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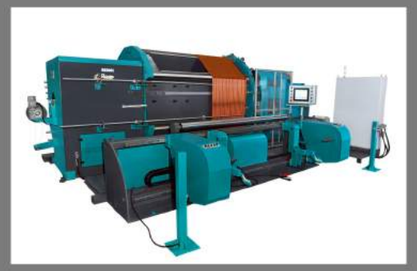

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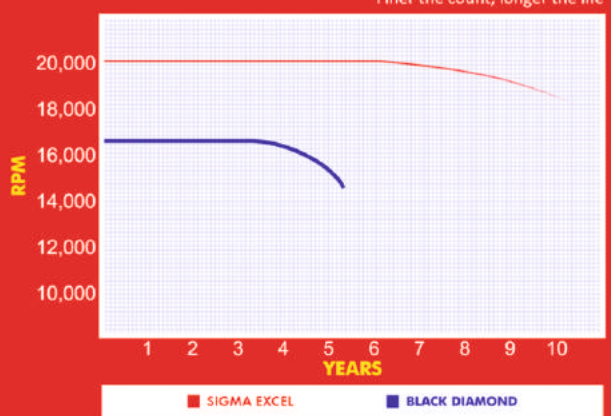

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EDITORIAL

Sustainable fashion continues to support the growth of the Indian Textile and Garment Industry

Sustainable fashion is a growing movement in India attributed to the increasing awareness and interest in environmentally and socially responsible practices in the fashion industry. Consumers today feel that sustainability is growingly important today to them specially it comes to fashion purchases. The number of sustainable fashion brands has increased manifolds.

Sustainable fashion and Make in India are today two important initiatives in India, they complement each other in different ways. At present, the Indian apparel market in 2023 is worth USD 96 billion approximately. It is expected to grow in coming years. Over the years consumer buying is increasing and an uptrend in the retail market can be witnessed with volume growth of 1.5% by 2024. The Make in India program and sustainable fashion continue to work together to support the growth of the Indian Textile and Garment Industry sustainably and ethically.

Government's focus on sustainable development initiatives like Swachh Bharat Abhiyan and Make in India are creating a favourable environment for the growth of sustainable fashion. As a result, more and more fashion brands are adopting sustainable practices, such as using organic cotton, reducing waste, recycled fabric from PET Bottle etc. Government officials are playing a major role in this context by way of promoting sustainable clothing. They are normalizing wearing garments from made in India recycled fabric which is creating awareness on macro perspective.

Leading sustainable brands include country's reach heritage of traditional textiles and garment making technique, such as handloom weaving, block printing and natural dyeing, which have low environmental impact and provide financial support local artisans. Several designers and brands are incorporating recycled and upcycled materials into their collections, such as discarded sarees to create a new garment.

Addressing conferences and making public appearances in sustainable clothing is making an enormous impact in terms of creating awareness and making it a mainstream issue. Overall, the make in India program is helping the Indian Fashion Industry to grow, and become more competitive. It is providing a platform for local fashion brands to showcase their talent.

China Exports fall 12.4% in June, Deepening Economic Woes

Chinese exports tumbled more than expected in June, official data showed recently, putting fresh pressure on Beijing to unveil more stimulus measures to kick start the flagging recovery. Overseas shipments are a key pillar if growth in the world's second largest economy but apart from a brief rebound in March and April, they have declined since October owing to weak demand in key markets. The 12.4% drop released by the geneal Administration of Customs was an acceleration from May's 7.5% and worse than the 10% fall predicted in a survey of economists by Bloomberg. Imports also fell 6.8% over the same period, reinforcing concerns about softening domestic demand, which has seen inflation plateau and force the central bank to ease monetary policy, putting pressure on the yuan. Customs spokesman Lyu Daliang also pointed to outside forces having a "direct impact" on Chinese trade, with Beijing engaged in a long running stand off with the United States on a number of issues including trade and technology. "The risks linked to unilateralism, protectionism, and geopolities are on the rise," he said in a statement with the figures. The threat of recession in the United States and Europe has led to lukewarm demand for Chinese products. And weak economic data in developed countries "will put more pressure on Chinese exports" in the coming months, warned economist Zhiwel Zhang on Pinpoint Asset Management. China's trade surplus in June reached $70.2 billion against $65.81 billion a month earlier. Latest figures are in a series of grim indicators reflecting a loss of steam in China's post Covid recovery, with factory activity contracting and growth in the services industry slowing, while industrial production remains tepid. That comes as the country's crucial property sector, which accounts for a vast proportion of the economy, struggles under the weight of mammoth debts. The country is due to release growth figure for the second quarter of late. Premier Li Qiang has admitted that the country's five percent growth target for the year will not be easy to achieve. He has suggested possible policy measures to boost demand and support the private sector, but few concrete measures have been announced. While the People's Bank of China has cut borrowing costs, officials have been reluctant to launch a vast recovery plan, which would deepen debt, despite growing calls for more ambitious stimulus. "The big question in the next few months is whether domestic demand can rebound withyout much stimulus from the government," Pinpoint Asset Management's Zhang said. ❐

UK signs treaty to join Pacific trade deal

The UK signed a treaty to join a Pacific trade deal recently, formally becoming the first new member since the frame work came into force and shifting attention to a list of other applicants led by China. Business and Trade Secretary Kemi Badenoch signed the Comprehensive and Progressive Agreement for Trans Pacific Partnership in New Zealand. New Zealand is chairing a meeting attended by 11 trade ministers and delegations from CPTPP economies. "The UK has come through the robust accession process and the overall quality of its commitments has set a good precedent for future economies that wish to join," New Zealand Trade and Export Growth Minister Damien O'Connor said. Formerly known as the TPP, the agreement at one time included the US and was seen as a way of containing China's growth influence in the Asia Pacific, Former President Donald Trump with drew the US from the pact in 2017 and China made its application to join in 2021. CPTPP-owned businesses employ 1 per cent of UK workers, and membership is expected to "turbocharge investment" further, according to the UK government. British whiskey and cars are among 99 per cent of current UK goods exports to CPTPP, to be eligible for zero tariffs, it added. Beijing is next in sequential order to enter negotiations as the CPTPP seeks to expand. But China's accession would be divisive, given tensions with existing members including Japan, Australia and next year's chair, Canada. ❐

US CPI inflation shrinks to 3% in June

U.S. consumer prices rose modestly in June and registered their smallest annual increase in more than two years as inflation subsided further, but probability not fast enough to discourage the Federal Reserve from resuming raising interest rates in July. The report from the Labor Department of late also showed underlying comsumer prices posting their smallest monthly gain since August 2021. The considerable slowdown in underlying inflation ignited a rally on the stock market, with investors convinced that the U.S. central bank's fastest monetary policy tightening cycle since the 1980s was drawing to a close. "Inflation isn't dead, but the extraordinary pandemic push on prices from shortages and shift to stay-at-home purchases is clearly over, and the Fed for the first time has the upper hand in its inflation fight," said Christopher Rupkey, chief economist at FWDBONDS in New York. In the 12 months through June, the CPI advanced 3.0%. The Fed has raised its policy rate by 500 basis points since March. ❐

Euro-Zone industrial product misses estimate as struggles persist

Euro-area industrial production rose less than anticipated in May adding to signs that manufacturing is struggling to regain momentum after the 20-nation bloc suffered a recession over the winter. Output increased 0.2% from April, less than the 0.3% economists polled by Bloomberg estimated. Production shrank 2.2% from a year ago, falling well short of analysts' expectations. As the euro zone battles to exit its downturn, manufacturing is proving to be the biggest drag on growth. In Germany, Europe's largest economy, industrial output suffered a surprise drop in May, with recent business surveys suggesting the negative outlook will persist.One example is chemical market BASE SE, which blamed subdued global industrial performance and slow demand for consumer products as it cut its earnings expectations for 2023. Carmakers are suffering, too. Automotive supplier Continental AG reported worse-than anticipated operating earnings in the second quarter. For the Euro region, Slovenia saw the highest monthly increase in production, at 7.8%, followed by Croatia, Slovakia and Finland. The largest drops were recorded in Ireland, Lithuania, Romania and Belgium. While output of capital, intermediate and durable consumer goods were all slightly up, energy fell by 1.1%. ❐

Almost Half of World Humanity sinking into debt crisis

Some 3.3 billion people "almost half of humanity' now live in countries that spend more money paying interest on their debts than on education or health, according to a new UN report released recently, UN Secretary-General Antonio Guterres told a press conference launching the report that because this "crushing debt crisis" is concentrated mostly in poor developing countries, it is not judged to pose a systemic risk to the global financial system. "This is a mirage," the UN chief warned" 3.3 billion people is more than a systemic risk, it is a systemic failure." Guterres said financial markets may seem to to be suffering yet, but billions of people are and the levels of public debt are staggering, and surging. "In 2022, global public debt reached a record $92 trillion and developing countries shoulder a disproportionate amount," he said. According to the report, the number of countries facing high debt levels has increased sharply from 22 nations in 2011 to 59 in 2022. The secretary-general said a growing share of debt is held by private creditors who charge skyhigh interest rates to developing countries. As an example, he cited African countries that one average pay four times more for borrowing than the United states and eight times more-than the wealthiest European countries. The debt crisis is leaving governments with no money to invest in lagging UN development goals for 2030 that include ending extreme poverty ; ensuring that every child has a good-quality primary and secondary school education, and investing in transitioning to renewable energy, he said. The report says public debt has reached "colossal levels" largely due to two factors : First, countries' financial needs soared as they tried to fend off the impact of cascading crises including the Covid-19 pandemic, the rising cost of living and climate change and second, the global financial architecture 'makes developing countries' access to financing inadequate and expensive. ■

FDI surges 10% in '22, India's rank unchanged : Unctad

Foreign Direct Investment (FDI) flows into India rose by 10 per cent to $49 billion in 2022, making it the third largest host country for announced greenfield projects and the second largest for international project finance deals, according to a report released by United Nations Conference on Trade and Development (Unctad) recently. Amid declining trends in global FDI, India stayed at eighth position in terms of FDI inflows, the latest World Investment Report by the Unctad said. The report said that outward investment by Indian multinational enterprises (MNEs) fell by 16 per cent to $15 billion in 2022. "However, greenfield project announcements by Indian MNEs more than tripled to $42 billion. Two of the largest greenfield projects were in renewables, with Acme Group announcing a $13 billion plant in Egypt to produce 2.2 billion tonnes of green hydrogen annually, and ReNew Power anouncing that it will set up a $8 billion green hydrogen plant in the Suez Canal Economic Zone," it added. Unctad said that after a steepdrop in 2020 and a strong rebound in 2021, global FDI declined by 12 per cent in 2022 to $1.3 trillion. "The slowdown was driven by the global polycrisis : the war in Ukraine, high food and energy prices, and debt pressures. International project finance and cross border mergers and acquisitions (M&As) were especially affected by tighter financing conditions, rising interest rates, and uncertainty in capital markets," the report said. The share of developing countries in global FDI was more than 70 per cent — a record high. It increased by 4 per cent to $916 billion. "The FDI increase in developing countries was unevenly shared. Much of the growth was concentrated in a few large emerging economies," the report said. The number of greenfield investment projects announced in developing countries increased by 37 per cent, and international project finance deals by 5 per cent. "This is a positive sign for investment prospects in industry and in infrastructure." Unctad said among the largest anounced greenfield projects in India were the plans by Foxconn and Vedanta Resources to build one of the first chip factories in India for $19 billion and a $5 billion project to produce urea from green hydrogen by joint venture of Total Energies of France and the Adani group. Steelmaker Posco and the Adani group sponsored the construction of a steel mill for $5 billion in Gujarat, which contributed to the 64 per cent increase in project finance deals. ❐

As exports contract in the face of global uncertainty, no clear target for FY 24

With merchandise exports shrinking 15.1% in the first quarter of this year, after racking up a record $450 billion in 2022-23, the government is playing it safe on announcing a clear target for outbound shipments this year and is likely to opt for a range of scenario-based targets instead. While the Commerce Ministry has undertaken an internal exercise to set a target for exports in 2023-24 and has even communicated a number to export promotion councils of different industrial sectors as well as overseas diplomatic missions – there is now a rethink underway, a senior Ministry official indicated. Goods exports had decelerated 12.6% in April and 10.2% in May, but recorded their steepest fall in 37 months this June with a 22% drop. The $32.7 billion export tally for June was the lowest in absolute terms since October 2022. While the final June numbers for exported services are still awaited, forex earnings from these intangible exports have also slowed sharply after growing about 28% to $325 billion in 2022-23. As per estimates, services exports have grown just 5.2% to $80 billion, while goods exports stand at a little over $102 billion through the first quarter. "Our broader target for exports, as per the new Foreign Trade Policy, is to achieve $2 trillion by 2030, with services and goods exports accounting for a trillion dollars each," the official said. ❐

India best S Asian country in terms of trade facilitation : UNESCAP

India is the best performing country in South Asia region in global trade facilitation efforts, according to United Nations Economic

and Social Commission for Asia Pacific's (UNESCAP) global survey on Digital and Sustainable Trade Facilitation. India's overall score has been greater than many developed countries including Canada, France, the UK, and Germany, the finance ministry said, citing the survey. The improvement is on the back of the recent initiative taken by Indian customs to make it digital and paperless enhancing ease of doing business. The 2023 survey has recognized India's exceptional progress, with the country achieving 100% in four key areas : transparency, formalities, institutional arrangement and cooperation, and paperless trade. "The Survey reflects the efficacy of Trade facilitation measures taken by Indian Customs such as Turant Customs comprising of Faceless Customs, Paperless Customs and Contact less Customs, in enhancing India's ease of doing Business and promote trade facilitative environment in the country," it said in a statement recently. The 2023 survey, covering more than 140 economies and evaluating 60 trade facilitation measures, has positioned India at the forefront of global trade facilitation efforts, with an impressive score of 93.55% in 2023 vis a vis 90.32% in 2021. "India at the forefront of global trade facilitation efforts, with an impressive score of 93.55% in 2023 vis-a-vis 90.32% in 2021," it said. ❐

