falls during the April-June period. The sit-

uation was especially serious for apparel applications, both domestic demand and exports. Orders for industrial textiles including automotives also decreased.

Even for the Teijin Group, orders decreased both for apparel and industrial textile applications for polyester fiber producers Teijin Polyester (Thailand) Limited and Teijin (Thailand) Limited, trading firm Teijin Frontier (Thailand) Co., Ltd. and filament fabric producer Thai Namsiri Intertex Co., Ltd.

In the Kurabo Group, textile maker Thai Kurabo Co., Ltd. and dyehouse Thai Textile Development and Finishing Co., Ltd. reported decreases in orders.

In the Asahi Kasei Group, spandex producer Thai Asahi-kasei Spandex Co., Ltd. suffered order decreases for apparel applications. Meanwhile, the impact of the coronavirus was smaller for sanitary applications. Spunbonded fabric maker Asahi Kasei Spunbond (Thailand) Co., Ltd. continued to operate at full capacity with little impact from the coronavirus.

Under such circumstances, industrial textiles have been showing signs of a recovery in orders from July centering on automotives. As economic activities gradually increased worldwide, automakers revised their production plans upward one after another. A Japanese-affiliated maker said that airbags hit bottom in June and recovered to some extent in August and September. Another producer indicated that China showed a fast recovery in exports to North America. A third maker expects that a recovery is likely to occur centering on automobiles and bag filters from 2021.

#### Japanese Market Gains Greater Importance

The recovery of the apparel field has been slow. Some say that domestic demand is “catastrophic” due to the sluggish Thai economy. Even for exports, market stagnation is serious with the large numbers of fatalities in Europe and the U.S., the aftermaths of lockdowns and the bankruptcies of major apparel and distribution firms. According to Toray International Trading (Thailand) Co., Ltd. and other trading firms, there is information that Asian garment factories exporting to Europe and the U.S. have received cancellations of orders and postponements from European and American customers. As a result, a greater number of local companies are struggling to raise funds, and this has increased the risk of credit management.

While it is difficult to foresee the course of Thai domestic demand and exports to Europe and the U.S., the Japanese market is rapidly gaining attention. Japan is considered to be one of the few countries that has succeeded in combating the coronavirus because the number of fatal infection cases is strikingly small and there are no large-scale restrictions on the movements of people.



Thai companies are taking infection prevention measures for the safety of their employees  
{Photo courtesy of Teijin Polyester (Thailand)}

In fact, the decrease in orders for exports to Japan is comparatively smaller than the falls in exports to Europe and the U.S. Thai Fujibo Textile Co., Ltd. (a member of the Fujibo Group that undertakes spinning, knitting and make-up operations) exports almost of its production to Japan. According to a corporate official, orders dropped during the April-June period, but have been recovering gradually since the emergency declaration was lifted at the end of May. In exports to Japan, attention is great for uniform applications, as this sector is particularly stable. In fact, companies such as Toray Textiles (Thailand) are increasing their inclination toward uniform materials for the Japanese market.

A challenge is the development of products appropriate for the "with coronavirus" era. For instance, Tokai Dyeing Co., (Thailand) Ltd. is vigorously exporting printed fabrics to Europe and the U.S. The expansion of "at home" consumption

such as hobby applications due to the coronavirus seems to be a tailwind. Importance is increasing for casual materials with more people working from home and a "stay home" lifestyle. Since the importance of cleanliness and hygiene is greater, continuous product developments and productivity improvement in the fields of hygiene, environment and daily life have also become significant.

To what extent these measures can cover the decline in orders caused by the coronavirus is a challenge in fiscal 2020-21, but many say that it may take two to three years to recover to the pre-coronavirus state. Therefore, an official of a Japanese-affiliated company in Thailand says that it is striving to overcome the crisis with "defensive" management, such as attaching importance to cashflow, reducing fixed costs and thorough control of inventory and credit management.

## Thai Yamaki

- Amid Declining Sales, Profits Pursued by Cost Reductions
- Plans for Marketing Antiviral Shirts in Thailand

Thai Yamaki Co., Ltd., the Thai subsidiary of Yamaki Co., Ltd. manufacturing shirts and other garments, expects its sales in fiscal 2020 to fall by about 30% compared to the previous fiscal year due to the worldwide spread of COVID-19. Based on this premise, Yuetsu Kagaya, Managing Director of Thai Yamaki, says, "The game is how profits can be pursued, while taking measures such as reducing manufacturing costs and expenses."

In Thailand, personal consumption has declined with the spread of COVID-19, and this situation is likely to continue for the rest of the year. Department stores in Bangkok were closed for two months, and Bangkok Isetan lowered its shutter on August 31st.

The shirt industry is said to have shown no significant changes, and profits were comparatively stable, but as the global spread of COVID-19 continues, orders have been declining even for Thai Yamaki. Its production and sales are both 30% lower than the previous year, with setbacks in Thai domestic sales as well as exports to Japan and other markets.

Under such circumstances, Thai Yamaki has to weather it out and wait for the market to recover. It is focusing on protecting the company. Fortunately, Thailand expects a faster market recovery because its COVID-19 measures are progressing more smoothly than other countries. The company has plans to sell antiviral shirts in the Thai domestic market.

Established on October 25, 1989, Thai Yamaki has been manufacturing and selling men's shirts for over 30 years. In addition to production at its Thai factory, production in Bangladesh started in 2000, and its Laos



Yuetsu Kagaya  
Managing Director  
Thai Yamaki Co., Ltd.

factory was launched in 2006. For the first 10 years, exports to Japan were the mainstay, but after that, Europe and the U.S. grew to become the next main markets, and currently exports to Australia and other ASEAN countries along with sales in the domestic market are the main lines of business. The company supplies the highest level of shirts in line with market needs.

Furthermore, Thai Yamaki meets the needs of the world with a production system and capacity that can supply business shirts of all levels from the top-end to standard products.

## Indonesia

### Preparing for Business Opportunities after Recovery of Consumption

The sluggish consumption of textile products around the world has also hit companies in Indonesia. The future is extremely uncertain with factory utilization rates being significantly lower than the previous year. Indonesian companies are doing everything possible, such as material developments and fixed cost reduction, in preparation for business opportunities after the coronavirus recedes.

#### Negative Economic Growth

In Indonesia, the coronavirus continues to spread. The cumulative number of infected people from the first infection confirmation in March to the end of August was 172,000, with the number of deaths exceeding 7,000. Even now, new infection cases number 1,000 people per day.

The damage to the Indonesian economy is also serious. According to Statistics Indonesia (BPS), the GDP growth was maintained on the 3% level during January-March 2020 compared to the year before, but turned to a minus 5.3% during the April-June period. It was the first negative growth year-on-year since 1999, the year of the Asian currency crisis.

As the negative growth is estimated to have continued during July-September, it is certain that the Indonesian economy will retreat significantly from an annual growth of 5%. The sales of cars and motorcycles in April and May fell 90%, and personal income, consumption, imports and exports all showed significant decreases.

What suddenly worsened the economy were govern-

ment infection control measures and large-scale social restrictions (PSBB) from April. Although the measures and restrictions were gradually eased from early June, infection began to spread again in July, and PSBB continues in several parts of the country including the Jakarta metropolitan area.

As a result of PSBB, commercial facilities were completely closed for two months, and this had a devastating impact on the consumption of textiles including apparel. An increasing number of stores gradually reopened from June, but as the infection spread, consumers were very cautious about going out, and consumption will probably remain sluggish after August as well.

#### Impact from Global Recession

In the global supply chain established by textile and apparel companies in advanced countries, Indonesia undertakes mass-production of garments and other sewn products, as well as manufacturing materials for these products. Although it is inferior to China in terms of technology and accuracy, its strengths are that manufacturing costs can be held down and that its workforce is one of the largest in Asia.

However, a series of urban closedowns and restrictions on the movement of people around the world from around April rapidly cooled the consumption of apparel in several countries. This worsened the management of Indonesian factories undertaking the production of textiles, garments and other sewn products.

Japanese-affiliated factories are no exception, and the utilization rates of textile manufacturers and subcontracting factories of trading firms decreased by 20-50% during April-June. The production and sales volumes also decreased to about the same extents.

The Toray Group supplies fashion textiles to countries around the world from their Indonesian subsidiaries producing synthetic staple fibers, spun yarns and woven fabrics, and the coronavirus had a great impact on their business. Local manufacturers suffered in general, but the decrease was said to have been particularly sharp for fashion textiles.

According to an official of P.T. Toray Industries Indonesia, demand is expected to return somewhat in the second half of the year, but the impact is likely to remain next year and the following year. The environment will not be the



Indonesia posts first negative GDP growth since the Asian currency crisis



Operation continues with caution against the coronavirus

same as before the coronavirus.

P.T. Toray International Indonesia mainly exports apparel and other sewn products to Japan, and estimates lower sales and profits during April-June due to cancellations of orders from February or March. Its garment factories are operating at a low level. According to a company official, the rate of decrease is likely to be smaller toward the second half of the year, but a decrease compared to the previous term is inevitable.

The operation rates of knitting and dyeing factories in the Toyobo Group are no higher than 50-60%, while those of their garment factories have been maintained at 90% or higher thanks to a sharp reduction of personnel. As for apparel, OEM sportswear business and woven shirts for sales in the Indonesian market and exports to Japan are in a difficult situation. Meanwhile, knit shirts for the Japanese market are said to have been strong as people worked from home, and the lingering intense heat in Japan.

The utilization rates of the three factories of the Nisshinbo Textile Group have been around 70-80% since April. Uniform materials for the Japanese market were relatively strong, but shirts for Japan along with products for Europe, the U.S., Middle East and for sales within Indonesia suffered setbacks.

## Reduction of Fixed Costs and Accelerating Developments

Indonesian companies suffered from an unprecedentedly rapid deteri-

oration of business. As for their strategy for overcoming the pandemic, many Japanese-affiliated textile manufacturers and trading firms give the reduction of fixed costs. The negative impact of the coronavirus goes beyond the reach of human power, so the idea is to do what can be done steadily even if it is small.

A number of companies plan to accelerate the improvement of material quality and higher value addition. Even before the coronavirus, general-purpose materials were exposed to price offensives from Chinese and local companies. As the operations are currently low, it is considered a good opportunity for promoting developments and undertaking trial production, in preparation for business opportunities after the pandemic.