Core sector output in May surges at 4.3%

The output of eight key infrastruction industries — known as the core sector — expanded at 4.3 per cent in May, amid a high base effect and positive growth in five of the eight sectors. In May last year, the core sector had grown by 19.3 per cent. The print for April 2023 has undergone significant revision to 4.3 per cent from 3.5 per cent estimated earlier. Data released by the commerce and industry ministry of late showed that while growth in the output of fertilisers (9.7 per cent), steel (9.2 per cent), and coal (7.2 per cent) slowed from the previous month, the output in refinery products (2.8 per cent) and cement (15.5 per cent) accelerated. Meanwhile, the contraction continued in electricity generation (-0.3 per cent), crude oil (-1.9 per cent), and natural gas production (-0.3 per cent) in May, thus exerting a drag on the aggregate output. Aditi Nayat, chief economist at ICRA Ratings, said the double digit growth in cement output for the second consecutive month and strong growth in steel points to a robust performance of the construction sector. Madan Sabnavis, chief economist at Bank of Baroda, said the continued traction in cement and steel could be attributed to government spending. "In June, the Centre had given an additional instalment to states as part of state transfers to enable higher capex. Further, a loan was also extended to expedite the same," he said. The contraction in electricity generation for the third consecutive month in May was mainly due to the high base of 23.5 per cent growth during the same month a year ago, even though power demand picked up sequentially in May this year as energy demand for cooling increased. "Though the fertilisers production slowed down from last month, it is expected to continue to remain robust for the next two months to keep pace with the kharif sowing requirements. Meanwhile, the oil basket, however, continued to disappoint with negative growth for crude and natural gas and refinery products did relatively better with exports contributing to the same" sabnavis said. The eight core industries account for 40.27 per cent of the weighting of items included in the Index of Industrial Production (IIP) and, thus, have a significant impact on the index. "Although the growth in core output remained steady, the performance of a majority of the available high frequency indicators improved in May 2023 relative to April 2023, which are expected to keep the IIP growth in the range of 4-6 per cent in May 2023," said Nayar. Recently Fitch Ratings revised upwards its economic growth estimate for India by 30 basis points (bps) to 6.3 per cent for 2023-24 (FY24), citing stronger outturn in the March quarter of FY23 and near-term momentum, though it had cautioned that the slowdown in global trade still posed downward risk.■

Textile market in crisis owing to the falling demand and strong price competition from small players

From recent past around 1,800 of the total 2,200 spinning mills in Tamil Nadu decided to stop production and sale of yarn. The state is home to more than half the country's 4,000-odd spinning mills. These companies' key grievance is the lack of policy support as a result of the demand recession in the United Sates (US) and the European Union (EU) markets that has made their businesses unviable.

The mills have approached the Indian Banks' Association (IBA) seeking relief, including an extension of a one-year moratorium on the payment of the principal on loans that spinning mills took during the Covid-19 period and conversion of three year loans under the Emergency Credit Line Guarantee Scheme into six-year term loans.

According to the Tamil Nadu Spinning Mills Association (Tasma) at least 15 percent of these 1,800 micro small and medium enterprises are falling under the banks' non-performing asset (NPA or bad loan) category and are looking to sell their assets. Some estimates suggest that these closed mills supply around 45 per cent of the yarn requirement for India's largest garment hub, Tirupur.

Some choose to see this crisis as impacting a small section of the spinning mills in Tamil Nadu, with 400 odd large companies still intact. But experts indicate that this is just the tip of the iceberg. The list of problems that the textile industry is facing go beyond the demand decline in key western markets to the high import duty on cotton, competition from countries like Bangladesh, and rising borrowing costs.

The demand recession is a key concern. In June, the country's textile and apparel exports declined 11.3 per cent over the year before following the production shut-down by several textile mills in south India. In June, textile exports stood at $1,624 million, compared with $1,736 million in June 2022, while apparel exports were also down to $1.248 million against $1,501 million last year. During the period, readymade garment (RMG) exports dipped by 17 per cent.

Meanwhile, exporters from Tiruppur are seeing themselves losing out to rivals such as Bangaldesh, Vietnam and Cambodia among others, Tiruppur accounts for 54 per cent of India's textile exports.

"The price difference between many of these players and us ranges from 15 to 20 per cent," said Sivaswamy Sakthivel, executive secretary, Tirupur Exporters Association.

Take the case of the EU. Vietnam reaps the benefit of a free trade agreement, which gives its exports a Customs duty advantage of 8-12 per cent depending on the product. Bangaldesh, Cambodia and Myanmar, being least developed countries (LDCs), gain from nil Customs duties. Pakistan and Srilanka also attract no Customs duty, being the Generalised Scheme of Preferences Plus (GSP+) category, a benefit that India lost under the Trump administration in 2019.

"All this makes it difficult to compete with these countries," Sakthivel added.

Compared to the countries above, Indian textile exports face an average tariff of 5.9 per cent in the EU and 6.2 per cent in the US. Being a developing country. India falls under the GSP category in the EU, but gets concessions to the tune of 3-4 per cent. Bangladesh, on the other hand, continues to enjoy the LDC advanage, though its per capital income crossed India's two years ago.

Interestingly, though the industry ascribes the demand decline in the EU on the Ukraine war, numbers indicate another trend. According to textile industry association Euratex, the EU's trade in textiles and clothing exceeded the €200 billion mark for the first time in history in calendar year 2022. In fact, it showed a 37 per cent increase in clothing import value, mainly driven by an increase in imports from China and Bangladesh. In the US too, imports of textiles and apparel were seen up by 16 per cent of $132.201 billion 2023 compared to $113.938 billion in 2021.

In the first two months of 2023, EU textile imports showed a marginal decline of 2 per cent ; its second-largest supplier Bangladesh saw a 5 per cent increase in supply in value terms. On the other hand, US imports of textiles and apparel fell 22.05 per cent to $33.780 billion in the first four months of 2023, compared to $43.333 billion during the same period in 2022. Almost all importers China, Cambodia. Pakistan, Vietnam, Indonesia, Bangladesh and India — had a double-digit dip in imports to the country during this period.

Many believe that two major reasons for erosion of India's global competitiveness are the 11 per cent import duty levied on cotton and high volatility in cotton prices during the last two years. "For the past 15 months, Indian cotton has been more expensive than international cotton," said Sanjay Kumar Jain of Delhi-based textile producer TT Ltd.

First, He pointed out, the government has a increased the minimum support price by 8-10 per cent, second it imposed a duty on imported cotton, which cuts import options for textile players. "The government has given farmers double protection without considering the rest of the value chain." Jain added.

Adding to the pain may well be the decline in domestic demand too. Take the case of Tiruppur, the region's exports were valued at ₹ 34,350 crores in 2022-23 and its domestic intake was around ₹ 28,000 crore. "The real surprise is why the domestic market is not picking up. That is also down by 20-25 per cent. All our clients, such as Reliance, Westside, DMart, Max and Jockey are saying that they have a huge stock with them," Sakthivel pointed out.

The current shutdown of mills may affect cotton procurement by mills "People in Europe are spending money on food and fuel and inflation is forcing them to stay away from textile goods. Chains such as Walmark are closing their retail outlets in the US and EU. Hence, there is no need to procure cotton and convert it into yarn. There is a reduction of around 55 per cent in cotton procurement itself over last year," said K Venkatachalam, chief advisor, Tasma.

The industry hopes Diwali will light up demand and producers in Tiruppur are anticipating orders by players like Walmart, H & M, Tommy Hilfiger, and Target. Much, however, depends on the health of the US and European economies. ■

TN Spinning mills lifted off strike

The production strike by the spinning mills, including MSMEs and open-end mills in Tamil Nadu (mostly located in Coimbatore) withdraw on 23.7.23. This follows a meeting of members of various industry associations with the State Electricity and Finance Minister Thangam Thennarasu of late. MSME Minister TM Anbarrasan and Handloom Minister R Gandhi were also present in the two-hour ling meeting.

The spinning mills in the major production centre of Coimbatore are in the midst of a crisis. The members of Open-End Spinning Mills Association (open-end spinning is a technology for creating yarn without using a spindle) resorted to a production strike from July 10, while the MSME mills in the textile city stoped production and sale of yarn from July 15 due to heavy losses incurred by them. The Minister, after hearing shout the problems faced by spinning mill workers, said he would discuss with Chief Minister MK Stalin and announce a favourable decision. "Based on the confidence given by the Minister, we are withdrawing our production stoppage of open-end mills from tomorrow," said G Arulmozhi, President, Open-end Spinning Mills Association.

K Venkatachalam, Chief Advisor, Tamil Nadu Spinning Mills Association, said the Minister assured that he would discuss all the issues with the Chief Minister and will do whatever is possible.

The other associations that participated in the meeting were South India Spinners Association ; Indian Spinning Mill Owners Association ; Recycle Textile Federation and South India Mills Association ; Tamil Nadu Spinning Mills Association and Indian Taxpreneurs Federation (ITF).

The associations' joint memorandum urged the State government of make a strong representation to the Centre to immediately withdraw the eleven per cent import duty imposed on cotton.

This is considering the non-availability of raw cotton, and to provide a level plying field on cotton availability to spinning mills in Tamil Nadu.

The associations also urged the State government to make a strong representation to the Centre to reduce the interest rates of banks to the previous level of 7.5 per cent per annum. "We request the State government to make a strong representation to the Centre to direct the RBI to restructure the outstanding short term loan under the 'Emergency Credit Line Guarantee Scheme', which was provided during the Covid-19 period, and provide fresh ECLGS loans.

The association urged the State government to immediately withdraw the electricity tariff hike announced on July 9, 2022.

Prabhu Dhamodharan, Convenor, ITF, said the federation suggested the government to appoint an external financial research agency to study the Stress level in the sector with focus on multiple sub-segments of textile and apparel sector. The agency could submit its report to the Union Finance Ministry with data.

The study should cover the present and immediate future demand in domestic and export sectors. ■

Spinning mills in Coimbatore on brink of closure

A major crisis is brewing among the spinning mills of Coimbatore as industry associations have decided to stop production and sale of yarn from July 15 due to heavy losses incurred by them. This was decided at an emergency meeting of MSME Spinning Mills Associations held recently.

For the first time in the last 20 years, exports of yarn and textiles have declined by around 28 per cent. Cotton price per candy (356 kg) is currently ₹58,000, price of 40's yarn is ₹235 per kg and clean cotton cost is ₹194 per kg, says a joint statement issued by S Jagadesh Chandran, Honorary Secretary, South India Spinners Association (SISPA), and G Subramaniam, President, India Spinning Mill Owners Association (ISMA), both based in Coimbatore.

As per guidelines of the South Indian Textile Research Association, the minimum conversion cost of cotton to yarn should be ₹2 per kg.

In today's situation, the conversion cost is only ₹1. This means, spinning mills incur a loss of ₹40 per kg. A mill having about 10,000 spindles would produce 2,500 kg of yarn per day, incurring a loss of ₹1 lakh per day.

One of the reason for the crisis is the 11 per cent import duty on cotton.

Over the past several months, bank interest rates have also gradually increased from 7.5 per cent to 11 per cent.

As a result, the cost of yarn production has increased from ₹ 5/kg to ₹ 6/kg.

The increase in power tariff by the Tamil Nadu Generation and Distribution Corporation (Tangedco) has resulted in production cost of spinning mills going up by ₹ 6, the statement said.

The Central has provided short-term loans under the Emergency Credit Line Guarantee Scheme (ECLGS) to revive and rehabilitate the industry.

However, entrepreneurs who availed the loan have used it to tide over the crisis and for payment of bankdues, electricity charges, labour wages, ESI and PP.

When repayments for the ECLGS loan started, they imposed as additional burden on the additional burden on the spinning mills, increasing the cost of production by another ₹5 per kg.

Due to unrestricted import of yarn and fabrics from countries such as China, Vietnam and Bangladesh, the entire textile value chain was also greatly affected, the statement said.

The two association have appealed to the Central to immediately withdraw the 11 per cent import duty imposed on cotton and reduce the interest rates of the banks to the previous level of 7.5 per cent.

The outstanding shorterm loan under FCLGS must be restructured and fresh loans must be given they said.

They also suggested providing a six-month holiday period and seven years repayment period for loans at a lower rate of interest.

They said the minimum support prices has to be extended to cotton yarn and has to be fixed at ₹ 2.25 per count per kg.

From January 1, all types of fabrics manufactured in India should print the precise weight on the fabric, the associations requested.

Since the capacity of spinning mills in the country is already high, the Centre should immediately formulate a 'One Country - One Policy' for the textile industry, the statement added.

With Tangedco charging 90 per cent of maximum demand charges or recorded demand, whichever is higher, the associations wanted the State government to direct the power utility to collect 20 per cent of maximum demand charges or recorded demand. ■

PLI scheme for textiles : Govt invites fresh applications from interested company

The Centre on recently said it has decided to reopen the portal for inviting fresh applications from interested companies under the Production Linked Incentive scheme for Textile till August 31, 2023 in view of requests from Industry till August 31, 2023 inview of requests from industry stakeholders.