In particular, there are signs that the production of environment-friendly materials will increase in Indonesia, with the assumption of exports to Europe, the U.S. and Japan. The Toray Group and P.T. Teijin Frontier Indonesia are taking the lead in this field, and P.T. Mermaid Textile Industry Indonesia (Mertex) is also focusing on the development of sustainable materials. The company will consider the maintenance of production equipment for pure cotton materials, the development of recycled polyester/cotton blended materials and acquiring organic certification for its cotton materials.

The Toyobo Group has a strategy of speeding up developments, accelerating the transfer of production from Japan and reducing the ratio of general-purpose products. P.T. TYSM Indonesia of the Toyoshima Group has a policy of promoting the development of differentiated fabrics that no other company can sell in Indonesia. The Nisshinbo Textile Group is promoting production planning and product developments in response to the new normal coexistence with the coronavirus.



Japanese-affiliated firms move to reduce fixed costs

## Vietnam

### The Impact of Coronavirus Is Comparatively Smaller Than Other Countries

Vietnam's GDP growth during January-June 2020 was 1.81%, as the impact of the coronavirus stagnated economic activities. However, it can be said that the damage caused by the coronavirus was still better off compared to other Asian countries. According to the 2020 GDP growth forecasts by the World Bank and other institutions, Southeast Asia is to have negative growth as a whole, while Vietnam is projected to grow in the range from 2.7% to 4.1%. In the following, the latest situation of Japanese-affiliated textile and apparel companies in Vietnam is introduced.

#### Sustained Production from Yarns and Fabrics to Final Products

Moririn Vietnam Co., Ltd. undertakes OEM/ODM apparel business and the sales of sewing thread, and has been steadily expanding its market share in sewing thread since the company was established in 2011. The company supplies a wide variety of sewing thread in small lots, responds to bespoke requests in detail, and its operations in Vietnam, including dyeing, are well accepted.

When it started offering pure Tencel sewing thread in various colors, business negotiations were made with a major European apparel company as sustainability was an important factor. Together with further increasing the share of sewing thread sales, Moririn Vietnam will exhibit

uniqueness in its apparel business in collaboration with a Moririn company in Thailand. Although it is struggling with the coronavirus in the current fiscal year ending in December 2020, it aims to maintain its business on par with the previous fiscal year.

Kurabo Vietnam Co., Ltd. sells yarns and fabrics, and has been deepening its cooperation with local subcontracting factories since its establishment in December 2018. Although its sales and profits are expected to decline compared to its plan due to the coronavirus, the company is poised to overcome the difficult situation by further expanding exports to Japan as well as business catering to Vietnamese domestic demand, which it has already started.

The business of Toray International Vietnam Co., Ltd. undertakes the sales of yarns and fabrics and management of production of apparel and other sewn products, and amid the coronavirus its business has been going well for the moment, maintaining about the same level as the year before. But because it has been promoting an expansion of fabric converting operations, business is expected to decrease by 15-20% compared to its plans. Together with gaining new customers and accelerating consistent proposals from yarns and fabrics to apparel making, the company will promote the expansion of fabric variety and smaller production lots.

#### Further Shift toward Vietnam

According to Toyoshima Vietnam Co., Ltd., which is involved in yarns, fabrics, apparel and sewn products, orders increased in February and March in association with moves to avert risk in China, and business from April remained steady at about the same level as the year before. Business is expected to be more difficult in the future, but the company intends to overcome the difficulties by strengthening cooperation between the material and product departments and developing purchasing routes from third countries, mainly in Southeast



It first appeared that Vietnam successfully held down the coronavirus, but a second wave occurred

and South Asia.

Chori Vietnam Co., Ltd., which mainly sells fabrics, reported that its sales and profits during the first half decreased compared to the year before, but business is said to be recovering as additional orders were made after the cancellation of the state of emergency. In the future, the shift of production bases to Vietnam is expected to increase further, so it will focus on expanding sales of recycled polyester yarns and work to strengthen organizational management.

In its Vietnamese business, Mitsui Bussan I-Fashion Ltd. was compelled to reduce production from April due to the coronavirus. The worsening of the Japanese market also had an impact on business. In addition to continuing its focus on the development of casual wear materials, the company will strengthen its undertakings with existing garment factories, strengthen its handling of Vietnamese materials and expand exports to Europe.

Prominent (Vietnam) Co., Ltd. of the Itochu Group, which has a collaboration with the state-run textile group Vinatex, has set its challenge of capturing domestic demand, and is placing an emphasis on establishing an integrated value chain from raw materials and textiles to garment making centering on strategic materials such as Renu, Lycra and Coolmax.

According to Yagi Vietnam Co., Ltd., its OEM operations involving apparel and sewn products for exports to Japan during January-June had a larger transaction volume than the year before, thanks to the successful policy of expanding men's wear and household goods. The sales began last year for running stocks of fabrics, and this business is growing gradually. Although the impact of the coronavirus is gradually rising, the company is expanding fabric sales, going deeper into the sector of commodities, as well as creating a scheme unique to corporations, such as domestic sales and exports other than to Japan.

### Generally Strong Business in Apparel Auxiliary Materials

Shimada Shoji (Vietnam) Co., Ltd. supplying apparel auxiliary materials increased its sales with the acquisition of new projects before the coronavirus and the relocation of production from China. The company will strive to put operations of the recently completed



The coronavirus impact was great on factories exporting to Europe and U.S.

complex facility consisting of a factory and inspection center on track, as well as business in exports to Europe and the U.S., which is expected to expand hereafter.

Kiyohara Vietnam Co., Ltd., which also handles apparel auxiliary materials, reports that its sales and profits are moving according to plans, supported by special demand for masks and protective clothing materials. In the future, it will strive to develop functional materials and enhance handicraft materials.

Shikibo Ltd. opened an office in Ho Chi Minh in January this year, and is expanding sales of yarns and fabrics produced at subcontracting factories in Vietnam and its own factory in Indonesia. In response to the coronavirus, inquiries for its Flutect antiviral fiber are vigorous, so the company aims to expand sales of this fiber in Vietnam together with environment-friendly products.

According to the Vietnam Laboratory of Kaken Test Center, test requests tended to decrease due to the coronavirus. Meanwhile, requests for testing functional materials have been increasing. In response to growing needs for faster test results, it will thoroughly manage test dates, and review laws related to domestic sales in anticipation of the expansion of the Vietnamese market.

The Ho Chi Minh Testing Center of Boken Quality Evaluation Institute says that testing requests began to slow down from 2019, but have been increasing in 2020. This is attributable to the fact that there are still few luxury items, fashionable apparel and bedding in the country. An official of the institute points out that the impact of the coronavirus is smaller than other countries. In the future, Boken will increase quality evaluation tests in response to increasing orders for protective garment-related items and sundries.

## Kaken Test Center Fighting COVID-19 in Asia

The overseas laboratories and offices of Kaken Test Center have been working on improving labor productivity, while introducing testing equipment mainly for functionality. Recently, Kaken has been concentrating on providing information through seminars. The test center has been responding to the coronavirus situation in several countries and regions in Asia, but an expansion of its business operations is considered difficult without a robust and vigorous Japanese market.

### Shanghai Kakon Increase in Hygiene-Related Tests

Shanghai Kakon Inspection & Testing Service Co., Ltd., which also undertakes CSR factory audits in China, suffered setbacks this January and February, but its operations have been gradually recovering after resuming operations in February. The operation status is currently 80% to 85%. Hygiene-related tests and inquiries have increased in number, but requests for other tests have decreased.

Since the tests are mainly for exports to Japan, the outlook of business depends on a recovery of the Japanese apparel market.

### Kaken Nantong Laboratory Many Requests for Quick Testing

A branch of Shanghai Kakon, Kaken Nantong Laboratory reports that test requests were scarce from the Chinese New Year holidays until the second half of March, but increased in April and May. Although the test requests were low after the end of the May holidays, the number increased again in the second half of June. Currently, the test requests exceed the year before by about 5%. Especially, there are many requests to expedite the tests. Although it is a branch, it is well equipped with test instruments.

Recently, test instruments for measuring ultraviolet protection and stretch have newly been introduced. Amid the coronavirus pandemic, seminars are being held for individual companies in Chinese, on subjects such as the basics of tests and how to read the test results.



Shanghai Kakon

### Kaken Qingdao Laboratory Moisture-Absorbing/Quick-Drying Tests to Be Newly Added

According to Kaken Qingdao Laboratory, test requests decreased after the Chinese New Year, but are now recovering gradually. Its staffers were also able to visit customers from June, and they have been consulted about functionality tests, such as antibacterial and antiviral properties. The presentation of seminars focuses on functionality testing. The seminars are held for individual companies, and will be continued as an effective business tool.

Since it introduced moisture-absorbing/heat-generating test equipment, requests for tests have continued steadily. The laboratory also has plans to add test instruments for measuring moisture-absorbing/quick-drying performance, and there are many requests for these tests in sectors other than active sportswear.

### Kaken Hong Kong Coronavirus Recurrence from July

According to Kaken Hong Kong, the test volume remained about the same even after the Chinese New Year, and the influence of the coronavirus began to appear from April because many of the requests are from enterprises in Guangdong. Test requests are also coming from South Asia, but the impact from lockdowns in India and Bangladesh has been remarkable.

Business was also affected by the disruption of logistics, and future trends remain uncertain. The coronavirus declined in June, but began to spread again from July, and the number of company employees working from home have increased. Economic activities have also stagnated.

Testing is mainly for exports to Japan. Test requests are also received from Hanoi (Vietnam), but the Hong Kong lab is currently closed as staffers are working from home, and the tests are temporarily handled by the Vietnam Laboratory.

### Vietnam Laboratory Vigilance Rises from July

The Vietnamese Laboratory (BVCP Vietnam Ltd.) was not affected by the coronavirus even after the Lunar New Year, and tests remained unchanged from last year. However, test requests have been decreasing since July, because orders for garments and other sewn products have decreased due to large inventories in the Japanese market.

Last year, the laboratory added water-absorbing/quick-drying test equipment, and this April a UV protection tester was put into operation. Product inspection has also been popular, but has been temporarily stopped as it is currently difficult to move around. With its tie-up with the international testing and inspection organization, Bureau Veritas, it can obtain information from Europe and the U.S., and the lab will continue to strengthen its cooperation. The explanation of testing methods and training seminars are in Vietnamese, and this realizes closer connection with local companies.

## JTETC

### Support for Marketing SEK Mark Products Outside Japan

The most important targets for achieving the widespread use of materials and processing focusing on cleanliness and hygiene are objective and fair test methods and evaluation criteria. In this respect, the SEK mark certified by the Japan Textile Evaluation Technology Council (JTETC) plays a major role. The SEK mark also plays a leading role in the international standardization of antibacterial and antiviral test methods.

Japanese textile companies have led the world in the development of antibacterial and antiviral processing for textiles, and a strong point is that the test methods for antibacterial and antiviral properties proposed by Japan have become international standards (ISO). To achieve this feat, JTETC has been working on ISO proposals based on SEK mark certification test methods and standards. It should be noted that the ISO standard test methods for antibacterial, antifungal,

deodorant and antiviral properties were initially proposed by Japan.

In response, JTETC has lifted the ban on overseas sales of SEK mark products. Currently, the SEK mark is a registered trademark in China, Taiwan, Hong Kong, Indonesia, Singapore, Malaysia, Thailand, Vietnam, Turkey, India and Korea. It is now possible to market SEK mark products that are finished to possess antibacterial/deodorant, antimicrobial (both general and specific applications), photocatalyst antibacterial, antifungal, antiviral, soil resistant or deodorant properties.

Overseas textile companies can also use the SEK mark. At present, two Taiwanese companies and two Korean companies have become members of JTETC, and moves are increasing to market SEK mark products outside Japan. Designated testing and inspection organizations for certification have also increased outside Japan with the



addition of the Boken Quality Evaluation Institute, Kaken Test Center, Nissenken Quality Evaluation Center and the Shanghai Testing Center of Japan Textile Products Quality and Technology Center (QTEC).

JTETC also played an active role in the APEC Project for promoting the widespread use of ISO functionality tests of textile products in the Asia-Pacific region in 2018 and 2019. Holding seminars in the U.S., Indonesia, Taiwan and China, this project helped promote Japanese-original functionality processings on an international scale.

**JTETC**

Japan Textile Evaluation Technology Council

## *Fresh Fibers*

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**SEK Mark, the Symbol of Textiles That Are Sanitary (S), Eco-Friendly (E) and Kindly (K)**



Antibacterial Finished Product



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## China's Textile Exports Sharply Grow to Advanced Countries

According to China's textile and apparel export statistics, as compiled by the China Chamber of Commerce for Import & Export of Textile & Apparel (CCCT) based on provisional statistics released from the General Administration of Customs, P.R.C., exports of textiles during January-June 2020 sharply grew to advanced countries, as the worldwide spread of the coronavirus increased demand for mask materials. On the other hand, exports of apparel decreased for most major countries and regions, with 30% decreases for exports to the U.S. and Russia.

Among the top 10 countries/regions of textile exports, exports to France showed the sharpest growth of 548.3% to US\$2,863 million, followed by exports to Germany (up 290.1% to US\$4,261 million), Canada (up 155% to US\$1,500 million), the U.K. (up 132.7% to US\$2,181 million) and Japan (up 104.2% to US\$4,430 million). Exports to Hong Kong ranked twelfth with a 40.8% fall due to the social turmoil.

Apparel exports decreased to all of the top 10 countries/regions. Exports to Russia posted the sharpest fall of 34.1% to US\$1,685 million, followed by the U.S. (down 30.1% US\$10,610 million), France (down 18.0% to US\$1,326 million), Germany (down 14.6% to US\$2,148 million), the Netherlands (down 14.5% to US\$1,263 million) and Japan (down

11.8% to US\$6,081 million). (Refer to statistics on page 38.)

## China's MMF Production Decreases 1% in H1

According to the China Chemical Fibers Association, the nation's production of manmade fibers during January-June 2020 decreased by 1.0% compared to the year before to 28.11 million tons.

It can be said that production recovered from the production decreases up to March, which were caused by the spread of the coronavirus. However, the outlook is uncertain because the coronavirus pandemic outside China has resulted in demand shortages.

First-half polyester production remained about the same at 22.37 million tons. Nylon production rose 1.3% to 2 million tons, that of acetate filament grew 4.8% to 232,400 tons, and spandex was up 0.3% to 387,600 tons.

Production decreased for rayon staple fiber (down 32.7% to 1.37 million tons, rayon filament (down 0.8% to 90,300 tons) and acrylics (down 23.0% to 276,200 tons).

First-half MMF exports fell 19.2% year-on-year to 1.94 million tons.

The January-June 2020 sales of MMF enterprises larger than a certain scale decreased by 18.4% to 349.4 billion yuan. Their total profits (pretax profits) dropped 41.9% to 7.2 billion yuan. The gross profits of major varieties excluding spandex and polypropylene fell below year-before levels. 42.8% of the enterprises were in the red.

## Taiwan's Textile & Apparel Exports Drop 23% in H1

According to the Taiwan Textile Federation, January-June 2020 exports of textiles and apparel (including re-exports) fell 23.4% year-on-year to US\$3,596.79 million due to

the impact of the coronavirus.

Exports of fabrics (the largest category) decreased by 22.6% to US\$2,448.62 million, along with those of yarns by 36.7% to US\$480.24 million, and fibers by 26.7% to US\$236.73 million.

Exports to Vietnam and other major countries and regions that increased during January-March 2020 posted decreases across the board. Exports to Vietnam (the largest destination) declined by 18.3% to US\$908.97 million, along with those to China (second largest) by 29.4% to US\$571.60 million, the U.S. (third largest) by US\$310.75 million, Indonesia by 23.5% to US\$185.41 million, and EU by 20.7% to US\$185.45 million.

(Refer to statistics on page 39.)

## Lenzing Delivers Austrian-Made Tencel Fibers to China by Train

Lenzing recently made history by delivering Tencel fibers from two of its plants in Austria to customers in China.

The train left Vienna on August 20th, and had 41 containers filled with Tencel lyocell and modal fibers produced at its plants in Lenzing and Heiligenkreuz with a total value of 1.8 million euro for delivery directly to customers in China. On its 16-day trip to Shanghai, the train covered a total of 10,460 kilometers and travelled through the seven countries of Austria, the Czech Republic, Poland, Belarus, Russia, Kazakhstan and China.

Stefan Doboczky, CEO of the Lenzing Group, says, "With this new transport route, we can meet the high demand from our customers for sustainably produced fibers more quickly. Thanks to train transport, the urgently needed fibers arrive at our customers in China twice as quickly as by sea freight."

Lenzing has had very good experiences with rail transport for a long time when it comes to the delivery of renewable raw material wood to its

### China's MMF Production

	Jan.-Jun. 2020 (1,000 Tons)	Y-o-Y Change (%)
Manmade fiber total	28,105.4	-1.0
Cellulosic fibers	2,397.0	-9.7
Rayon staple fiber	1,367.0	-32.7
Rayon filament	90.3	-0.8
Acetate filament	232.4	4.8
Synthetic fibers	25,632.4	-0.2
Polyester	22,365.7	0.0
Filament	5,121.7	-6.1
Staple fiber	17,244.0	2.0
Nylon	2,005.1	1.3
Acrylic	276.2	-23.0
Vinylon	38.7	-3.1
Polypropylene	184.4	-7.6
Spandex	387.6	0.3

Source: CCFA

plants. Almost 70 percent of the wood processed at the Lenzing site is already delivered by rail. "Our declared goal is to shift more freight traffic to rail. Rail is the only way to combine climate goals and economic interests and thus transport growth. That is why we are happy to be part of this unique project for our long-standing customer," says Thomas Kargl, Board Member of the ÖBB Rail Cargo Group.

"Transporting goods by rail to China is possible. This train from Vienna to China is an integral part of climate protection, because we want to support the shift from road to rail, especially in freight transport. Today's train is the first step, and I am convinced this train will set an example," says Leonore Gewessler, Federal Minister for Climate Action, Environment, Energy, Mobility, Innovation and Technology.

### **Hengli Petrochemical Announces Start-Up of 5th PTA Line Utilizing Invista's P8 PTA Technology**

Invista's technology and licensing group, Invista Performance Technologies, and Hengli Petrochemical (Dalian) Co., Ltd. announced the successful start-up of Hengli's fifth PTA line.

Utilizing Invista's industry leading P8 PTA technology, the fifth PTA line with a 2.5-million-ton/year capacity successfully started up on June 29, 2020.

Hengli also operates another four PTA lines on the same site on Changxing Island (Dalian), all of which utilize advantaged PTA technology licensed from Invista, with a total capacity of 11.6 million ton/year. This makes Hengli the largest PTA producing site in the world. With integrated facilities and advantaged variable cost performance, Hengli's PTA product is very competitive in the marketplace.

IPT Vice President Adam Sackett commented, "The successful start-up of Hengli's fifth PTA line yet again highlights the quick ramp-up capability of PTA plants utilizing our technology. Fast project execution, trouble-free and stable operation at low

variable cost, enables our licensees to achieve a good return on their PTA investments."

### **Indorama Ventures Acquires PET Recycling Facilities in Poland**

Indorama Ventures Public Co. Ltd. announced that it has, through its indirect subsidiary Indorama Netherlands B.V., signed a Conditional Share Purchase Agreement on August 3rd with O.R.V. Ovattificio Resinatura Valpadana S.P.A. and Opoka Ltd., to acquire a 100% equity stake of Industrie Maurizio Peruzzo Polowat spółka z ograniczoną odpowiedzialnością (IMP Polowat) of Poland.

IMP Polowat consists of two production sites located in Bielsko-Biala and Leczyca, and processes post-consumer PET into recycled polyethylene terephthalate (rPET) flakes and pellets, with a combined capacity of approx. 27,000 ton/year, consisting of 23,000 tons rPET flakes and 4,000 tons of rPET pellets.

These facilities will be an attractive recycling platform for IVL in Eastern Europe, and will open up new opportunities to meet growing rPET demand for more sustainable packaging solutions. The combination of access to local bottle supply and trusted product quality will secure opportunities for IVL for growth and expansion over time.