The Centre launched the PLI scheme with an approved outlay of ₹10,683 crores to promote the production of man-made fibre (MMF) apparel, MMF fabrics and products technical textiles in the country to enable the textiles industry to achieve size and scale and to become competitive.

"In view of the requests from the industry stakeholders, Ministry of Textiles has decided to re-open the PLI Portal till 31 August for inviting applications under PLI scheme of Textiles for MMF Apparel, MMF fabrics and products of Technical Textiles," a statement said. The terms and conditions notified earlier vide notifications and guidelines shall be applicable, it added. ■

Cotton industry, trade approaching govt. for putting off quality order

With the Cotton Bales (quality control) Order, 2023, set to come into force from August 28, textile organisations and trade association have begun approaching the Textile Ministry for putting off the implementation.

The order, better known as cotton QCO (quality control order) was notified by the Union Textiles Ministry on February 28, saying that it will come into force 180 days after its publication in the Gazette. It applies to processed cotton (ginned) and unprocessed or raw cotton (kapas).

The order prescribes certain norms for bales of ginned cotton as well as requirements of the materials used for the packing of bales.

Hindrance for Imports

The QCO specifies that the moisture content for cotton bales be 8 per cent. It requires ginning mills to test at least 5 per cent of the bales, while the trash content in the bales should not be more than 3 per cent.

According to K Venkatachalam, chief advisor, Tamil Nadu Spinning Mills Association (TASMA), the QCO will apply to imported cotton too and this could create some "trouble".

"Signing of contracts for imports of cotton need to be executed very carefully," he told recently.

TASMA president AP Appukutti, in a memorandum to Commerce and Textiles Minister Piyush Goyal, wanted the implementation of the QCO postponed until a consensus is arrived at among all stakeholders in domestic and imported cotton.

He urged the minister to issue a specific order to exempt imports from the order as it would be re-exported by adding value in the form of quality yarn.

Appukutti said many of TASMA members have entered into contracts with foreign shippers from countries such as Australia, the US and West Africa to import cotton and these would arrive at Indian ports in the first or second week of September.

Also, countries abroad have their own standards and it may be difficult for shippers to meet the standards, he said.

Weather Impact

Recently, the Cotton Association of India (CAI) wrote to Commerce and Textiles Minister Piyush Goyal urging him to put off the implementation of the QCO by a "minimum of one or two years".

CAI president Atul Ganatra told Goyal that ginners will find it difficult to ensure 8 per cent moisture in cotton bales. This is because during October-December the moisture level in lint (processed cotton) will be 10-12 per cent, while in kapas (raw cotton) it will be 15-25 per cent.

The CAI president said ginners are required to test 5 per cent of the bales but they lack adequate infrastructure for this. Referring to the maximum limit for trash content, he said kapas from Rajasthan, Punjab and Haryana have more than 4 per cent trash.

On the other hand, the Karnataka Cotton Association (KCA) has written to JK Gupta, Scientist-E and Head (Textiles) at BIS, seeking a meeting between the Textiles Ministry and ginners to address and clarify "all the confusion" surrounding the QCO.

Cotton brokers body fixes crop at 329.72 lakh bales this season

The National Cotton Brokers Association (NCBA) has pegged the crop estimated for the current season (October 2022-September 2023) at 329.72 lakh bales (170 kg each) compared with 312 lakh bales last season.

The estimate is based on arrivals until June-end and was finalised at the association's meeting of late, according to Ramanuj Das Boob, a key member of NCBA. The association projected total cotton arrivals till June-end at 295.65 lakh bales compared with 300 lakh bales.

According to Anand Popat, a Rajkot-based cotton, yarn and cotton waste trader, arrivals till June-end are estimated to be 200 lakh bales. Another 35 lakh bales are expected to arrive in markets over the next three months.

The NCBA crop estimate is higher than the Indian Cotton Association's projection of 298 lakh bales, a figure that has been hotly contested by a section of traders.

According to the Committee on Cotton Production and Consumption, a panel of various industry stakeholders including growers, the crop production will likely be 343.47 lakh bales.

The cotton production picture has been hazy this year resulting in the crop estimate varying from 298 lakh bales to 360 lakh bales. This is because growers tended to hold back their produce this year after they were unable to fetch the high prices witnessed last season.

Last season, cotton prices topped ₹1 lakh a candy (356 kg) but when the crop arived in October, prices had dropped to levels of ₹ 70,000. In terms of kapas (raw cotton), prices this season ruled below ₹9,500 a quintal against nearly ₹12,000 witnessed last year.

Currently, cotton prices have dropped to ₹ 56,700 a candy, while kapas prices are quoted a little over ₹7,000. On NCDEX, kapas is quoted at ₹1,482 a maund (20 kg), while on MCX August cotton contracts is rulling at ₹56,460 a candy. ■

TEXTILE WASTE MANAGEMENT BY PRODUCING PAVER BLOCKS

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Abstract

Textile sludge is an unavoidable by-product discharged from wastewater treatment plants and becoming a great challenge in today's textile industry. Presently, the sludge generated from the CETP facility is sent and collected inside nearby big constructed shed without any treatment. Since, the sludge is characterized by high level of organic and inorganic components including heavy metals, its accumulation is a burden to the industry and affects the environment and human well-being adversely. Hence, it demands an alternative sludge disposal method. Therefore, the main objective of this study was to investigate the physio-chemical sludge characteristics and suitability of utilizing sludge in the manufacture of paving blocks, partially with cement. The test results show that concentration of BOD, COD and the chemical constituents viz. CaO, SiO_2, Al_2O_3, Fe_2O_3, MgO, SO_3, P_2O_5, K_2O of textile sludge were 11mg/lit and 361.6 mg/lit and 9.41, 1.58, 0.25, 7.74, 0.35, 15.65, 0.97, 0.14% respectively. Additionally, the proximate analysis of the sludge moisture content, Volatile matter and ash content was 4.93, 44.67, 43% respectively. The presence of these compounds indicates the potential use of this sludge as partial replacement of building materials. In this study, an attempt is made to reveal the feasibility of utilizing textile CETP sludge as a cement substitute in M20 grade paving blocks. The paving blocks cast with the textile sludge, a role as cement material at 0%, 10%, 15%, 20%, 25%, 30%, 35%, 40%, 45%, & 50% by weight of cement. The compressive and flexural strength step by step diminish with increment in sludge proportion. 25% textile sludge can be utilizing to get compressive strength near to 20 N/mm^2.

Keywords CETP • Chemical Composition • Compressive Strength • Paver Blocks • Textile Sludge

Statement of Novelty

In this research the sludge characteristics were performed and textile sludge were added at different proportion 0, 10, 15, 20, 25, 30, 35, 40, 45, 50% by weight of cement to produce paving blocks. Eventually, the mechanical and physical properties of the sludge substituted blocks namely compressive strength, flexural strength and water absorption were analyzed and compared with the results of paving blocks. All the block specimens investigated were produces on a small scale. However, investigating the effects of using textile sludge with some admixture in paving blocks has not been duly explored in the open literature. Therefore, the objective of present study was to use textile sludge in the manufacturing of paver blocks and to examine the influence of fly ash.

1. Introduction

The world's ever-increasing population and also the progressive adoption of associate industrial based mostly life vogue has inevitably crystal rectifier to associate accumulated impact on the region. This is because intensive utilization of chemicals as well as dyes, pigments, and aromatic molecular structural compounds for many industrial applications like textiles, printing, prescription drugs, food, toys, paper, plastics, and cosmetics factory-made and utilized in day to day life. As long as there is an industry, there is waste generated from the production plant either in the form of solid, semisolid, liquid, or gaseous form. However, the amount and quality of waste produced are different for different industries. This may be due to differences in the manufacturing processes and treatment given to the wastewater. More specifically, textile industries involve the process or changing of raw materials into finished fabric materials by using numerous processes, operations and consume lots of abundance of water and produce extraordinarily waste effluents. whereas treating the wastewater discharged from textile industries large volume of sludge is generated. This sludge should be managed is associate with environmentally acceptable means textile business is one of the distinguished industries that use a spread of chemicals and a huge quantity of water for all of its producing steps. This discharges corresponding wastewater effluents containing pollutants. As a result of this, an outsized amount of solid byproduct called sludge isgenerated annually from the treatment plant. The quantity of sludge produced depends upon the amount of wastewater and the type of treatment adopted for treating the wastewater. The disposal of sludge is an associated unavoidable by-product of the textile effluent treatment method because of the utilization of assorted dyes and chemicals in several wet process steps. This disposal of sludge from the wastewater treatment plant is a burning

issue because it has a significant impact on the environmental media specifically contamination to soil, surface water, and groundwater. These wastes cause alteration of the physical, chemical, and biological properties of aquatic surroundings that are harmful to public health, variety. This study focuses on the chance of exploiting sludge as a paver block material. The chemical composition of the sludge waste contains a vital quantity of silicon oxide, alumina, magnesia, etc. Thus, this means it's potential to use it as partial replacement of building materials or blocks producing. In different words, reusing sludge as a partial replacement of clay for creating a paving block is one among the foremost possible answer to sludge disposal drawback unless the ultimate product pollutes the surroundings over an extended amount. The usage of sand, stone, gravel, lime, clay, gypsum, etc. as building material concrete as fine aggregate. Sludge management is converting into a challenge for engineers recently. The workability and density of concrete were suffering from this replacement. M20 grade concrete containing 32% of textile sludge. The compressive strength step by step reduces with replacement and later it falls below desired worth once fineaggregate is replaced by factory sludge and 20% of fly ash could even be utilized as a construction material. Such concrete contains a compressive strength of 20.22 N/mm^2.

2. Literature Review

Kulkarni G. J. et al. (2012) studied the practicability of exploitation of textile sludge in M20 concrete as fine aggregate. Sludge management is turning into a challenge for engineers recently. The workability and density of concrete were suffering from this replacement. M20 grade concrete containing 32% of textile sludge. The compressive strength step by step reduces with replacement and later it falls below desired worth once fine aggregate is replaced by factory sludge and 20% of fly ash may be utilized as a building material. Such concrete has a compressive strength of 20.22 N/mm^2.

G. Navya, J. Venkateswara Rao et. al. (2014) in his experimental investigation the compressive strength, water absorption, and flexural strength of paver blocks were determined by adding coconut fibers within the uppermost 20 mm thickness. Coconut fibers were superimposed on proportions of 0.1%, 0.2%, 0.3%, 0.4% and 0.5% in volume of concrete. During this investigation at 0.3% of coconut fiber content impact of uppermost layer thickness on compressive strength and flexural strength is additionally determined. The result shows that the inclusion of fibers even up to 50% of uppermost layer thickness on compressive and flexural strengths are increasing.

Abrar Ahamed et al. (2015) investigated the compressive strength, efflorescence, and water absorption of burnt clay bricks created by partial replacement of clay (0 to 35 %) with the textile ETP sludge. Because the textile sludge proportion will increase compressive strength is decreases and water absorption will increase. The use of textile sludge was probably to cut back the energy price and environmental pollution and it may be used for casting of structural and non-structural building components by up to a most of 20%and 30%.

Karthik & Rathinamoorthy et. al. (2015) suggested that sludge's are the solids, liquid, or solid residuals generated as a by-product of effluent treatment, sludge generated in effluent treatment plants isn't solely difficult to it business, however, additionally affects the surroundings adversely. Typically, sludge contains 0.25-12 % solids by weight, relying upon the operations and also the processes used.

Sudheesh et al. (2015) studied the result of the addition of textile ETP sludge as partial cement replacement substantial and quarry dirt as fine aggregate replacement material within the paver blocks. it had been additionally planned to feature polypropylene fiber to extend the performance characteristics of paver blocks. Their result indicated that the compressive strength of paver blocks decreases with the rise within the quantity of partial sludge-cement replacement in paver blocks. The compressive strength of paver blocks increases with the addition of fiber up to 0.5% with sludge up to 30% as cement replacement. Their results of the study discovered enhancements in concrete compressive strength was found by substituting some cement with quarry dirt and textile sludge.

Ashish Pandya et. al. (2017) aimed to create eco-friendly construction material and to check however the concrete behaves on exchange the cement with the hypo sludge in varied proportions. This study additionally examined the likelihood of utilization of hypo sludge as a partial replacement material and it may be additional used as a building material. during this paper, the author administrated the compressive strength check and rate analysis of

recent concrete. The grade of concrete is M20. They administrated the varied check at 5%, 10%, 15%, 20% replacement with cement.

K. Ashok Kumar, Dr. P. Partheeban et. al. (2017) examines the strength properties of fly ash primarily based on geopolymer concrete. Combined proportion was done supported the sooner analysis studies for M35 geopolymer concrete and also the check was analyzed for the similar strength management concrete. The checks like flexural strength check and abrasion resistance test were conducted. The geopolymer concrete specimens were forged and while not de-molding the specimens were forged to 80°C within the oven for seventy-two hours and so once de-molding, the specimens were left at region hardening for the specified time. there's a major increase of 13.27% in flexural strength was determined for geopolymer concrete paver block as compared to M35 grade management concrete paver block.

B. Priyadharshini, M. Kavisri et. al. (2018), studied that the way to cut back the environmental waste and to recycle the waste matter with clay to manufacture brick. She has used textile sludge in construction work that functions as a resolve of solid waste management. These wastes are accustomed to cut back the amount of clay as there's a bigger insufficiency of clay in several areas of the place. Sludge proportion was varied from 5%, 10%, 15% by weight. The parameters like compressive strength, density, water absorption, efflorescence, and ringing sound are studied as per BIS. Therefore, she concludes that the density of bricks, compressive strength, and ringing sound reduces because the sludge content in bricks will increase whereas the water absorption and efflorescence in bricks will increase.