The acquisition is consistent with IVL's ambitious target in scaling its recycling capacity to reach 750,000 tons by 2025.

This transaction is expected to be completed in the third quarter of 2020, subject to regulatory approvals.

### **Osprey and Hyosung Collaborate to Launch Sustainable, High-Performance Pack Collection for Spring 2021**

Osprey and Hyosung announced their collaboration for spring 2021.

The leader in creating top-quality, high-performance, innovative carry

solutions will feature Hyosung's new GRS certified, 100% recycled Miphan regen robic high-tenacity nylon in its best-selling, multi-sport Talon/Tempest series, which has been completely redesigned and expanded for spring 2021.

Mike Simko, Hyosung Global Marketing Director, says, "As a solutions provider, we are proud to partner with such a legendary outdoor brand as Osprey to help realize its vision of developing a sustainable pack that its customers will feel good about purchasing and carrying."

Hyosung's regen robic nylon is made with 100% reclaimed waste, which saves valuable resources from being removed from the earth. According to Simko, for every kilo of recycled nylon Hyosung makes, six to seven kilos of CO2 eq. of Global Warming Potential are saved. Osprey's new Talon/Tempest features one of the first commercial uses of this innovative fabric.

Mark Galbraith, Vice President of Product, Osprey, says, "Supporting technological advancements in recycled materials is critical to busting the myth that recycled materials means reduced performance. Regen recycled high-tenacity nylon allows us to both bring recycled material into our premium Talon/Tempest series while improving its technical performance and durability. We see it as win, win for the end user and the environment."

Osprey's Talon/Tempest series will be available for consumer purchase worldwide this spring 2021.



### Impact of Coronavirus Differs Among Apparel Supplying Countries

According to provisional January-June 2020 Japanese apparel import statistics, as compiled by The Japan Textiles Importers Association based on Ministry of Finance trade statistics, first-half apparel imports fell 14.2% year-on-year to 1,220,517 million yen. In tonnage, imports dropped 12.0% to 412,456 tons.

The impact of the coronavirus showed a difference among apparel supplying countries. Imports from China posted double-digit declines both in value and tons, and the share of Chinese apparel in total imports fell below 60%. Meanwhile, imports from ASEAN decreased by 5-7% both in value and tons, and their share surpassed 30%.

Imports from China decreased by 16.8% in value and by 13.9% in weight. Imports decreased for all items of knitwear, woven garments and accessories.

Imports from ASEAN declined by

5.5% in value and by 6.3% in weight. Imports of knitwear decreased by about 9% both in value and quantity, while imports of woven garments remained about the same quantity as the year before.

Imports from Vietnam (the second largest apparel supplier to Japan) decreased by 3.0% in value and by 5.4% in weight. Imports of knitwear decreased by around 10% both in value and quantity, while those of woven garments increased.

Myanmar was the only supplier among the top ten to achieve increases in both value and tonnage. Imports from Myanmar increased for all items of knitwear, woven garments and accessories. Imports from the other nine suppliers decreased both in value and weight.

The decreases were especially sharp for Italy (seventh largest supplier) and India (ninth), from which imports fell nearly 30% both in value and weight.

Imports also decreased sharply from Bangladesh (third) and Indonesia (sixth), with the decreases ranging from 11% to 16% both in value and tons.

### Textile & Apparel Exports Fall 13% in H1

According to Japanese textile and apparel export statistics, as compiled by the Japan Textiles Exporters Association based on Ministry of Finance trade statistics, textile and apparel exports during January-June 2020 fell 13% year-on-year to US\$3,294.06 million.

Exports of textile fibers decreased by 5%. While exports of rayon staple fiber jumped 123%, those of polyester staple fiber declined by 13%, along with acrylic staple fiber by 23%.

Yarn exports dropped 19%. Exports decreased for rayon filament yarns (down 28%), nylon filament yarns (down 32%) and polyester filament yarns (down 14%).

Exports of woven and knitted fabrics decreased by 23%. Exports of coated fabrics declined by 22%. Exports of nylon and polyester filament fabrics both decreased at the same rate of 21%.

Exports of nonwoven fabrics decreased by 4%, but their export volume rose 16%.

### Japan's Apparel Imports, January-June 2020

		Knitwear		Woven Garments		Apparel Accessories		Total			
		1,000 Units	Million Yen	1,000 Units	Million Yen	Ton	Million Yen	Ton	Share (%)	Million Yen	Share (%)
1	China	624,055	277,359	336,926	286,604	51,586	105,459	243,372	59.0	669,421	54.8
		-15.4	-16.8	-14.8	-17.2	-10.7	-15.6	-13.9		-16.8	
2	Vietnam	172,082	89,604	79,988	95,864	5,463	17,755	62,168	15.1	203,223	16.7
		-11.2	-9.0	6.4	2.0	1.5	3.5	-5.4		-3.0	
3	Bangladesh	83,036	26,803	34,550	28,264	285	598	27,864	6.8	55,665	4.6
		-19.7	-23.3	-10.2	-4.8	-44.8	-56.1	-14.5		-15.7	
4	Cambodia	55,527	22,402	31,451	30,807	416	1,642	19,053	4.6	54,851	4.5
		-1.8	7.8	-10.1	-9.1	-16.3	-14.6	-6.2		-3.1	
5	Myanmar	33,276	11,673	37,737	37,492	450	1,314	17,916	4.3	50,479	4.1
		16.1	6.2	2.2	1.6	69.2	58.5	5.9		3.6	
6	Indonesia	34,168	18,816	26,119	24,080	2,403	3,309	17,056	4.1	46,205	3.8
		-10.0	-16.6	-9.3	-12.0	2.3	-13.4	-11.2		-14.0	
7	Italy	677	9,976	713	17,027	107	4,497	654	0.2	31,500	2.6
		-31.2	-28.1	-26.7	-28.1	-23.6	-31.9	-27.0		-28.7	
8	Thailand	29,444	12,520	8,133	3,070	2,263	7,298	5,969	1.4	22,888	1.9
		-6.4	-10.5	-2.9	-19.7	-9.2	-13.0	-10.1		-12.6	
9	India	5,725	2,577	15,948	11,255	217	730	4,266	1.0	14,562	1.2
		-11.6	-12.5	-33.8	-32.8	-30.6	-24.9	-27.3		-29.6	
10	Romania	94	1,268	292	5,709	0	16	186	0.0	6,993	0.6
		-34.9	-19.5	-24.1	-19.1	-25.2	24.1	-19.0		-19.1	
ASEAN		337,186	161,310	185,528	194,995	12,804	34,523	127,320	30.9	390,828	32.0
		-8.7	-8.6	-0.8	-3.0	-2.5	-3.8	-6.3		-5.5	
EU		2,295	16,958	1,596	31,110	190	7,024	1,553	0.4	55,092	4.5
		-28.3	-25.1	-26.5	-24.9	-19.5	-29.6	-23.9		-25.6	
World total		1,074,491	500,851	581,135	566,711	66,064	152,955	412,456	100.0	1,220,517	100.0
		-13.8	-14.9	-11.3	-13.4	-9.7	-14.6	-12.0		-14.2	

Note: Lower level is year-on-year comparison (%).

Source: The Japan Textiles Importers Association, based on MOF trade statistics (provisional)

Apparel exports decreased by 6%.

By region, exports decreased to East Asia (down 14%), Europe (down 14%), North America (down 12%) and South America (down 20%).

By country, exports decreased to China (down 17%), Vietnam (down 15%) and the U.S. (down 12%).

## Asahi Kasei Opens Bemberg Showroom in Hong Kong

Asahi Kasei Corporation has opened a showroom for Bemberg in Hong Kong, cementing its presence in the territory along with its strategic partner CHH, as well as launching a luxury Bemberg yarn-dyed stock service for linings and introducing a Bemberg smart tag for lining fabrics.

The new Bemberg showroom highlights a more engaging way of updating retail, and it narrates a story of trust and partnership. Located on Flat A3, 6/F, Block A, Yee Lim Industrial Centre, 2 – 28 Kwai Lok Street, Kwan Chung, Hong Kong, the showroom is the ultimate chapter of an over 50 years long partnership with the Cheung Hing Hong (CHH) Group. As in New York, the group's showroom has a special section dedicated to Bemberg's ultimate lining collections.

A space is dedicated to admirers of yarn manufacturers, such as apparel brands, factories and tailors, but also to design schools, colleges and private label designers. There are also spaces for inspiration, business as well as for learning, thanks to a program of workshops.

Bemberg has launched a range of Bemberg luxury yarn-dyed jacquard linings that can be customized following the designs of brands. This series is entirely and rigorously made in Japan, and can meet all type of requests, including emerging brands and start-ups which generally place smaller orders big companies cannot meet.

"We have chosen to cooperate with a Japanese producer to offer customized Bemberg yarn-dyed jacquard linings starting from 55 yards, per color," says At Bemberg. The collection stands out for its attractive designs and aes-

## Japan's Textile & Apparel Exports

	January-June 2020			
	Quantity	Y-o-Y Change (%)	US\$1,000	Y-o-Y Change (%)
<b>Total</b>	—	—	<b>3,294,062</b>	<b>-13</b>
<b>Textile fibers</b>	<b>105,846</b>	<b>-3</b>	<b>400,598</b>	<b>-5</b>
Rayon staple fiber	22,198	114	96,290	123
Polyester staple fiber	6,882	-10	18,301	-13
Acrylic staple fiber	50,296	-21	203,398	-23
<b>Yarns</b>	<b>43,923</b>	<b>-20</b>	<b>386,387</b>	<b>-19</b>
Rayon filament yarn	4,075	-27	54,742	-28
Nylon filament yarn	10,843	-23	62,653	-32
Polyester filament yarn	5,955	-7	41,989	-14
<b>Woven &amp; knitted fabrics</b>	<b>338,689</b>	<b>-23</b>	<b>1,053,221</b>	<b>-23</b>
<b>Coated fabrics</b>	<b>8,954</b>	<b>-24</b>	<b>179,597</b>	<b>-22</b>
Rayon filament fabrics	13,930	-30	64,262	-27
Nylon filament fabrics	35,875	-24	91,662	-21
Polyester filament fabrics	94,713	-19	225,439	-21
Spun synthetic fabrics	53,900	-24	139,195	-20
Cotton fabrics	37,772	-25	143,065	-26
Wool fabrics	4,755	-38	50,402	-38
Knitted fabrics	64,148	-18	227,431	-20
<b>Nonwoven fabrics</b>	<b>538,925</b>	<b>16</b>	<b>361,637</b>	<b>-4</b>
<b>Apparel</b>	—	—	<b>229,799</b>	<b>-6</b>

Notes: 1. Unit: ton for textile fibers, yarn and coated fabrics; 1,000 sq. meters for woven and knitted fabrics and nonwovens

2. Rayon staple fiber includes acetate tow.

Source: Japan Textiles Exporters Association, based on MOF trade statistics

thetics, while keeping their usual technical performances and precious touch.

Bemberg has also launched a brand-new Bemberg tag to be attached to garments with Bemberg lining used for both the body and sleeve parts.

## Teijin Frontier Develops Next-Generation Heat Insulating Structure

Teijin Frontier Co., Ltd. has developed a heat insulating structure that combines sweat absorption and quick drying of innerwear and heat insulation of intermediate wear, or middler, worn between the innerwear and outerwear to retain heat.

The company is positioning this new structure as a key material for outdoor wear for fall/winter 2021. Applications of this new structure will include outdoor wear, sportswear, casual wear and uniforms, targeting annual sales of one million meters in fiscal 2025.

The new type of bulky plush structure is not brushed. It is a double raschel knitted fabric cut in half with high precision. Its middle nodes are made with Octa, Teijin Frontier's highly modified hol-

low-core fiber with eight projecting fins aligned in a radial pattern. It also uses a distinct dyeing technology to maximize Octa's crimping function and stabilize its high-quality plush structure. Unprecedented comfort is enhanced with heat insulation (lightweight bulkiness and warmth) and yarn tips on the skin side that evenly absorb sweat and dry quickly.

The warmth of outdoor wear is determined by outer, middler and inner garments, which are added or excluded by the wearer in accordance with the level of activity and usage environment. However, the expanding everyday use of outdoor wear has raised the demand for single layers offering two-layer functionality, in particular, a compact layer with both middler and inner functions. Whereas brushing yarn is mainly used to achieve heat insulation in the middler, the inner layer typically requires sweat absorption and quick-drying performance. Until now, however, it has not been possible to combine middler and inner functions because the uneven surface caused by brushing yarn decreases sweat absorption and quick-drying performance.

## Japan's Nonwoven Fabric Production Decreases 7.9% in H1

According to production statistics released from the Japanese Ministry of Economy, Trade and Industry (METI), the nation's production of nonwoven fabrics during January-June 2020 decreased by 7.8% year-on-year to 149,324 tons. June nonwoven fabric production decreased for the 25th consecutive month. If production remains at this level, the annual production volume could fall below 300,000 tons for the first time since 2009.

First-half production increased only for thermal-bonded nonwovens, up 4.0% to 19,450 tons, and spunlaced nonwovens, up 1.8%, to 25,738 tons. The production of needle-punched nonwoven fabrics posted the sharpest fall of 17.3% to 29,301 tons. Since needle-punched nonwovens are used mainly for automobiles such as interior materials, the decrease in auto production had an impact on their production.

First-half production of spunbonded/meltblown fabrics decreased by 12.3% to 38,130 tons. Demand for masks grew due to the spread of the coronavirus, while the application in disposable diapers encountered difficulties. Spunbonded/meltblown fabric production grew in May and June over the year before, and the increase in supply for mask application

## Japan's Disposable Diaper Production

	June 2020	Y-o-Y Change (%)	Jan.-Jun. 2020	Y-o-Y Change (%)
Total by weight (ton)	67,743	-9.0	404,062	-2.2
For adults	34,432	3.5	200,539	1.9
Pants type	12,557	-0.3	76,866	5.3
Pads & liners	21,296	6.3	119,911	0.4
For babies (pants type)	33,311	-19.2	203,523	-5.9
Total by no. of diapers (1,000)	1,763,096	-11.4	10,712,789	-2.7
For adults	734,872	3.9	4,350,702	2.8
For babies	1,028,224	-19.8	6,362,087	-6.1

Source: METI

began to appear in the figures. Even for thermal-bonded and spunlaced fabric, the increase in mask application contributed to their production.

## Japan's Production of Adult Disposable Diapers Continues to Grow

According to revised production statistics released from the Japanese Ministry of Economy, Trade and Industry, the nation's production of disposable diapers during January-June 2020 decreased by 2.2% in tonnage year-on-year to 404,062 tons. In quantity, production declined by 2.7% to 10,712.79 million. Production decreased for infant diapers, while it increased for adult diapers. The impact of declining birthrates and aging population is increasingly becoming greater.

By type of diapers, first-half production of infant diapers decreased by 5.9% in weight 203,523 tons, and by 6.1% in quantity to 6,362.09 million. Meanwhile, the production of

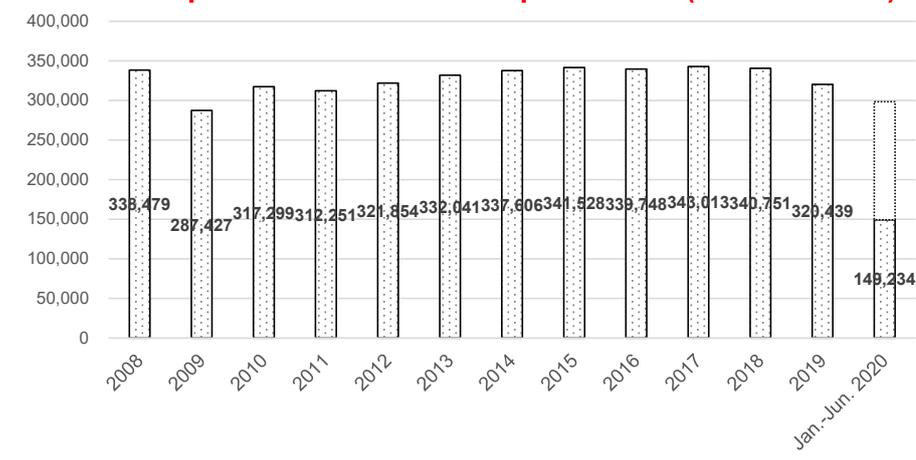
adult diapers rose 1.9% in weight to 200,539 tons, and by 2.8% in quantity to 4,350.70 million. Due to the declining birthrates and aging population, the shares of adult diapers increased further.

Although production and consumption stagnated in various fields with the coronavirus emergency declaration during January-June 2020, it can be said that the impact on disposable diapers was comparatively smaller because these diapers are daily necessities.

June production of disposable diapers decreased by 9.0% in tonnage compared to the same month of last year to 67,743 tons, and the quantity fell 11.4% to 1,763.10 million.

June production of adult diapers increased by 3.5% in weight to 34,432 tons, and the quantity rose 3.9% to 734.87 million. The production of infant diapers fell 19.2% in weight to 33,331 tons, and the quantity dropped 19.8% to 1,028.22 million. Since production continued to remain strong up to April, there is a possibility that the production might have been slightly adjusted from May.

Japan's nonwoven fabric production (Source: METI)



## Teijin's Carbon Fiber and Resin Used in World's First Laptop-Sized Automated People Mover

Teijin Limited announced that thermoplastic materials made with its Tenax carbon fiber and Panlite polycarbonate alloy resin have been adopted for use in the world's first laptop-sized automated people mover (APM), Walkcar, developed by Cocoa



Walkcar

Motors. Inc.

Walkcar is small enough to be carried in a bag, measures just 21.5 cm by 34.6 cm (roughly the size of a 13-inch laptop computer), and weighs only 2.9 kg. It can travel about 7 km at a maximum speed of 16 km/h on a single charge. Operated by simply shifting one's center of gravity, the APM requires neither a handle nor controller, and stops automatically as soon as the operator steps off.

This sturdy but lightweight APM is made with Teijin's Tenax TPCL thermoplastic carbon fiber reinforced laminates, Tenax TPWF thermoplastic woven fabric and Panlite polycarbonate alloy resin. Compared to steel, Tenax offers 10 times the strength at just one quarter of the weight. Panlite polycarbonate resin boasts some 200 times more impact resistance than fiberglass but only half of the weight. The impressive characteristics of these Teijin materials is why Walkcar is able to combine low weight with high durability.

Walkcar went on sale in Japan this June, and overseas sales began from August 11th.

### Teijin Carbon Europe and U.K.'s NCC Strengthen Innovation Partnership in Carbon Fiber Composites

Teijin Carbon Europe GmbH has upgraded to Tier 2 membership with the National Composites Centre (NCC) in Bristol, U.K. as a key part of Teijin's strategy to support next-generation aerospace manufacturing projects.

Teijin originally joined NCC as an associate member in November 2018. As a global manufacturer of carbon fiber, Teijin Carbon Europe is well positioned to support NCC for advanc-

ing its materials and manufacturing technologies. Many of their digital automated deposition technologies were funded by the Aerospace Technology Institute (ATI) as part of the NCC iCAP program (Digital Capability Acquisition Program, an investment program for digitalizing composite manufacturing, increasing production rates and quality while improving efficiency and reducing costs), including the Ultra High Rate Deposition Cell, which has two huge industrial robots that automate the aircraft wing production process.

Teijin Carbon Europe looks forward to supporting NCC and partners on various high-performance aerospace projects, as well as contributing to the U.K. composites community. As a Tier 2 member, the company will provide unique carbon fiber non-crimp fabrics as well as thermoset and thermoplastic prepreg materials for diverse applications in these projects and in other NCC development programs.

Enrique Garcia, Chief Technology Officer at NCC, comments, "We have already established a fruitful working relationship with Teijin, which have consistently provided us with materials, so that we can continue to develop new processes and products across all sectors. This strengthened partnership will make a valuable contribution to both NCC's and Teijin's future growth in the composites industry."

As one strategic focus of its medium-term management plan for 2020-2022, the Teijin Group is intensively accelerating its development of mid-to downstream applications for aircraft. Teijin Carbon Europe has already been selected to supply carbon fiber based non-crimp fabrics to the Wing of Tomorrow project.