3. Methodology

The methodology for this study mainly comprises sample collection, drying of sludge, characterization, Mix proportion, concrete preparation, block making, testing experiments to determine the feasibility of textile sludge in the production of blocks.

3.1 Sample Collection

Sludge from Textile common effluent treatment plant (Ichalkaranji, dist. Kolhapur) is used for the present experiment. Ichalkaranji textile CETP has a cluster of sixty-two processes and 122 sizing units, these units are concerned with activities like bleaching, dyeing, printing, and finishing of cotton, artificial and amalgamated fabrics. Textile industries involve processing steps like dyeing, printing, bleaching, finishing. So a variety of chemicals are used in this process. Because of these chemicals and a large amount of water, wastes are generated. Daily 15 to 20 tonnes of waste is generated here.

3.2. Sludge Sample Preparation of Raw Material

Sludge was dried in the Sun for 3 to 4 days at atmospheric temperature. This was done for removal of its moisture and also reduction in sludge size. After dryness, the gravel shape of sludge was found.

3.3. Physical & Chemical Characterization of Textile Sludge

The experimental tests were conducted of textile sludge to identify various physical and chemical characteristics of textile sludge and parameters are shown in table 1.

Table 1. Physical and Chemical Characterization

SR NO.	Parameters	Value	Unit
1	Color	Blackish	-
2	Appearance	Crystalline Solids	-
3	pH	7.74	-
4	BOD	11	Mg/lit
5	COD	361.6	Mg/lit
6	Moisture Content	76.55	%
7	Ash content	43	%
8	Volatile matter	44.67	%
	Chemical Composition Determination		
9	Cao	9.41	%
10	SiO_2	1.58	%
11	Al_2O_3	0.25	%
12	Fe_2O_3	7.74	%
13	MgO	0.35	%
14	SO_3	15.65	%
15	P_2O_5	0.97	%
16	K_2O	0.14	%
	Heavy Metal Content Determination		
17	As	0.68	ppm
18	Cd	2.28	ppm
19	Cu	335.70	ppm
20	Cr	833.45	ppm
21	Mn	249.69	ppm
22	Pb	66.65	ppm

3.4 Sludge Proportion

The proportions of cement, sludge and fly ash were calculated for the production of 30 paving blocks of each sample and shown in table 2 and figure 1.

Table 2. Proportion of Concrete materials

Replacement of Sludge Proportion (%)	Sludge (Kg)	Fly Ash (Kg)	Cement (Kg)
A 0%	0	0	5.640
B 10%	0.564	0.564	5.076
C 15%	0.846	0.846	4.794
D 20%	1.128	1.128	4.512
E 25%	1.410	1.410	4.320
F 30%	1.692	1.692	3.948
G 35%	1.974	1.974	3.666
H 40%	2.256	2.256	3.384
I 45%	2.538	2.538	3102
J 50%	2.820	2.820	2.820

Fig. 1 Bags of Cement, Sludge and Fly Ash of 10 Proportions

3.5 Concrete Material Specification

Textile Sludge

The textile ETP wet sludge was collected from CETP, Ichalkaranji, Kolhapur district, India. Textile ETP sludge contains calcium (CaO) & silica (Sio2). Textile ETP sludge behaves like cement attributable to silica and magnesium properties. This silica and magnesium improve the setting of the concrete.

Cement

Cement is mixed with fine aggregate to provide mortar for masonry construction or with sand and gravel combination to provide concrete. the foremost usually used cement for construction functions is standard Portland cement. 53 grade standard Portland cement is employed for the casting of paver blocks. (IS 12269). relative density is 3.00.

Fly Ash

Fly Ash is additionally knowing as pulverized Fuel Ash. Its typical properties were satisfying the wants of IS 3812:2003. it's renowned that fly ash is that the finely divided residue ensuing from the combustion of pulverized coal.

Fine Aggregate

According to IS:383, Natural sand is used for casting paver blocks. The specific gravity of sand passing through the 4.75mm sieve is 2.68.

Coarse Aggregate

According to IS: 383, Semi grit is additionally ideal for building and one amongst the building sands that building firms use, primarily as bedding for paving. the dimensions of semi grit that is employed for the paver block is 12mm aggregate. the particular gravity of coarse aggregate is found to be 2.77.

Water

The water which is used for paver blocks was clean and free from organic impurities. And Water which is used for mixing in concrete is suitable for curing.

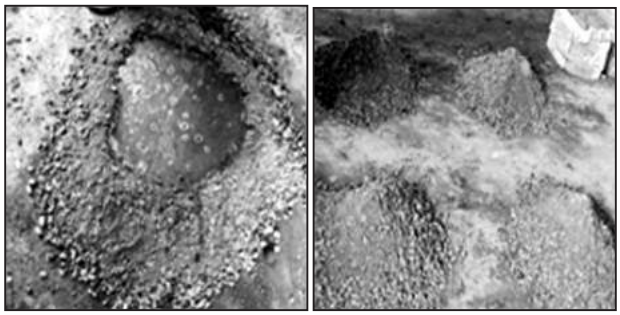
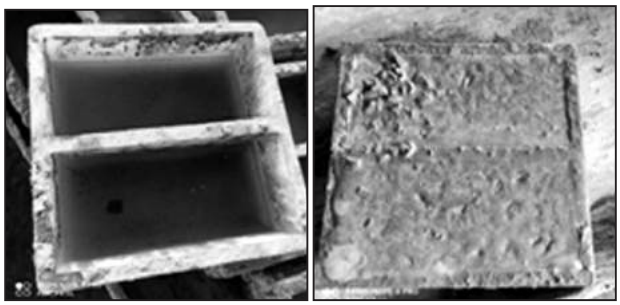


Fig. 2 Concrete Preparation

3.6 Production of Paving Blocks

The paver blocks as per the planned composition mixture of raw material were cast with facilitate of the automatic vibratory machine. The mixtures were placed within the mold in 2 layers and vibration was given to the mold for every layer.



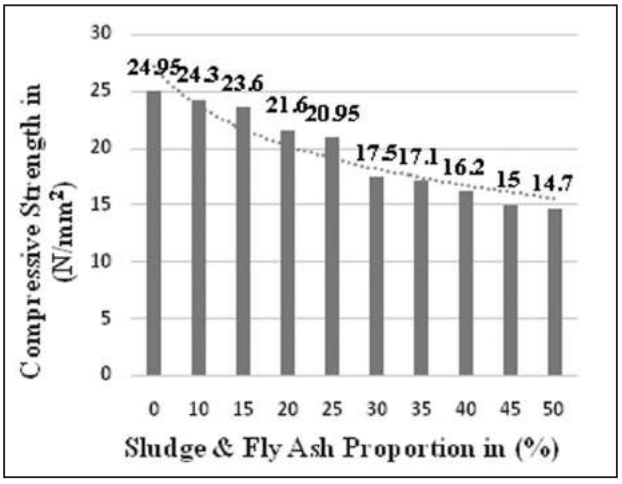
TEXTILE WASTE MANAGEMENT BY PRODUCING PAVER BLOCKS

Fig. 3 Rectangular Rubber Mould

4 Result and Discussion

This part presents the results of final paving block property in a tabular or graphical format.

4.1 Compressive Strength Test

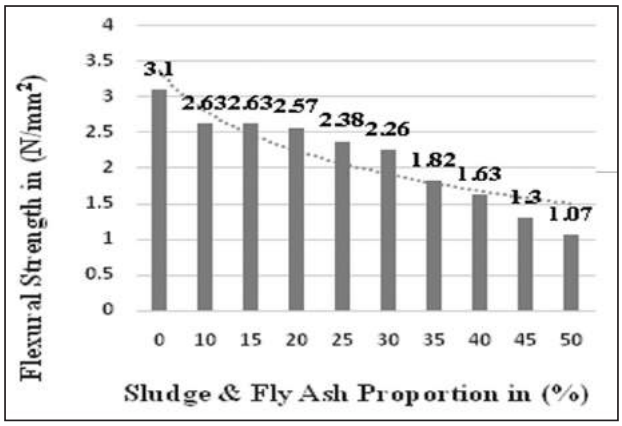


Graph 1 Graph of Compression Strength Test values of 28 days of Curing

Fig. 4 Compression Strength Test

By addition of fly ash in the mix proportion of all samples compressive strength increases with sludge proportion. For 25% E proportion shows 20.95 N/mm2 compressive strength.

4.2 Flexural Strength Test



Graph 2 Graph of Flexural Strength Test values of 28 days of Curing

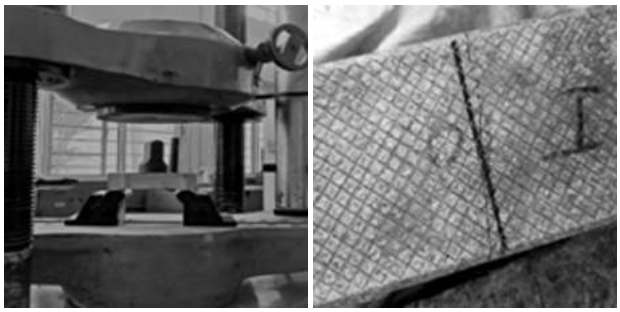
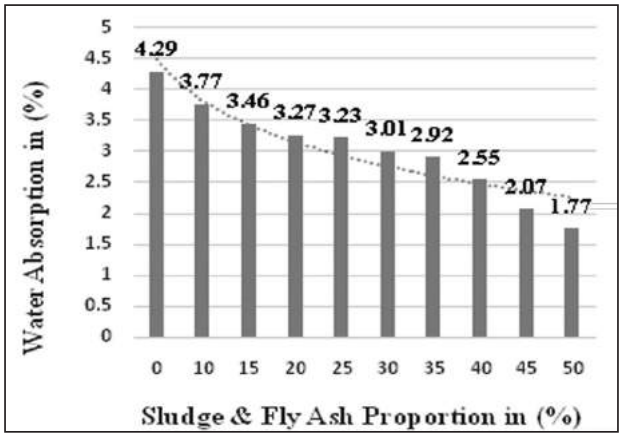


Fig. 5 Flexural Strength Test

The flexural strength of textile sludge paving block by addition of fly ash is 2.38 N/mm2 for 25% cement replacement sample.

4.3 Water Absorption Test



Graph 3 Graph of Water Absorption Test values of 28 days of Curing

Fig. 6 Water Absorption Test

According to IS 15658:2006, the water absorption should be restricted to 7%. Water absorption of all the samples are within permissible limit.

5 Conclusion

This study was carried out to establish baseline sludge characterization data for recycling and management of the sludge to produce a paving block. To do so, the Physico-chemical characteristics of textile sludge were determined. The chemical composition result obtained indicates that the potential of textile sludge as a partial replacement of cement in paving blocks. Consequently, a good compressive strength result can be achieved at minimum sludge proportion. Hence, the sludge proportion as much as 25% and less are effective to produce good paving blocks with a corresponding compressive strength minimum of 19.73 N/mm^2 for M20 grade The flexural strength and water absorption values of textile sludge paver blocks are within the permissible limit. additionally, the addition of fly ash in textile sludge paving block, compression, and flexural strength will increase. Therefore, textile sludge might be used as another raw material for the production of paver blocks however suggested with quite a little amount that is up to 25%.

AcknowledgementsAuthors are very much thankful to the Direcor, Prof. L.S. Admuthe and management of DKTE Society's TEI, Ichalkaranji for proving facilities to complete the research work.

Data Availability

For this research work textile sludge is collected from Textile CETP Ichalkaranji, dist. Kolhapur, India. Various physico-chemical tests were conducted on the sludge. After manufacturing of paving blocks, various tests were conducted on paving blocks as per IS 15658.

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Govt. may buy recycled materials to boost textile waste value chain

The Centre may make it mandatory for a certain amount of textile products in government procurement to come from recycled materials as part of an action plan to boost textile waste value chain and make India a global hub for circular textiles.

It plans to introduce Indian standards and certification on recycling clusters, officials said. "We will look at government interventions based on short medium and longterm in targets and examine the scope of textile recycle products being made mandatory in public procurement," one of them told recently.

The textiles ministry plans to asses the current state of textile waste and associated industry for crafting policies to make India a global hub for sourcing sustainable and circular textiles and garments, officials said.

The assessment will include pre and post consumer waste generation and source identification of waste. It will analyse the current practices adopted by the industry to meet international norms relating to circularity and would rope in a consultant for the analysis. The plan is to build a comprehensive roadmap to scale up technologies to boost recycling, said the official cited above said.

The ministry is looking to establish environmental impacts such as emissions in terms of carbon dioxide, water footprint and energy consumption, the person said. ■

EXPLORING THE COMPOSITION, STRUCTURE, AND MECHANICAL BEHAVIOUR OF GLASS FIBRE REINFORCED POLYMER (GFRP) COMPOSITES

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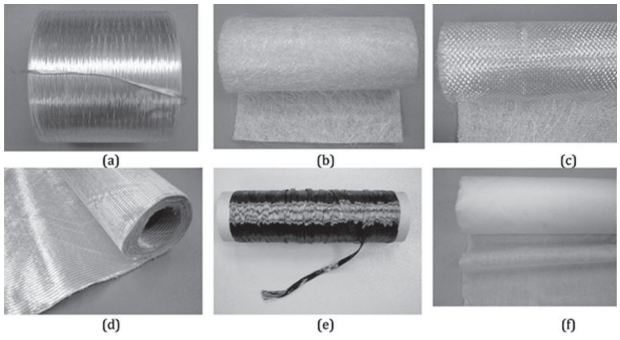
Abstract

The composition, structure, mechanical behaviour, and impact of fiber-matrix and resin-matrix interactions on the properties of glass fibre reinforced polymer (GFRP) composites are all covered in this paper. The paper also discusses how the fibre and matrix strengths affect the mechanical properties of GFRP composites. There is also discussion of research into the mechanical behaviour of GFRP composites and the impact of fibre matrix bonding. The article emphasises the need for additional research to develop more advanced and reliable GFRP composites for specific applications, as well as the importance of these composites in a variety of industries.The research in this specific area is relatively limited, but the potential for interior applications of composites reinforced with glass fabric is promising

1. Introduction

Glass Fibre Reinforced Polymer (GFRP) composite materials are made by joining two distinct fibre types (either all-natural or all-synthetic) with a single or dual polymer matrix [1]. These types of composites have long been used in the engineering, building, and transportation sectors [1]. The most popular method of plastic reinforcement is glass fibre, which is created by extruding glass filaments from textile glass fibres at temperatures around 1300 degrees Celsius [2]. All three orthogonal axes are traversed by fibres in GFRP composites [2, 3]. However, when GFRP composites are not aligned through their thickness, processing and cost issues may occur [2]. GFRP composites are nearly 0.52 mm thick and have a laminated structure [3][2]. The traditional processing techniques used to create GFRP composites involve cutting, stacking, and consolidating into a preformed component [2]. In GFRP composites with a third dimension, both mechanical qualities and impact resistance are improved [2]. These composites have fibres extending along each of the three major axes. The numbers in a GFRP composite's name correspond to the percentages of the materials that were used, and the letters in the name stand in for the actual materials [1]. Fly ash, calcium carbonate, and nano-silica are a few of the materials that can be used to make GFRP composites with a variety of possible compositions [1]. In addition to woven E-glass fabric and epoxy resin, kenaf and coconut fibres, fly ash, nano-silica, and calcium carbonate (CaCO3) can all be used to create hybrid GFRP composites [1]. In terms of functionality and cost, GFRP composites offer many benefits like increased durability, reduced weight, and increased strength. They exhibit superior stiffness/weight and strength/weight ratios, as well as superior fatigue and corrosion resistances [3]. GFRP is infinitely recyclable and can improve product design. [4]. Utilizing UD-tape, thermoplastic matrix reinforced with glass fibres (GFRP) is produced [4]. In GFRP, the benefits of both metal and plastic are combined. Its resistance to corrosion and chemicals contributes to its durability and low cost of ownership [4]. With GFRP, a component's weight can be reduced without compromising its stiffness or strength [4]. GFRP composites lack mechanical stability and water resistance, which precludes their use in marine or flood environments [1]. The identification of a hybrid GFRP composite with different reinforcing materials and fillers would be beneficial for future developments with a more compatible, improved, and dependable water-resistant composite, in particular for structural applications in flood-prone areas [1]. Here are some of the samples of fibres which are reinforced with Composites.



Different fibre system (adapted from Bank [22]): (a) glass roving on a spool; (b) E-glass continuous filament mat (CFM) or continuous strand mat (CSM); (c) woven glass fabric; (d) stitched glass fabric; (e)carbon fibre tows; (f) polyester veil.

2. Building GFRP Composites and their Chemical Composition

Composites made of glass fibre-reinforced plastic (GFRP) are incredibly strong and resilient

to heat, chemicals, abrasion, and impact. In GFRP composites, the matrix is typically made of a thermoset material like epoxy resin, polydicyclopentadiene, or polyimide [6]. GFRP composites can be made from a variety of materials, including glass, carbon, and aramid [6]. In short-fibre-reinforced polymers (SFRP), carbon fibres (CFs) are occasionally used in place of glass fibres (GFs) to increase stiffness [5]. By increasing the proportion of carbon fibres in composites, it is possible to increase Young's modulus of solids and foams [5]. The purpose of GFRP composite fabrication is to create a low-density, lightweight, and rigid component [6]. In order to create GFRP composites, matrix material and fibre preforms are used. After being woven, knit, braided, or stitched, the fibres used to make preforms are strengthened by being embedded in the matrix [5]. FRP composites are made by combining at least two components, or "phases," usually one of which is a polymer. Due to their high strength-to-weight ratios, GFRP composites are widely used in a variety of industries, including building and construction, transportation, aviation, and marine [6].

3. Variations in GFRP composites' structure and mechanical behaviour

Because the structure of GFRP composites has a significant impact on their mechanical behaviour, they can be applied in a variety of industrial settings. Composite materials made of glass fibres and a polymer matrix are known as glass fibre-reinforced polymer composites (GFRP) [7]. The dimensions, shapes, orientations, and distributions of the fibres have an impact on the viscoelastic behaviour of the matrix and the mechanical characteristics of the composite [8]. To improve a composite's strength and stiffness, the fibres can be strategically placed [7]. The proper selection of fibre types for the arrangement layer must be thoroughly established in order to support the mechanical behaviour of the GFRP composite [7]. The volume fraction and arrangement of the fibres in each layer can have an impact on how mechanically sound GFRP composites are [7]. The mechanical behaviour is impacted by the hybrid GFRP arrangement and is modifiable [7]. Different layers of fibre types and arrangements can be found in GFRP composites. Studies have shown that the configuration of chopped-woven-3D-woven-chopped produces the strongest results, whereas the configuration of woven-chopped-woven-chopped-woven produces the stiffest and least absorbent results [7]. When compared to other types of fibre, woven fibre has better mechanical and physical characteristics [7], and a volume fraction of 0.5 results in the highest strength and stiffness. In hybrid GFRP, polyester and a hardener are combined with 3D glass fibres, woven glass fibres, and chopped glass fibres [7]. The hybrid GFRP fibre arrangements and types of glass fibre used in each layer all affect the mechanical behaviour of the material [7]. In GFRP composites, layers of resin and fibres are alternated; the resin is pressed into the fibres to enhance interlayer interaction [8]. The GFRP-RT500 composite has a higher rupture strength under tensile loading than under compression loading [8], and the 50% fibre volume fraction is the same for both kinds of GFRP composites. The GFRP-MAT450 chopped strand mat composite has three distinct layers and randomly oriented fibres. The structure of GFRP composites, which can be altered for different uses, has an impact on how they behave mechanically.

4. Studies of the properties of glass fibre-reinforced polymer (GFRP) composites in relation to the impact of fibre-matrix interaction have been conducted.

The interphase between the fibres and matrix has a significant impact on the properties of Glass Fibre Reinforced Polymer (GFRP) composites. According to data, fibre-matrix debonding may happen as interphase thickness increases over time as a result of the GFRP's behaviour in terms of stress relaxation under flexural conditions [9]. The largest radius at which the presence of the fibre modifies a specific matrix property is equal to the thickness of the interphase [9]. The hybrid viscoelastic interphase model (HVIM) was used to determine the interphase modulus and thickness during the stress relaxation test [9]. As the radius shrinks, the interphase modulus becomes smaller than the bulk matrix modulus [9]. According to the outcomes of microhardness tests conducted using a Shimadzu microhardness tester from the HMV-2 series [10], hybridization enhances material balance, increases interlaminar shear strength, and ensures material affordability. Tensile and flexural tests on the material were performed in accordance with ASTM D638 and D790, respectively. Unidirectional flax/glass-fiber reinforced hybrid composites were found to have better tensile properties when the volume proportion of glass fibres was increased [10]. Hessian fabric and glass fibre were combined to successfully create a hybrid composite using

the hand layup method [10]. In comparison to other variations, the sample with 20% glass fibre was found to have the composite hybrid's best mechanical properties [10]. Additionally, sisal was combined with different volume percentages of glass fibre (i.e., 0, 5, 10, 15, and 20%) to study the mechanical properties of composites made with sisal fibre as the reinforcement, AY-105 as the matrix, and HY-951 as the hardener [10].

5. Comparing Organic, Polyester, and Epoxy Resin Matrices in Glass-Fiber Reinforced Polymer Composites

The study's main goal was to compare and contrast the structure and makeup of various resins used in GFRP composites. In order to create GFRP composites, the effectiveness of using organic, polyester, and epoxy resin matrices was assessed [11]. To increase inter-laminar shear strength [12], a crucial characteristic in composite design, short GFs that have undergone graphene transformation are added between the glass fibre and epoxy matrix. The addition of nano and micro fillers can improve the dynamic mechanical properties, such as tensile strength, of GF-reinforced epoxy composites [12]. Exemplifies the broad range of GFs' potential applications. For instance, GF-reinforced epoxy composites are frequently used in high-voltage insulation applications due to their effectiveness at high temperatures for extended periods of time [12]. An added benefit of using an eco-friendly polymer composite is that it can make auto parts lighter and stronger. Epoxy resin is the matrix, with glass and palm fibres as reinforcement [12]. The results of the study can be very helpful to manufacturers who are interested in producing high-performance GFRP composites for a variety of applications.

6. Examining the Effects of Fibre Strength and Modulus on the Mechanical Properties of GFRP Composites.

Here, GFRP composites made of glass fibres were investigated to ascertain how the strength and modulus of the fibres affect the composites' mechanical characteristics [13]. Both GFRP-RT500 and GFRP-MAT450 GFRP composites were used in the study. A polyester resin of type 440-M888 POLYLITE and a volume fraction of 50% fibre were the main ingredients in both types of samples [13]. While the GFRP-RT500 had four layers of plain weave fabric with a 0/90/0/90 orientation, the GFRP-MAT450, a composite made of chopped strands, had three alternate layers [13]. It was discovered that Young's modulus values [1] for GFRP-RT500 samples were higher than those for GFRP-MAT450. Results from tensile tests had rupture strengths that were 38% greater and elasticity moduli that were 7.29 times higher than those from compression tests [13]. In GFRP-RT500 samples, there is a significant correlation between resin tensile elongation and the mechanical characteristics of the glass fibre laminate [13]. The GFRP-RT500 composite's broken fibres increased in number as the load was applied, shifting the responsibility to the remaining intact fibres. Because the matrix surrounding the intact fibres in the GFRP-RT500 composite was loaded beyond its resistance limit, the resin layer gave way [13]. The composite fails and ruptures when the bond between the fibres and matrix is severed [13]. The study also showed that the stiffness, strength, and bonding behaviour of GFRP materials are affected by the polymer matrix's glass transition temperature. Mechanical properties dramatically decrease at 100 °C. At temperatures above 100 degrees Celsius, the fiber/epoxy matrix interface of GFRP composites suffers significant damage [14]. The strength and modulus of the fibres were found to have an impact on the mechanical behaviour of GFRP composites [13]. Future studies that simulate composite structures like wind turbine blades, boats, nacelles, and automobile bodies can make use of the research that has been presented and the results that have been obtained [13].

7. Investigating the Function of Fibre-Matrix Bonding in GFRP Composites Stress Transmission.

Fibre-matrix bonding has a significant impact on the mechanical behaviour of glass fibre-reinforced polymer (GFRP) composites. The arrangement of the laminates has an impact on the composite hybrid's strength and damage [15]. Kumre et al. investigated the mechanical properties of composites made of sisal fibres, AY-105 matrix, and HY-951 hardener [15]. The 20% glass fibre sample outperformed the other variants in terms of mechanical performance [15]. Sisal was mixed with glass fibre at different volume percentages (5%, 10%, 15%, and 20%) [15]. The samples underwent tests for tensile strength, three-point bending, shear, and short-beam steepness [15]. Almeida et al. compared the mechanical characteristics of a natural curious-fiber-reinforced composite to those of GFRP with interlaminated hybrid composites

made of curaua and glass fibres. GFRP composites were discovered to have better mechanical properties than curaua-fiber-reinforced composite and hybrid composites [15]. Nevertheless, due to insufficient load transfer from the matrix to the fibres, the mechanical properties of GFRP laminates may be diminished [16]. At temperatures above 100 °C, the epoxy matrix softens, significantly reducing the GFRP laminates' compressive strength, tensile strength, and stiffness properties [16]. Additionally, under certain circumstances, GFRP laminates can experience a long splitting failure mode [16]. Additionally, the mechanical characteristics of GFRP laminates, which in turn affect stress transmission, can be influenced by the bonding between the fibres and matrix [15, 16]. Therefore, it is critical to investigate how fibre-matrix bonding affects the mechanical behaviour of GFRP composites for stress transmission.

8. The physical properties of woven mats and chopped fibres in glass-fibre-reinforced polymer (GFRP) composites.

This investigation used glass fibre (GF) reinforcement elements with fibre lengths of 6 mm and 12 mm to fabricate GFRP composite materials. These components were mixed with polyester matrix materials at weight ratios of 20%, 25%, and 30% to create GFRP composite materials [17]. The GFRP composites were created using cast polyester from the Poliber brand and chopped glass fibres of various lengths [17]. The tensile strength of the GFRP composites was tested using various glass fibre lengths [17]. A comparison of the two types of composites found that chopped strand mat composites performed better than woven roving E-glass fibre composites in a number of mechanical properties [18]. Using chopped-strand E-glass fibres can improve the performance and strength of composites [18]. The use of fibres similar to those in this material increases ductility and serves as a crack arrestor [18]. The addition of woven mats and chopped fibres improves the shear and flexural performance of reinforced concrete beams as well as other properties of GFRP composites [18]. In high-velocity impact tests, chopped strand mat composites perform better in damage extension [18]. The Taguchi standard orthogonal array method [18] was used to conduct turning tests, which investigated the relationship between cutting force and surface roughness as a function of changing cutting parameters.