### Teijin Aramid Premium Para-Aramid on the Way to Mars in NASA's Mars Perseverance Rover

Teijin Aramid announced that with the successful launch of NASA's Mars Perseverance Rover from Cape Canaveral in Florida, its Technora high-performance fiber is again enabling space exploration.

Premium para-aramid Technora plays a critical role in the structure of the Rover's landing parachute, developed by Airborne Systems and NASA's Jet Propulsion Laboratory, which will be deployed during descent to Mars in February 2021.

On a mission to seek signs of past microscopic Martian life and gather rocks and soil for their eventual return to Earth, the Mars Perseverance Rover is carrying the heaviest payload of any mission to the Red Planet yet. In view of this unprecedented challenge, the parachute system has undergone an extensive set of demanding tests. Specifically, the parachute system has proven it can support an inflation load of 31,751 kg. The challenging surface conditions on Mars include average temperatures of minus 63°C, frequent dust storms and atmospheric electricity.

To ensure this unique parachute system performs under the extreme conditions of the descent to Mars, 60 kg of Technora are incorporated into the parachute's suspension cords.



Mars Perseverance Rover's inflated parachute and suspension cords

Technora is also used in the parachute riser. This mission builds on the proven technologies and systems of previous Mars Rover expeditions, which also carried Technora. In particular, Technora was used on the Mars Curiosity Rover in 2012, where the parachute's suspension cords had to withstand a 9G force during landing, about 27,000 kg.

Charles Lowry, Lead Project Engineer for Airborne Systems North America, Mars 2020 Parachute System Subcontractor, says, "When designing and building the parachute system for the Mars Perseverance Rover, it was very important to utilize the volume that we were allocated to its fullest potential. Thanks to its outstanding strength-to-weight ratio, Technora allows us to do just that and increases the overall safety of the mission by providing more volume for stronger parachute cloth. There are many unknowns involved in any mission to space, but the tried and proven performance of Technora is not one of them."

Peter ter Horst, CEO of Teijin Aramid, says, "Our journey into space has taken another exciting step. Our partners throughout the space industry have long recognized the unique potentials of incorporating Technora into their products to unlock new levels of performance. The launch of the Mars Perseverance Rover shows that we're again the partner of choice when strength and reliability are of unprecedented importance."



HFUG-2020AN installed at a water treatment facility

### Toray's Advanced High-Surface-Area UF Membrane Modules Used at Large-Scale Water Treatment Facilities Worldwide

Toray Industries, Inc. announced that a large-scale wastewater treatment facility has started purifying water with its latest ultrafiltration (UF) membrane technology.

The wastewater facility located in the Wuxi New District, an industrial park in Wuxi, China, was built by GreenTech Environmental Co., Ltd., a leading provider of advanced membrane treatment solutions. GreenTech selected Toray's advanced high-surface-area HFUG-2020AN UF mode (HFUG) for its unparalleled performance to meet China's stringent Class III surface water quality requirement and to offer significant cost reductions for the 34,000-ton facility.

Keeping capital and operating expenses low by not drastically modifying existing configurations and increasing the throughput are a goal of water treatment technologies today. On its durable polyvinylidene fluoride (PVDF) membrane layer, HFUG has a pore size of 0.01 micron, equivalent to one-fifth thousandth the diameter of a human hair, effectively removing suspended solids and microorganisms in wastewater. Using the same proven membrane layer, Toray has applied proprietary fabrication methods to produce thinner hollow fibers, while maintaining integrity and permeability. The thinner hollow fibers in HFUG result in an active membrane area of 90 square meters, a 25% increase compared to models with similar dimensions. Furthermore, the high-surface-area module requires less piping and fewer valve components and an overall reduction of system real

estate of 20%, thus significantly reducing capital costs.

Since its commercialization in 2019, several water and wastewater treatment facilities worldwide have been using the new UF technology. In Idaho, U.S., a water district selected HFUG to treat up to 10,000 tons of sewage daily. In Poland, an industrial water treatment facility uses HFUG to supply 7,500 tons of water every day.

HFUG is recognized for its superior operational stability, compact offering and economic performance. As part of the Toray Group's Sustainability Vision and long-term corporate vision, Toray Vision 2030, Toray aims to use HFUG and membrane technologies in RO, NF, UF and MBR resolve global water challenges.

### China's Nonwovens Production Rises 2.5% in Jan.-May 2020

According to the China Industrial Textiles Association, the production of nonwoven fabrics by enterprises larger than a certain scale grew by 2.5% during January-May 2020 year-on-year to 2.02 million tons.

As China has succeeded in holding down the coronavirus, demand for nonwoven fabrics for use in face masks has calmed down, and the growth in production reflects such a situation.

Nonwovens exports during January-May 2020 rose 0.8% to 410,000 tons, while imports climbed 30.4% to 66,000 tons.

The sales of industrial textile enterprises larger than a certain scale during the five months rose 13.2% to 103.9 billion yuan, and their total profits climbed 189.1% to 12.7 billion yuan. Meanwhile, the losses of deficit enterprises increased by 7.3%.

January-May 2020 exports of industrial textiles jumped 203% to US\$34.3 billion. Of this, exports of face masks accounted for US\$22.6 billion for a 65.8% share, and those of nonwoven protection wear occupied US\$2.1 billion for a 6% share.

### Three Staple Fiber Bicomponent Systems Commissioned in Asia

Oerlikon Neumag has successfully commissioned three staple fiber bicomponent systems in China. With capacities of 50 tons per day each, the systems are being used to manufacture core-sheath bi-component fibers made from PP/PE or PET/PE at two long-standing Oerlikon Manmade Fibers customers. These fibers are used to make hygiene products.

Despite coronavirus-related restrictions, the three new systems were installed within three and five months, all without any problems. They have meanwhile been operating under stable production conditions with optimum fiber quality of the very highest standards for several weeks.

Oerlikon Neumag looks back on many years of experience in constructing bicomponent staple fiber systems. The first system for this fiber type was commissioned as far back as 1995. Oerlikon Neumag offers solutions for the most varied cross-sections, ranging from sheath/core, side-by-side, island in the sea, orange type as well as trilobal. The applications are diverse, ranging from self-crimping fibers, bonding fibers, super-microfibers all the way through to hollow fibers.

Oerlikon Neumag's bicomponent technology is particularly characterized by the extremely robust spin packs that have no expensive wear parts, which considerably reduces the costs. The reconditioning costs when cleaning the spin packs are kept to an absolute minimum. Add to this the separate temperature transfer option in the spinning beam for the two polymers. As a result, the quality and the viscosity of the polymers can be accurately adjusted in accordance with the respective process requirements.

### Andritz Supplying Complete Spunlace Line to Baoren Hezhong, China

Andritz has received an order from Zhejiang Baoren Hezhong Technology Co., Ltd. of China, to supply a complete neXline spunlace line. The line is scheduled for installation and start-up during

the third quarter of 2021.

This high-capacity spunlace eXcelle line can process various types of fiber, such as polyester, viscose, Tencel and bleached cotton, and is dedicated to the production of hygiene fabrics such as disinfecting wipes. The final products will have fabric weights ranging from 30 to 80 gsm, and the annual production capacity will be up to 20,000 ton/year.

Andritz will provide a complete line with state-of-the-art equipment from web forming to drying. The scope of supply includes the complete opening and blending machinery, two inline high-speed TT cards, a proven JetlaceEssentiel unit for hydroentanglement, and a neX-dry through-air dryer with double drum. A high-speed winder from A. Celli will complete the line.

### Itema Group Closes Acquisition of PTMT (Ex-Panter)

Itema announced the finalization of the agreement for the acquisition of PTMT, formerly Panter, in a business lease since April 2019.

Despite the difficult moment that the world economy is going through due to the consequences of the pandemic generated by the COVID-19 virus, Itema's Board of Directors chooses not to stop investments, convinced that the only way to overcome this critical period is to believe in a future made prosperous by long-term strategic choices.

The acquisition by its subsidiary Itema Tech s.r.l. allows Itema to expand its product portfolio by adding PTMT's technology, with the aim at consolidating and establishing a new leadership in the field of technical fabrics.

### Name Extension for Karl Mayer Companies after Merger with Stoll

Karl Mayer acquired Stoll on February 26th, 2020, and the merger of the two world market leaders was officially completed with the closing on July 1st.

The established Stoll brand broadens the portfolio of the global player, Karl Mayer, by competencies in the field of flat knitting. It will be continued and fur-

ther developed as an independent business unit within the corporate group.

After the acquisition of Stoll, the Karl Mayer Group is the only supplier of innovative solutions for warp knitting and flat knitting. The joint growth is now also emphasized by a relevant addition to the name of two of the German Karl Mayer companies.

From August 12th, Karl Mayer Textilmaschinenfabrik GmbH is operating under the name of Karl Mayer Stoll Textilmaschinenfabrik GmbH, and Karl Mayer R&D GmbH as Karl Mayer Stoll R&D GmbH.

### ecuTEC+ Improves Filter Performance Significantly

Spunbonded and meltblown materials can be electrostatically charged to improve their filter performance. The ecuTEC+ electro-charging unit is part of the delivery scope of all meltblown systems currently sold for the manufacture of protective mask nonwovens.

The patented Oerlikon Nonwoven solution is characterized by its exceptional flexibility: ecuTEC+ stands out above all as a result of its diverse applications, which can be electro-charged. Nonwovens manufacturers can freely choose among numerous variation options and set the optimal charging method and intensity for their specific filter applications. EPA- and HEPA-class filter media can also be manufactured using ecuTEC+. As a result, the concept distinguishes itself from other technologies available on the market.

The demand for filter media, and those made from meltblown nonwovens in particular, has been extremely high since the start of the coronavirus pandemic. The Oerlikon Nonwoven meltblown technology, with which nonwovens for respiratory masks can also be manufactured, among other things, is recognized by the market as being the technically most efficient method for producing highly separating filter media made from plastic fibers. The capacities for respiratory masks available in Europe to date are predominantly manufactured on Oerlikon Nonwoven systems.

## Shima Seiki Selects Archroma's Color Atlas Library System for Its New Design Software

Archroma announced that the 4,320 color references of its Color Atlas library have been selected by Shima Seiki Mfg., Ltd., and integrated into its SDS-ONE APEX series of software for the design, planning and virtual sampling of textiles and apparel.