9. Composites made of glass fibre reinforced polymer (GFRP) and the impact of matrix reinforcements on mechanical performance.

The mechanical characteristics of Glass Fibre Reinforced Polymer (GFRP) composites are significantly influenced by the fibre configuration in matrix reinforcements [19]. In order to assess the mechanical performance of GFRP composites and natural curaua-fiber-reinforced composite, researchers tested samples with different fibre configurations under tension, under three-point bending, under shear, and under short beam steepness. The study examined a number of glass fibre and sisal fibre blends, each with a unique volume percentage. Interlaminar hybrid composites with varying concentrations of curaua and glass fibres were also assessed [19]. The top and bottom of the sample had GFRP layers, and the natural fibre was embedded in the middle layers. The sample containing 20% glass fibre was found to have better mechanical characteristics than the other variants [19]. Bending tests revealed that the lamina arrangement had an impact on the composite hybrid's strength and damage. Studies comparing hybrid composites with various stacking sequences, however, did not detect any appreciable variations in mechanical properties [19]. Additionally, the hybrid composite was created successfully using the hand layup technique, which combines glass fibre and hessian fabric. The tensile properties of unidirectional flax/glass fibre reinforced hybrid composites improved as the glass fibre volume fraction rose. Comparing flax fibre composite to glass fibre reinforced plastic, it was weaker and had less elongation at break (GFRP). Hybridization increases interlaminar shear strength, improves material balance, and reduces costs [19]. Microhardness testing was carried out using a Shimadzu HMV-2 series microhardness tester, and tensile and flexural tests were carried out in accordance with ASTM standards.

10. Examining the Advantages of Using Fillers to Enhance the Properties of GFRP Composites.

Fillers are frequently used to enhance the mechanical, thermal, and fire resistance properties of GFRP composites. The addition of fillers can significantly improve the physical, chemical, and mechanical characteristics of GFRP composites [20]. Here, the effects of calcium carbonate, alumina trihydrate, and an ATH/CC mixture on the material properties of glass fibre reinforced plastic

(GFRP) composites are examined [20]. The density, hardness, flexural strength, elastic modulus, and toughness of GFRP composites were all found to be improved by fillers [20]. The top three examples all contain filler that is 30 PHR or higher. CC30 comes first, followed by CA15, and then AT30 [20]. With the addition of fillers, GFRP composites' water absorption and burning rate in a horizontal position are decreased [20]. The technical and financial characteristics of the constituent materials can help GFRP gutter manufacturers make educated decisions [20]. The samples that were used in the tests were created in accordance with ASTM guidelines. Burning, flexural, and Izod impact Standard Test Methods (ASTM) D 635, D 790, and D 5941, respectively [21]. The addition of fillers like ATH, CC, and a combination of ATH and CC improves the flexural strength and elastic modulus of GFRP composite samples [20]. But if the fillers aggregate and form voids, the material's resistance to deformation and strain may be reduced. This can be avoided by adding ATH, CC, or a combination of the two to the resin to create a homogeneous matrix [20]. The properties of GFRP composites are enhanced by the addition of fillers, and they have many advantages over conventional materials, including being lightweight, easy to shape, corrosion-resistant, having a short production cycle, lasting for a long time, and having a high strength-to-weight ratio [21].

11. Conclusions

GFRP composites are used in a wide range of engineering applications, including those in the aerospace, automotive, and construction industries, due to their strength, lightweight attributes, and durability. Glass fibre-reinforced plastic (GFRP) composites are constructed from a thermoset resin, such as epoxy or polyester, and a polymer matrix that has been reinforced with glass fibres. The structure and placement of the fibres in GFRP composites greatly influence their mechanical properties, such as strength and stiffness. By experimenting with various fibre types, orientations, and layer configurations, the composite's properties can be changed. The interaction between the fibres and the matrix, or the interphase, greatly affects the characteristics of GFRP composites. The thickness and modulus of the interphase have an impact on the overall performance of the composite as well as the debonding behaviour. The choice of matrix material, which can be an organic, polyester, or epoxy resin, can have an impact on the mechanical properties of GFRP composites. To further enhance the properties of composites, nano- and micro-fillers can be used. The strength and modulus of the fibres used to create GFRP composites have an impact on their mechanical behaviour. Higher strength and modulus fibres can be advantageous for stiffness, strength, and load-bearing capacity. Stress transmission in GFRP composites heavily depends on how well the fibres and matrix are bonded together. While weak bonding can compromise the mechanical properties of composites, strong bonding enhances their overall performance. The mechanical behaviour of GFRP composites is largely determined by the fibre-matrix interaction, fibre properties, matrix choice, and composite structure. Designers and manufacturers must account for these from the beginning for the best performance in a variety of situations.

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Niti looks into tax anomalies in Textile Sector

Government's think-tank Niti Aayog is looking into tax anomalies in the textile sector.

It had in July convened a meeting of sector-related industry bodies to understand the challenges being faced by the sector.

"Niti Aayog has sought views of the textile industry on tax-related matters that are impeding the growth of the sector," a senior government official said, adding that the Aayog will firm up its view and make suitable recommendations to the finance ministry for consideration.

Some of the issues raised by the industry at the consultation included import duty on cotton and textile machinery and the inverted duty structure in man-made fibre textile value chain.

The industry sought removal of 11% import duty on cotton as a steep rise in cotton prices has eroded the competitiveness.

"Issues related to increasing customs duty on man-made yarn to 10% from the existing 5% to check rising imports along with higher imports of apparel from Bangladesh and Sri Lanka were discussed," said another official.

Exempting job works in the MSME sector from GST, and reducing GST on airfares were the other issues. The industry said higher GST is making airfare uncompetitive.

"This needs to be corrected amid demand slowdown in our major markets and demand is not expected to pick-up before September," said an industry representative. ■

BILAYER KNITTED FABRIC : AN OVERVIEW OF STRUCTURE, TYPES, MANUFACTURING TECHNIQUES AND APPLICATION

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Abstract

Bilayer knitted fabrics are an important class of textile materials that are used in a wide range of applications such as clothing, medical textiles, and sports textiles. These fabrics are made by knitting two layers of fabric together, with each layer having different properties, resulting in a fabric with enhanced functionality. This paper provides a detailed overview of bilayer knitted fabrics, including their structure, types, manufacturing process, and applications. It also discusses the various factors that affect the properties of bilayer knitted fabrics and the recent developments in this field.In sportswear, bi-layer fabrics can provide better moisture management and breathability, allowing athletes to stay cool and dry during intense physical activity. In medical textiles, bi-layer fabrics can be used to create compression garments that provide support and aid in the healing process. In technical textiles, bi-layer fabrics can be used to create durable and weather-resistant fabrics that are suitable for outdoor applications.

Keyword : Bi-Layer knitted fabric, Sports, Winter wear, Moisture management.

1. Introduction

In 21 century, clothing is an important issue for general consumers, active athletes and for those who practice sports just for fitness in their leisure time. Sports intimate apparels are worn next to skin, which are key aspect to physiological comfort of sports person and help to increase their performance. The sports fabrics are generally ultra-breathable and have high heat and moisture management properties, light weight, fast drying properties and feature elastic properties. These fabrics also have superior strength and durability. The latest sports textile material has much more functions for fulfilling specific needs in different sports activities like in winter wear, summer sports, Outdoor and Indoor games, Cricket, Athletics and Other sports etc. People are paying more attention to sport activities and the market of sportswear continues to expand and those who are engaged to this field must therefore feel encouraged to produce an adequate response to these increasing demand's expectations. Consumers seem to be prepared to spend considerable amount of money on such products, which makes market attractive to producers. In sports, previously traditional material apparel textile was used which make player face many problems such as Sweating- which makes the fabric stick to body, feeling hot during run, Improper stretch ability, Extra weight of the fabric etc. Therefore technology has developed to overcome above shortcomings and for that research activity took place. The Economical way of fetching all the essential properties in sportswear can be done through selection of right raw material and fabric structure with right structural parameters. Bi-layer fabric helps to provide the good solution for all the demands from the market. This fabric is a type of textile structure that consists of two different layers of fabric that are interconnected by a series of loops or stitches. These fabrics are unique because they offer a combination of different properties that cannot be found in single-layer fabrics. The structure of bi-layer knitted fabrics is characterized by two distinct layers that are interconnected by a series of loops or stitches. Bi-layer fabric has wide range of applications in the sectors like medical textile, smart textile, protective textile, etc.

2. What is Bi-Layer fabric?

As the name suggests, it is a type of fabric that is made up of two layers of knitted fabric. The two layers are typically joined together by interlocking loops or stitches, creating a single, integrated fabric structure. The two layers can be identical or different in terms of their composition, thickness, and texture [1-2]. The knitting process for bi-layer fabrics can be done in a variety of ways, including circular knitting, flat knitting, and warp knitting. The choice of knitting method depends on the desired properties and characteristics of the final fabric. Bi-layer knitted fabrics can also be designed with different patterns and textures, which can further enhance their performance and aesthetic appeal. Bi-layer knitted fabrics can be made using a variety of fibres, including natural fibres like cotton and wool, as well as synthetic fibres like polyester and nylon. One of the key benefits of bi-layer knitted fabrics is their ability to provide a combination of different properties and characteristics, depending on the materials used in each layer. For example, a bi-layer fabric might have one layer that is designed to wick moisture away from the skin, while the other layer is designed to insulate and provide warmth [3]. They provide excellent breathability, moisture management, and

insulation properties. Additionally, bi-layer knitted fabrics are known for their elasticity, durability, and comfort, making them ideal for use in activewear and other performance apparel[4-5]. This makes bi-layer knitted fabrics an ideal choice for a wide range of applications, including sportswear, outdoor apparel, medical textiles, and more.

3. Structure of Bi-layer Knitted Fabric:

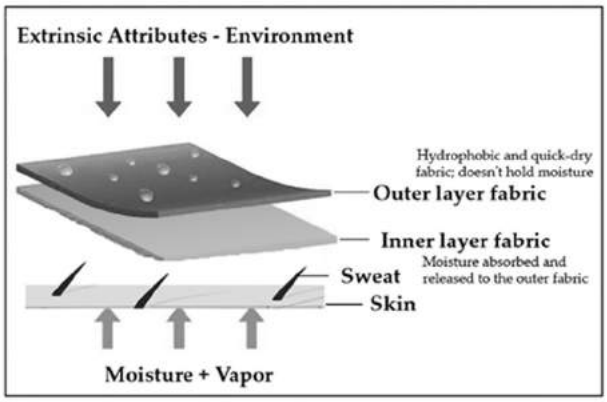

Figure 3.1: Structure of Bi-Layer Fabric

As shown in the above fig.3.1, bilayer knitted fabrics are made up of two layers of fabric that are knitted together to form a single fabric. The two layers can be identical or different in terms of their structure, yarns, or fibres. The structure of the fabric can be classified into two types: the face-to-face structure and the back-to-back structure. In the face-to-face structure, the two layers of fabric are knitted together with their face sides facing each other. This means that the two outer surfaces of the fabric will be identical. The inner surface of the fabric will be formed by the back side of each layer of fabric [6]. This structure is commonly used in applications where a smooth and uniform appearance is desired on both sides of the fabric. In the back-to-back structure, the two layers of fabric are knitted together with their face sides facing opposite directions. This means that each outer surface of the fabric will be different from the other. The inner surface of the fabric will be formed by the back side of one layer and the face side of the other layer. This structure is commonly used in applications where different functionalities are desired on each side of the fabric.

The structure of the bilayer fabric can be adjusted by changing the knitting pattern or by using different types of stitches. The knitting patterns can be varied to create different textures or to control the stretch and compression properties of the fabric. Different types of stitches can be used to create different levels of thickness or to create decorative effects. The structure of the bilayer fabric can also be affected by the type of yarn or fibre used. The properties of the yarn or fibre, such as its thickness, elasticity, and strength, can affect the properties of the fabric. Different types of yarn or fibre can be used in each layer of the fabric to create a fabric with unique properties.

The structure of the bi-layer knitted fabric will depend on the specific knitting technique used, as well as the type of yarns and fibres used to create the fabric. However, in general, the structure of a bi-layer knitted fabric can be broken down into three main components: the face layer, the interlayer, and the back layer.

Face layer : This is the layer of the fabric that is visible when the fabric is worn or used. The face layer can be designed to have a range of different properties, depending on the desired function of the fabric. For example, the face layer might be made from a hydrophobic material to repel water, or it might be designed with a specific texture or pattern for aesthetic or functional purposes.

Interlayer : The interlayer is the layer that joins the two layers of fabric together. This layer is typically made from a different yarn or fibre than the face layer and the back layer, and it is responsible for holding the two layers of fabric together to create a single, integrated fabric structure. The interlayer can be made using a range of different techniques, including interlocking stitches or a layer of spacer yarns.

Back layer : The back layer is the layer of the fabric that is in contact with the wearer's skin or the surface it is placed on. This layer is often designed to be soft and comfortable, with properties that help to regulate temperature and moisture. Depending on the specific application, the back layer may be made from a different yarn or fibre than the face layer, or it may be made using the same yarn or fibre for consistency [7].

The specific structure of a bi-layer knitted fabric can vary depending on the type of fabric and the specific application.

4. Types of Bi-Layer Knitted Fabrics

There are several types of bi-layer knitted fabrics, each with its unique properties and uses. Here are some of the most common types of bi-layer knitted fabrics:

1. **Double Knit :** This type of bi-layer knitted fabric is made with two sets of needles on a knitting machine, creating two layers of interlocking stitches. Double knit fabric is usually thick and heavyweight, making it ideal for winter clothing and outerwear.
2. **Interlock Knit :** This is a type of bi-layer knitted fabric where two layers of fabric are interlocked together by alternating needles on a knitting machine. Interlock knit is usually lightweight and soft, making it ideal for use in underwear, pajamas, and other comfortable clothing.
3. **Pique Knit :** Pique knit is a bi-layer fabric made by using a type of interlock stitch. It has a textured surface that is created by using a series of wales and courses on the surface layer. Pique knit is often used for polo shirts, sweatshirts, and sportswear.
4. **Rib Knit :** Rib knit is a bi-layer knitted fabric that is created by using alternating wales of knit and purl stitches. The result is a fabric that has a series of raised vertical ribs on one side and alternating raised horizontal ribs on the other. Rib knit is often used for cuffs, collars, and hemming of clothing.
5. **French Terry :** This type of bi-layer knitted fabric is made with two layers of fabric, with one side being flat and the other having loops of yarn. French terry is often used for sweatshirts, hoodies, and loungewear.
6. **Fleece :** Fleece is a bi-layer knitted fabric that is usually made with polyester fibres. It has a soft and fuzzy surface on one side and a smooth surface on the other. Fleece is often used for jackets, sweatshirts, and blankets.
7. **Jacquard Knit :** Jacquard knit is a bi-layer knitted fabric that has a pattern or design woven into it. It is often used for sweaters, dresses, and other fashion items.

Bi-layer knitted fabrics come in a variety of types and styles, each with its unique properties and uses. Understanding the different types of bi-layer knitted fabrics can help to choose the right fabric for project [8].

5. Manufacturing of Bi-Layer Knitted Fabrics:

Manufacturing of bi-layer knitted fabric involves several steps. Here is a detailed overview of the process:

1. **Yarn Preparation:** The first step in manufacturing bi-layer knitted fabric is preparing the yarn. Yarn can be made from various fibres, such as cotton, wool, polyester, or a blend of fibres. The yarn is then wound onto cones or spools for use in the knitting machine.
2. **Knitting:** Once the yarn is prepared, it is loaded onto a knitting machine. Bi-layer knitted fabric is created using a special knitting technique that involves two sets of needles. The top and bottom layers of the fabric are knitted simultaneously, with the stitches interlocking to create a two-layer fabric.
3. **Finishing:** After the fabric is knitted, it undergoes several finishing processes to improve its appearance and properties. The fabric is usually washed and dried to remove any dirt or impurities. Then, it may be treated with chemicals to improve its strength, colour, or texture. The fabric may also be pressed or steamed to give it a smooth finish.
4. **Cutting and Sewing:** Once the bi-layer knitted fabric is finished, it is usually cut into the desired shape and size. The fabric can be cut using a variety of tools, such as scissors or rotary cutters. Then, the fabric is sewn together to create finished products such as clothing, upholstery, or automotive interiors.

Overall, manufacturing bi-layer knitted fabric involves a series of steps that require specialized equipment, expertise, and attention to detail. By carefully controlling each step of the process, manufacturers can create high-quality bi-layer knitted fabrics that meet the needs of various applications [9-10].

6. Factors affecting properties of Bi-Layer Knitted Fabric

There are several factors that can affect the properties of bi-layer knitted fabrics. These include:

Fibre type and yarn selection: The choice of fibres and yarns used to create the two layers of the bi-layer fabric can significantly affect its properties. Different fibres and yarns have different characteristics, such as elasticity, moisture absorption, and thermal properties. By selecting the appropriate fibres and yarns, it is possible to tailor the properties of the bi-layer fabric to meet specific performance requirements.

Knitting pattern and machine parameters: The knitting pattern used to create the bi-layer fabric can also impact its properties. For example, the interlocking loops can be adjusted to change the

elasticity and durability of the fabric. Additionally, machine parameters such as needle type and tension can also affect the properties of the fabric.

Layer thickness: The thickness of each layer in the bi-layer fabric can affect its thermal and mechanical properties. A thicker layer may provide better insulation, while a thinner layer may provide better breathability and moisture management.

Layer arrangement: The arrangement of the two layers can also affect the properties of the bi-layer fabric. For example, a fabric with a more tightly-knit layer on the exterior may provide better wind resistance, while a fabric with a more breathable layer on the interior may be more comfortable to wear [11].

Finishing treatments: Finishing treatments such as dyeing, printing, and coating can also affect the properties of the bi-layer fabric. For example, a coating may provide additional water resistance, while dyeing can impact the fabric's colourfastness.

By considering these factors, it is possible to create bi-layer knitted fabrics with a wide range of properties and performance characteristics.

7. Application of Bi-Layer Knitted Fabrics

Bilayer knitted fabrics have a wide range of applications in various fields due to their unique properties and structures. Some of the applications of bilayer knitted fabrics are:

Clothing: Bilayer knitted fabrics are used in clothing applications, such as base layers, thermal wear, and sportswear. The two layers of fabric can provide insulation and moisture-wicking properties, making them ideal for cold weather and high-intensity activities.

Medical textiles: Bilayer knitted fabrics are used in medical applications, such as wound dressings, compression garments, and prosthetics. The two layers of fabric can provide different levels of compression and support, making them useful for post-surgery recovery and rehabilitation.

Industrial textiles: Bilayer knitted fabrics are used in industrial applications, such as filtration and protective clothing. The two layers of fabric can provide different levels of barrier properties, making them ideal for protecting workers from chemicals, heat, and other hazards.

Automotive textiles: Bilayer knitted fabrics are used in automotive applications, such as seat covers and headliners. The two layers of fabric can provide different levels of durability and comfort, making them ideal for use in vehicles.

Home textiles: Bilayer knitted fabrics are used in home applications, such as bedding and upholstery. The two layers of fabric can provide different levels of softness and warmth, making them ideal for use in homes.

Sports equipment: Bilayer knitted fabrics are used in sports equipment, such as gloves and padding. The two layers of fabric can provide different levels of cushioning and support, making them ideal for use in sports equipment [12-15].

8. Conclusion

In summary, bilayer knitted fabrics have a diverse range of applications due to their unique properties and structures. They are used in clothing, medical textiles, industrial textiles, automotive textiles, home textiles, and sports equipment. The choice of application depends on the properties required from the fabric and the desired functionality.

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Core sector output climbs to 5-month high at 8.2% in June

Output of eight key infrastructure sectors — known as the core sector — expanded to a five-month high of 8.2 per cent in June. This is due to a high base effect and positive growth in seven of the eight sectors.

In June last year, the core sector had grown by 13.1 per cent. The print for May 2023 has undergone a significant revision to 5 per cent from 4.3 per cent estimated earlier.

Data released by the Ministry of Commerce and Industry recently showed that while growth in the output of fertiliser (3.4 per cent) and cement (9.4 per cent) slowed than the previous month, that of coal (9.8 per cent), refinery products (4.6 per cent), steel (21.9 per cent), and electricity (3.3 per cent) accelerated in June.

Though the contraction continued for the 13th consecutive month in the output of crude oil (–0.6 per cent), natural gas saw positive growth (3.6 per cent) for the first time in three months.

Madan Sabnavis, chief economist at Bank of Baroda, said the growth of the core sector had been impressive and broad-based, despite a high base effect, reflecting buoyancy in the infrastructure sector this year. "The growth in steel and cement reflects the government's push into infrastructure, especially roads. Cumulative growth in these two sectors (has been in) double digits in the three months of this financial year, even on a higher base as witnessed in 2022. Coal saw continued growth due to a recovery in electricity growth as well as the steel sector," he said.

"Fertiliser production growth has slowed due to the sharp base effect and is expected to remain lower in the coming months as farmers start sowing for the kharif season in June and July, after which demand slows down. Further, due to lower growth in exports, refinery products grew marginally, even though domestic demand has been steady," Sabnavis said.

The eight core industries account for 40.27 per cent of the weighting of items included in the Index of Industrial Production (IIP) and, thus, have a significant impact on the index.

Aditi Nayar, chief economist at ICRA Ratings, said due to a boost seen in mining and electricity from a dryer-than-normal June, the IIP growth was expected to remain between 4 and 6 per cent in June, in spite of the moderation in the annual performance of several available high frequency indicators.

However, Sabnavis expressed greater optimism, as he expected overall growth in IIP to remain between 5-6 per cent in June.

The positive news from the core sector comes on the back of the International Monetary Fund (IMF) raising the FY24 economic growth forecast for India by 20 basis points to 6.1 per cent on 25th July, citing the stronger-than-expected growth momentum in the March quarter of FY23. "Growth in India is projected at 6.1 per cent in 2023, a 0.2 percentage point upward revision compared with the April projection, reflecting momentum from stronger-than-expected growth in the fourth quarter of 2022 as a result of stronger domestic investment," said the IMF in an update to its 'World Economic Outlook' released in April. ■

Immense opportunities for apparel exports to Japan

Decline in Chinese garment exports to Japan provides an immense opportunity for the Indian apparel industry to boost shipments to the island nation, the Apparel Export Promotion Council (AEPC) said recently.

AEPC said a strong Indian garment industry with its unique offerings has a huge scope for Japanese trading companies to source from India. Speaking at the inauguration of the 12th edition of the India Tex Trends Fair in Tokyo, AEPC Chairman Naren Goenka said over 180 Indian exhibitors are participating in the fair.

"Apparel imports into Japan have witnessed a positive mark in the last three years, Japan's total import from the world, which was $28.49 billion in 2018, has now risen to $46.72 billion," he said, adding Japan is the fourth largest garment importer in the world after the US, Germany and France. Out of Japan's total garment import of $2.3 billion, India's share is just one per cent.

"China, which has been a dominant garment supplier to Japan, has witnessed a decline in the past five years giving significant advantage to India. The duty free access for Indian ready made garments, post Indo-Japan free trade agreement as against about 9 per cent for China and Turkey is a big advantage for us," Goenka said. ❐

Apparel exports see a slowdown in order from global brands

More than 20% of the apparel exporting units in Tiruppur and Noida have suspended manufacturing operations due to a fall in orders from international brands amid a global slowdown.

Many units, which are mostly medium and small enterprises, are also in trouble as they are not being able to service the loans that they have taken from banks. The shutdown will help them keep a check on operational costs.

Global brands have not placed any major orders for the Christmas season. Tiruppur exporters said. "We are now waiting for spring summer orders for next year which are placed in September : The global brands have a lot of inventory with them, which is why they are not keen to place fresh orders. Also, high energy costs in Europe and rate hikes are also keeping buyers away," said Raja Shanmugam, owner of knitwear firm Warsaw International and a former president of the Tiruppur Exporters Association.

The slowdown in the key markets of the US and European Union has hit knitwear export from the Tiruppur cluster ; Asia's largest textils export hub, which accounts for more than half of India's knitwear exports. There are 30,000 units, including ancillary plants, in the Tiruppur cluster. The Russia Ukraine war has impacted apparel exports from Tiruppur in fiscal 2023. Exports declined by 5.22% to $4.26 billion in FY 23 from $4.49 billion in FY 22. "It will be lesser in FY 24 compared to FY 23," Shanmugam said. In the Noida Apparel Export Cluster nearly 70% of the units have a month's order in hand. "Only the big units have good orders in hand, but the medium and smaller units are suffering from very less orders. Nearly 20% of the units have closed down temporarily.

However, we are expecting that order flow will regain within the next two to three months' time," said Lalit Thukral, president of the Noida Apparel Export Cluster : "We are hearing that inventory lying with the global brands has almost come to an end and they will start placing orders with us," he said.

The apparel exporting units in Tirupur and Noida are not considering any headcount cuts despite their low order position. "It will not be easy for us to find skilled workers when the order situation improves. Already we have seen a large exodus of migrant workers during Covid," Thukral added. ❐

Goods exports shrink 22% to 8-month low

Goods exports shrank 22% year-on-year in June to hit an eight month low of $32.97 billion, while imports declined by 17.5% to $53.1 billion, Commmerce Ministry data show.

June marked the seventh month in nine that India's merchandise exports slid, but the dip in outbound shipments was the sharpest in this period.

The goods trade deficit narrowed 8.8% from levels seen in June 2022 as well as May, to $20.13 billion. This was the second month in a row that the deficit exceeded $20 billion after a four month streak of smaller shortfalls. Economists are, however, not too worried about the scale of he deficit yet, relative to last year's higher gaps.

After a 6.7% rise in 2022-23 that lifted goods exports past a record $450 billion, outbound

shipments tanked 15.1% in the first quarter (Q1) of 2023-24, to a little more than $102 billion, while imports over the same period dropped 12.7% to $160.3 billion.

"The trade deficit in Q1 was lower at $57.6 billion versus $62.6 billion last year," said Bank of Baroda economist Aditi Gupta. "This trend is likely to continue this year, with exports facing increasing headwinds from a weak world economy, while lower commodity prices may provide some relief," added Mr. Gupta.

Commerce Secretary Sunil Barthwal emphasised that the fall in exports appeared steep partly due to the strong base from last June, when India recorded its highest monthly shipments of $42.3 billion.

The broader declining trend, he stressed, was driven by slower demand for Indian goods from large markets like the U.S. and Europe, where growth was slowing down and interest rate increase to curb inflation were further denting business levels.