Shima Seiki is a leading provider of digitally optimized solutions for the fashion industry, combining its on-demand WholeGarment knitting machine with realistic virtual sampling.

Based on actual yarn data, fabric simulations generated on the SDS-ONE APEX series are unparalleled in quality and realism. Design and simulations are available for knits and various other textile applications, and smooth transition to machine programming is possible for quick and accurate design-to-manufacture interfacing. That is where the Color Atlas by Archroma will considerably benefit users of Shima Seiki's solutions.

The Color Atlas contains 4,320 colors applicable on cotton poplin, almost double compared to similar tools available to textile and fashion specialists. Technical support is available to designers, manufacturers, as well as brands and retailers, through Archroma's global offices, for every single color from its selection to its implementation in production. Engineered color standards empowered by NFC technology are also available for all colors and reproducible in production.

With this new collaboration, the users of the Shima Seiki SDS-ONE APEX design software will have at their dis-

posal 4,320 colors that they can visualize, evaluate and implement, in a considerably accelerated process from the first creative idea to production to the final outlet, whether online or in brick-and-mortar shops.

"Accurate color evaluation and communication are very important issues for design work", explains Hideya Ohtani, General Manager, Graphic System Development Division, at Shima Seiki.

Chris Hipps, Head of Color Management Services, at the Archroma Brand Studio, says, "Designers and users of the software will have at their disposal not only color options they never had before but also colors that they can trust will be implementable right away."

## Huntsman Introduces High IQ Lasting Black Eco Program

Huntsman Textile Effects has extended its industry-leading High IQ brand-assurance program with the launch of High IQ Lasting Black eco.

Based on its award-winning Avitera SE Black reactive dye, the new color-retention program will help mills, brands and retailers meet global demand for eco-friendly black shades that retain their intense color even after repeated washings.

Black shades are an ever-popular choice among designers and consumers, offering visual appeal and timeless style. Leading brands today need to deliver intense black shades that won't fade, but must also show that they are sustainable and good for the environment.

High IQ Lasting Black eco is a unique combination of the world's leading col-

or-retention program with Huntsman's revolutionary Avitera Black SE reactive dye.

Avitera Black SE dye promotes economic and environmental sustainability by reducing water and energy consumption by up to 50%. Furthermore, the excellent washing-off performance of Avitera SE Black dye shortens processing time and increases productivity.

Garments produced under the High IQ Lasting Black eco program are suitable for home laundering using EU and U.S. domestic washing machines, and carry a reduced risk of color staining other garments during washing.

Key benefits of High IQ Lasting Black eco include:

- Reduced environmental footprint, using 50% less water and energy in processing
- Deep black shades retain their intensity throughout the lifetime of the garment.
- Longer-lasting performance, wash after wash, so garments look newer for a longer time.
- Allows mills to produce fabrics and garments free\* from p-chloroaniline (PCA).

\*Current detection limit 5 ppm

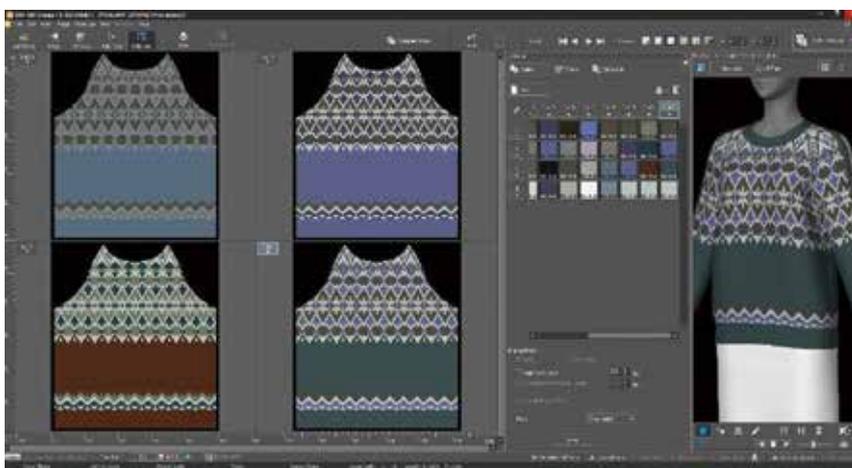
"With High IQ Lasting Black eco, Huntsman Textile Effects continues to lead the industry in providing sustainable dyeing solutions for eco-friendly black shades that deliver excellent value through color performance," said Jay Naidu, Vice President Strategic Marketing and Planning, Huntsman Textile Effects.

All products in the High IQ quality assurance program are Bluesign approved and suitable for Standard 100 by Oeko-Tex certified textile products, meeting the requirements of the world's most exacting global brands.

## Huntsman Textile Effects Delivers Sustainable Solution for Wool Dyeing

Huntsman Textile Effects' Lanazol CE dyes provide the industry with the sustainable alternative to after-chrome dyes for wool.

These dyes offer a consistent, safe and reliable dyeing process that can effectively replace chrome dyes for wool.



Shima Seiki's new SDS-ONE APEX design software now features the 4,320 color references of Archroma's Color Atlas library

This helps mills conform to ZDHC MRSL standards, and meet the stringent requirements of global brands and retailers.

The use of Chrome VI, including Dichromate, is banned in the ZDHC Manufacturing Restricted Substances List (ZDHC MRSL). Wool processors working for brands and retailers that have adopted ZDHC MRSL must therefore act quickly to finalize their chrome replacement developments.

Developed by Huntsman Textile Effects specifically to meet these challenges, Lanazol CE is a state-of-the-art chrome-free dye range that allows mills to discontinue the use of after-chrome dyes, and outperforms traditional after-chrome dyes across the board, at every level of dyeing and processing.

"Lanasol CE dyes have always been recognized as the leading brand in the wool industry. Our innovative dyeing auxiliaries and successful dyeing systems with Lanazol CE provide the highest technical performance, helping customers to protect the natural beauty of wool, achieve water, energy and time savings, while rendering chrome dyes obsolete," said Alessandro Larghi, Global Marketing Manager for Wool at Huntsman Textile Effects.

As a champion of a sustainable textile industry, Huntsman Textile Effects has long been a strong advocate for the shift away from after-chrome dyes. Huntsman Textile Effects first introduced Lanazol CE in 1997, before the introduction of any regulation on the restricted use of dichromate.

### Archroma Awarded Ecovadis Gold Rating for CSR Performance

Archroma has been awarded the EcoVadis "Gold" rating in corporate social responsibility (CSR) 2020, which places the company within the top 5% of the best rated companies in its industry.

Archroma was evaluated by EcoVadis, an organization specialized in assessing the CSR performance of companies on a global basis. The assessment focuses on 21 criteria which are grouped into the four themes of environment, labor & human rights, ethics and sustainable procurement.

Archroma has built a strong repu-

tation as a global leader in developing innovations and systems that help minimize resources, increase productivity and create value for its customers. The company refers to this commitment as "The Archroma Way to a Sustainable World: Safe, efficient, enhanced, it's our nature".

Archroma, which was undergoing assessments for the third year, had set itself the target to reach the EcoVadis "Gold" rating. Archroma will use the report to further improve its CSR performance and target setting.

"For Archroma, sustainability is a process of bringing continued improvement to our societal, environmental and economic performance, and that of our customers," comments Heike van de Kerkhof, CEO at Archroma. "We are extremely proud of this first Gold rating by EcoVadis, which is a strong encouragement that we are heading in the right direction in the way we run our own operations, because it's our nature!"

### AN9 World Technologies Announces Swiss Antiviral Performance for India with Global Antimicrobial Reach

N9 World Technologies Pvt. Ltd. of India signed an agreement with Consolidated Pathways Inc. of the U.S. to incorporate unique Swiss antiviral and antimicrobial technologies into sustainable, cost-effective custom blends for the textile industry.

N9's special offerings provide antiviral performance against the coronavirus, bringing proven hygiene function and material protection to the textile industry.

Based in Midland, Michigan, U.S., Consolidated Pathways is a brand and technical representative for Sanitized products, and supports the advancement of the trusted Sanitized Quality Seal and related branding concepts to the global textile industry.

Consolidated Pathways is partnering with N9 World Technologies in support of its antiviral and antimicrobial custom blended products that, when properly applied, can utilize the highly regarded Sanitized Quality Seal.

A wholly owned subsidiary of Resil Chemicals, N9 World Technologies is

based in Bengaluru, India, and manufactures and markets specialty chemicals in antibacterial, cooling and dynamic drying technologies. It enjoys the trust of over 150 brands and retailers in India for its products, such as Coolit, Neudri and N9 Pure Silver.

The partnership will now allow both companies to offer unique performance benefit platforms to the global textile industry.

### Chemlogis and Sanitized Enter New Strategic Sales Partnership for Sanitized Antimicrobial Polymer Additives in Mexico

Customers of Sanitized AG in the polymer industry in Mexico will profit from the expertise and established sales network of Chemlogis. The Sanitized antimicrobial additives for hygiene function and material protection for polymers will be marketed in Mexico by the new sales partner.

Sanitized and Chemlogis, two experts in their fields with similar understanding of values, have joined forces; both deal in high-performance products for the polymer industry combined with the best possible service, which begins with the conception of value-added products and their optimum use. The collaboration is a good fit for the portfolio as both companies focus on innovative, customer-specific solutions.

With the addition of the antimicrobial Sanitized additives at Chemlogis, the polymer industry gets a new overall package, offering more than just products for hygiene function and material protection. As an addition to core product services, Sanitized supports development and production, regulatory queries and marketing through the use of the Sanitized Ingredient Brand, which characterizes the end products within their differentiation and emphasis on quality.

The antimicrobial additives for polymers from Sanitized protect end products from bacterial infestation, growth of algae and mildew, material degradation, biofilms, pink stains and odors caused by microbes. The polymer industry uses the antimicrobial additive in flooring, industrial coatings, artificial leather, roof membranes, pool liners, tarpaulins and all extruded products.

## China's Textile & Apparel Exports

Item	Jan.-Jun. 2020 (Quantity)	Y-o-Y Change (%)	Jan.-Jun. 2020 (US\$1,000)	Y-o-Y Change (%)
<b>Total</b>			<b>127,332,602</b>	<b>2.48</b>
<b>Textiles</b>			<b>74,624,147</b>	<b>27.26</b>
Yarns (kg)	2,241,588,900	-18.56	4,793,535	-31.51
Cotton (kg)	123,629,271	-41.49	515,921	-43.59
Silk (kg)	1,181,525	-31.49	58,625	-15.63
Wool (kg)	11,747,388	-28.3	403,083	-40.09
MMF (kg)	1,714,471,318	-16.68	3,409,830	-28.96
Others (kg)	390,559,398	-16.06	406,077	-25.08
Woven fabrics			20,674,929	-29.55
Cotton (meter)	2,872,547,183	-28.68	4,215,286	-33.6
Silk (meter)	20,417,455	-43.24	138,711	-40.73
Wool (meter)	13,985,150	-47.92	115,168	-50.79
MMF (meter)	8,742,262,442	-24.35	8,080,817	-27.9
Others (meter)	6,152,533,170	-18.62	8,124,948	-28.25
Made-ups			49,155,682	120.52
Household goods			6,138,735	-21.32
Carpet (m <sup>2</sup> )	332,950,122	-17.17	1,113,366	-16.59
Industrial textiles			3,026,890	-23.28
Nonwovens (kg)	856,757,699	-0.59	3,197,691	9.44
Others			35,678,999	467.57
<b>Apparel</b>			<b>52,708,455</b>	<b>-19.68</b>
Knitwear (unit)	6,438,424,539	-29.43	18,759,143	-27.84
Cotton (unit)	2,989,863,195	-28.17	8,446,165	-26.91
Silk (unit)	2,558,260	-43.44	22,029	-41.6
Wool (unit)	19,469,436	-43.81	341,259	-40.35
MMF (unit)	2,850,762,769	-29.56	8,198,645	-27.51
Others (unit)	575,770,879	-34.22	1,751,045	-30.49
Woven garments (unit)	5,450,055,435	-15.45	24,334,996	-14.82
Cotton (unit)	1,277,398,717	-33.02	7,053,686	-34.15
Silk (unit)	4,800,362	-49.99	151,565	-36.9
Wool (unit)	7,933,999	-41.2	308,536	-47.28
MMF (unit)	3,789,418,066	-4.9	14,658,102	7.14
Others (unit)	370,504,291	-30.18	2,163,106	-35.45
Fur & leather wear (unit)	2,066,578	-48.39	674,138	-48.14
Apparel accessories			4,649,293	-25.5
Headwear			1,617,907	-23.71
Other garments	465,780,925	23.74	2,672,978	91.77

## Exports by Market

Textiles & Apparel			Of Which Textiles			Of Which Apparel		
	Jan.-Jun. 2020 (US\$1,000)	Y-o-Y Change (%)		Jan.-Jun. 2020 (US\$1,000)	Y-o-Y Change (%)		Jan.-Jun. 2020 (US\$1,000)	Y-o-Y Change (%)
World total	127,332,602	2.5	World total	74,624,147	27.3	World total	52,708,455	-19.7
EU	30,331,256	41.5	EU	17,745,297	159.8	EU	12,585,959	-13.8
ASEAN	16,746,976	-9.1	ASEAN	12,676,001	-11.3	ASEAN	4,070,976	-1.6
Middle East	835,168	-5.7	Middle East	467,849	2.5	Middle East	367,319	-14.4
Africa	8,025,755	-13.7	Africa	5,365,468	-12.0	Africa	2,660,287	-16.8
1 U.S.A.	22,453,319	5.8	1 U.S.A.	11,843,681	95.7	1 U.S.A.	10,609,638	-30.1
2 Japan	10,511,048	16.0	2 Vietnam	5,053,767	-14.8	2 Japan	6,081,393	-11.8
3 Germany	6,408,733	77.7	3 Japan	4,429,655	104.2	3 Germany	2,147,622	-14.6
4 Vietnam	6,255,787	-12.3	4 Germany	4,261,111	290.1	4 Korea	2,145,908	-4.2
5 France	4,188,528	103.5	5 France	2,862,912	548.3	5 U.K.	1,906,030	-8.7
6 U.K.	4,087,127	35.1	6 Bangladesh	2,484,809	-22.8	6 Russia	1,685,072	-34.1
7 Korea	3,859,882	6.1	7 U.K.	2,181,097	132.7	7 Australia	1,646,564	-11.2
8 Russia	2,981,898	-14.2	8 Italy	1,870,191	88.6	8 France	1,325,616	-18.0
9 Italy	2,882,730	60.6	9 Korea	1,713,974	22.6	9 Netherlands	1,262,654	-14.5
10 Canada	2,711,359	44.9	10 Canada	1,500,748	155.0	10 Canada	1,210,611	-5.6

Source: China Chamber of Commerce for Import & Export of Textile & Apparel (CCCT)

## Taiwan's Textile & Apparel Exports

Item	Jan.-Jun. 2020 (Quantity)	Y-o-Y Change (%)	Jan.-Jun. 2020 (US\$1,000)	Y-o-Y Change (%)
<b>Total</b>	<b>707,423</b>	<b>-25.0</b>	<b>3,596,794</b>	<b>-23.4</b>
<b>Fibers</b>	<b>184,835</b>	<b>-15.0</b>	<b>236,732</b>	<b>-26.7</b>
Raw cotton	1,813	25.4	2,202	218.9
Manmade staple fibers	182,149	-15.1	225,656	-26.7
Synthetic fibers	172,288	-9.1	211,607	-20.0
Polyester	126,436	-15.7	135,795	-30.3
Nylon	2,064	-43.7	5,208	-47.7
Acrylic	1,061	-38.5	1,749	-56.5
Rayon	9,798	-60.9	13,794	-68.2
<b>Yarns</b>	<b>185,369</b>	<b>-31.9</b>	<b>480,241</b>	<b>-36.7</b>
Cotton	33,000	-50.2	60,076	-56.7
Wool	187	-33.5	3,662	-27.3
Manmade fibers	147,906	-26.2	381,113	-33.6
Flax, jute, other vegetable fibers	119	-22.1	1,219	-2.2
Others excl. silk	4,147	-16.5	34,124	-14.4
<b>Fabrics</b>	<b>299,885</b>	<b>-25.1</b>	<b>2,448,615</b>	<b>-22.6</b>
Woven fabrics	91,659	-29.4	743,927	-23.4
Finished	77,178	-27.7	690,124	-21.7
Manmade fibers	71,266	-27.8	644,212	-20.9
Cotton	5,874	-26.9	44,970	-32.0
Unbleached	14,481	-37.4	53,803	-40.2
Manmade fibers	14,150	-37.9	51,309	-41.4
Knitted fabrics	83,121	-31.3	821,035	-25.0
Finished	76,137	-32.1	781,828	-25.4
Manmade fibers	46,959	-31.0	420,647	-29.2
Others excl. cotton, wool, silk	26,950	-31.1	342,975	-17.7
Unbleached	6,985	-21.6	39,206	-17.7
Manmade fibers	6,479	-22.7	36,166	-18.7
Cotton	505	0.8	3,027	0.2
Special purpose fabrics	125,105	-16.4	883,654	-19.5
Nonwoven fabrics	52,966	8.2	216,027	10.4
<b>Apparel</b>	<b>10,272</b>	<b>-16.3</b>	<b>206,534</b>	<b>-10.8</b>
Woven garments	2,729	1.1	50,928	46.2
Knitwear	2,199	-24.4	50,569	-24.1
Accessories	5,345	-19.7	105,037	-19.2
<b>Made-ups</b>	<b>27,061</b>	<b>-32.9</b>	<b>224,671</b>	<b>1.4</b>

## Exports by Market

Textiles & Apparel			Of Which Yarns			Of Which Fabrics		
	Jan.-Jun. 2020 (US\$1,000)	Y-o-Y Change (%)		Jan.-Jun. 2020 (US\$1,000)	Y-o-Y Change (%)		Jan.-Jun. 2020 (US\$1,000)	Y-o-Y Change (%)
World total	3,596,794	-23.4	World total	86,271	-28.2	World total	2,448,615	-22.6
EU	185,447	-20.7	EU	24,967	-27.4	EU	68,197	-22.7
ASEAN	1,503,675	-21.0	ASEAN	132,823	-32.9	ASEAN	1,225,021	-19.1
Middle East	156,476	-33.0	Middle East	15,421	-55.5	Middle East	112,355	-28.2
Africa	78,128	-22.2	Africa	7,811	-17.9	Africa	58,056	-23.9
1 Vietnam	908,971	-18.3	1 China	20,242	-28.5	1 Vietnam	736,478	-16.6
2 China	571,599	-29.4	2 Vietnam	13,488	-20.7	2 China	349,892	-30.2
3 U.S.A.	310,746	-10.6	3 Japan	10,509	-28.3	3 Indonesia	157,373	-24.7
4 Indonesia	185,741	-23.5	4 Thailand	4,596	-30.2	4 Cambodia	150,639	-15.0
5 Hong Kong	164,565	-31.2	5 U.S.A.	4,023	-33.8	5 U.S.A.	141,628	-17.4
6 Cambodia	159,851	-15.9	6 Brazil	3,182	-21.9	6 Hong Kong	121,283	-32.7
7 Japan	150,718	-15.2	7 Korea	2,970	21.0	7 Bangladesh	86,232	-10.2
8 Thailand	110,046	-32.9	8 Turkey	2,818	-38.3	8 Jordan	82,427	-26.2
9 Bangladesh	98,112	-15.3	9 Philippines	2,212	-55.4	9 Thailand	73,448	-34.4
10 Jordan	85,343	-26.1	10 Indonesia	2,034	-3.7	10 Japan	59,701	-7.8

Note: Re-exports included. Source: Taiwan Textile Federation (TTF)

A photograph of a traditional Japanese street scene at sunset. A woman in a purple kimono with a green pattern is walking away from the camera down a narrow, cobblestone street. In the background, a large, multi-tiered pagoda is silhouetted against the bright orange and yellow sky. The street is lined with traditional wooden buildings, and the overall atmosphere is peaceful and historical.

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Fukui, Kyoto, Osaka, Fukuyama)

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