'Inventories falling'

"There was also an inventory build-up last year to cope with supply chain disruptions. Now, export promotion councils are reporting those inventories are gradually winding down, and orders are starting to pick up again from July, and we hope that translates into good news for exporters," he said, stressing the government was doing whatever it could to spur trade growth.

Mr. Barthwal noted that the decline in goods imports was driven by lower commodity price as well as some cooling in domestic demand.

"In absolute terms, petroleum products accounted this June," noted Aditi Nayar, chief economist at ICRA. Just nine of India's top 30 major export as well as import items recorded positive growth.

"Non-oil, non-global imports fell by a sharp 14.5%, after rising 1.7% in May," Barclays analysts Rahul Bajoria, Shreya Sodhant and Amruta Chare wrote in a note. "Gold imports rose 82.4%, despite a fall in international prices. In a departure from the trend of the past few months, imports of industrial goods were in the red after relatively resilient growth earlier," they added, arguing the trade deficit was at a "manageable level". ❐

Textile exports contract again in June, small mills suspend output

Textile and apparel exports contracted 11.3% year-on-year (y-o-y) in June even as many textile mills in the South suspended production on account of tepid demand.

Export of cotton yarn, fabrics, made-ups and handloom products slid 1.21% y-o-y. Shipment of manmade products saw a 17.2% decline while export of jute products and carpets plunged 26.7% and 15.4%, respectively, according to data shared by the Confederation of Indian Textile Industry (CITI).

While textile exports in June very worth $1,624 million ($1,736 million in June 2022), apparel shipments stood at $1,248 million ($1,501 million).

Export of cotton products was expected to revive in two months as the rate of month-on-month decline in June for cotton textiles had narrowed to -1.21%, said Siddhartha Rajagopal, executive director of Cotton Textiles Export Promotion Council.

Meanwhile, smaller textile mills in Tamil Nadu have halted production on account of indifferent order flow.

Smaller companies were the worst affected in the Tiruppur cluster, said K.M. Subramanian, president of Tiruppur Exporters Association.

"Factors such as slowdown in the U.S. and EU and lack or cost competitiveness were affecting textile and clothing exports," said T. Rajkumar, chairman of CITI.

"Yarn that should be exported is coming into the domestic market. There is already an excess capacity in the country. These were among the factors affecting the textile industry," Mr. Rajkumar observed.

If a Free Trade Agreement (FTA) is signed with the U.K., there will be immediate relief for Indian textile and garment exports, said Ravi Sam, chairman of Southern India Mills' Association.

"We are expensive because of 9% to 11% duty in the U.K. market. If India gets duty-free access, there will be steep jump in orders for garment and made-up exporters from their existing customers. This will revive demand,"

An industry that worked for 3%-6% profit is currently incurring 5%-10% loss, industry association leaders said.

"All mills are suffering cash loss," Mr. Rajkumar said. "The crisis has turned acute in the last two months," he added.

The industry has sought the removal of 11% import duty on cotton, moratorium on repayment of principal amount and Emergency Credit Line Guarantee Scheme loans. ❐

EXPORT PROSPECTS AND MARKETS

India's organic cotton cultivation again figures in a global controversy

India's organic cotton cultivation yet again figures in a global controversy. This time, it is over the Organic Cotton Market Report 2022, released by the Textile Exchange, a non profit organisation that claims to drive positive action on climate change. In its 2022 report, the Textile Exchange estimated global organic cotton harvest at 3,42,265 tonnes produced from 6,21,691 hectares of certified organic land in 2020-21. Organic cotton makes up 1.4 per cent of the total cotton production and its production increased by 37 per cent from 2019-20. However, the Textile Exchange has said it has low confidence in the data from five countries —India, Kyrgyzstan, Tajikistan, Turkey and Uganda— who together accounted for 76 per cent of the certified organic total in 2020-21. Besides, it says it has a confidence of two out of three on the data from Turkey. Confronting the Textile Exchange, Terry Townsend, a textiles industry consultant and former executive director of the International Contton Advisory Council (ICAC), said on Linkedin that among the reasons to be sceptical (about the report) is that yields calculated from reported certified area and production are too high to be true. In his posting, Townsend, who is seeking withdrawal of the report, said. "almost by definition, yields in organic agriculture are lower than yields achieved by conventional farmers, and the organic cotton yields reported for 2020-21 in and of themselves raise suspicion of fraud." One reason for the Textile Exchange eyeing data from India with suspicion is that the Agricultural and Processed Food Products Export Development Authority (APEDA), India's nodal agency for organic farming, has penalised at least four certifying agencies for irregularities committed in the certification process.

Referring to India and the four other countries, Townsend said farmers, ginners and traders around the world are aware that it is possible to make fraudulent claims of organic cotton content without much risk." Afterall, no one is ever put in jail or fined for making a false claim of organic certification. None of the five countries for which the Textile Exchange admits having low confidence in the 2020-21 data have a system of permanent bale identification numbers," he said. Cotton bales, therefore, can be swapped in these countries and once bales arrive at a spinning mill, there is no way to trace back to the farm or gin of origin. In case of Turkey, which is the primary issue raised by Townsend, while Textile Exchange said organic cotton production increased three-fold, the country's Agriculture Ministry has said it dropped four-fold !

Eco Textile News reported that the Textile Exchange, responding to views expressed by Townsend, insisted its data were the best available and that they had been open about its reservations on some of the figures claimed. ❐

CAI projects cotton crop output to 311 lakh bales

Trade body Cotton Association of India (CAI) has raised the country's cotton output to 311.18 lakh bales (each of 170 kg) for the year 2022-23, Revision in the crop numbers came after the trade body convened a meeting of the cotton stakeholders from across the country to arrive at an "accurate cotton crop estimate". The meeting was held in Mumbai on July 10.

In its May estimate, CAI had projected cotton output at 298.65 lakh bales, lowest since 2008-09 (290 lakh bales). This was contradictory to the Committee on Cotton Production and Consumption's estimated of 343.47 lakh bales for 2022-23.

The crop estimate for the year 2021-22 has been lowered to 299,16 lakh bales. "The meeting discussed the State-wise pressing data provided by each state association and other input by stakeholders," a CAI statement said.

The meeting was attended by 55 members including CAI crop committee members, who stated that total arrivals for 2022-23 stood at 281.73 lakh bales including 171.73 lakh bales in the Central zone, 65.12 lakh bales in South zone and 38.95 lakh bales in the North zone. Total cotton availability for the year is estimated 315.98 lakh bales including 10 lakh bales of imports till June 30, 2023 besides the 24 lakh bales of opening stock. Total cotton consumption is estimated at 238 lakh bales, 13.50 lakh bales of exports till june 30, 2023.

Meanwhile, US Department of Agriculture has also raised India's cotton production to 331.18 lakh bales, It estimated higher global cotton production by "more than 1.7 million bales to 118 million as

larger crop is Brazil, India, and Australia more than offset slightly lower production in Argentina.

On the global trade outlook, it forecast to be "down slightly to 43.5 million bales, but over 6.0 million higher compared with the previous year, Higher exportable supplies in Brazil more than offset lower US, Australia, and India shipments.

Global ending stocks are up more than 1.7 million bales to 94.5 million — the highest expected level in four years and mostly owed to lower consumption. The US season average farm price for 2023/24 is forecast down 1 cent to 76 cents, the FAS note said, India's benchmark cotton Guj 29 mm variety was quoted at 55,600 per candy (each of 356kg processed cotton. ❐

Jute goods exports decline on global slump

A slowdown in global markets since the outbreak of the Russia-Ukraine was has taken the sheen off jute or the 'golden fibre' as it's often referred to as.

Jute, which is 100 per cent biodegradable and therefore environment-friendly, has been reaping the benefits of a global push for sustainable packaging material.

Foreign retailers—including UK supermarket Tesco and Japanese minimalist retailer MUJI—have been embracing it in their bid to move away from plastic, as have producers of coffee and cocoa across the world.

Environmental, social, and corporate government concerns have been giving other forms of jute goods a leg-up, too.

A CareEdge report in March mentioned that the overall export of Jute products has seen traction over 2015-16 through 2021-22, witnessing a compound average growth rate of 12 per cent. But the momentum appears to have hit a speed bump in 2022-23 (FY 23), with major economies tapering off buying.

Data sourced from the Indian Jute Mills Association (IJMA) shows that the value of jute goods exports has seen a decline after eight-odd years. It is compiled from the data from the Directorate General of Commercial Intelligence and Statistics (DGCI & S).

The drop in FY 23, however, came on the back of a nearly 37.8 per cent jump in exports in 2021-22 (FY 22).

Overall, these export of jute goods by value stood at ₹ 3,510.63 crores in FY 23, a drop of 13.11 per cent from ₹4.040.43 crores in the previous year. The sharpest decline is in floor covering at 23 per cent and yarn at 37 per cent. Shopping bags, which accounted for about 20 per cent of total exports in FY 22, saw a dip of 4 per cent. It's not as if all export items have witnessed a drop.

Aniket Dani, director-research, CRISIL Market Intelligence & Analytics, said nine jute commodities under bags and sacks maintained a growth of 7 per cent, notwithstanding over all exports being fraught. These nine commodities accounted for 53 per cent of total jute exports in FY23.

Six commodities under fabric had shown a high growth of 36 per cent over the last fiscal year. "However, this accounts for only 0.7 per cent of total jute exports," said Dani.

IJMA Chairman Raghavendra Gupta said there is a glut in jute goods.

"Global recession in Europe and American has taken a toll on export demand—whether it's hessian (also termed as burlap), shopping bags or jute yarn." We are expecting the trend to continue through the current year," he added.

Hemant Bangur, executive chairman, Gloster, said that exports were down due to reduction in demand on account of destocking.

"After the pandemic, things have normalised, leading to contraction in demand," he said.

The bigger problem, said Bangur, was a collapse in prices. "It's a double whammy for jute mills —we are exporting less in volume and value," he said.

Utkarsh Kanoria, executive director, Cheviot Company, said that its exports to Russia and Ukraine had stopped. "But the larger impact was due to Europe." he clarified.

Cheviot makes interim products for shopping bags.

"The segment has been badly hit and our exports are down by about 20 per cent since the war. Floor coverings have also seen a drop of 20-30 per cent as consumers are not spending on discretionary items like rugs and carpets," aid Kanoria.

"Last year, Europe was impacted by high energy price. Now, it's just a general slowdown and absence of demand", he added.

In the domestic market, private order have slumped, even though government buying is robust.

The Jute Packaging Material Act, 1987 mandates that 100 per cent of foodgrain and 20 per cent of sugar production are packed in jute bags. For this reason, the ₹10,000-12,000 crores industry is heavily dependent on government indents. ■

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Half Day Seminar on "INNOVATIONS @ ITMA MILAN 2023"

7th July 2023, Krantijyoti Savitribai Phule Sabhagruh, V.J.T.I., Mumbai

Jointly organized by The Textile Association (India), Mumbai Unit & Veermata Jijabai Technological Institute

The Textile Association (India), Mumbai Unit and Dept. of Textile Engineering, Veermata Jijabai Technological Institute (V.J.T.I.) jointly organized a Half Day Seminar on "INNOVATIONS @ ITMA MILAN 2023" on 7th July 2023 at Krantijyoti Savitribai Phule Sabhagruha, VJTI, Mumbai. The seminar was inaugurated by the Chief Guest Mr. Ketan B. Sanghvi, Hon. Treasurer, India ITME Society.

Mr. Rajiv Ranjan, President, TAI, Mumbai Unit in his welcome address welcomed the Chief Guest and Speakers. He also welcomed the press, media and delegates. He gave the brief about ITMA and different activities undertaken by The Textile Association

Mr. Rajiv Ranjan, President, TAI, Mumbai Unit during his welcome address

(India), Mumbai Unit for the benefit of textile community. He mentioned that ITMA 2023, the Olympics of latest developments in textile machinery and accessories, was a resounding success. The focus on advanced materials, AI, digitalization and automation, coupled with the focus on sustainability augured well for the industry. A revelation was the fifth largest presence of 181 exhibitors from India, out of a total of 1,709 exhibitors, and occupying 6% of total space, most of them MSMEs, led by a fearless breed of new generation entrepreneurs who believe in themselves and the India story.

Mr. Haresh B. Parekh, Convenor of the seminar while addressing said that ITMA is the biggest market place and one-stop sourcing platform for emerging trends and innovation solutions. The TAI, Mumbai Unit & VJTI thought it prudent to highlight on the innovative product displayed at the show for those who missed ITMA show and could not attend it. Dignitaries who attended ITMA 2023 held in Milan, Italy, had been invited to give the first hand information about the

Mr. H. B. Parekh, Convenor, TAI-Mumbai addressing the gathering

latest developments in international market. TAI Mumbai Unit had made all attempts to give the glimpse of ITMA Exhibition to the delegates. Mr. Parekh also showed the ITMA Impressions video of Mr. G. V. Aras, Trustee of TAI, Mumbai Unit and Strategic Advisor who visited the ITMA 2023 show.

Dr. Arvind L. Bhongade, Head, Dept. of Textile Engineering, V.J.T.I. briefed about various activities of V.J.T.I. In his address he

Dr. A. L. Bhongade, HoD, Dept. of Textile Engg., VJTI during his address

said that the name of the department is changed from Textile Manufactures Department to

Half Day Seminar on "INNOVATIONS @ ITMA MILAN 2023"

Department of Textile Engineering with effect from 1st June 2023. He also informed that the, department is likely to change the title of PG Program from M. Tech. (Textile Technology) to M. Tech. (Technical Textiles) to participate in the National Technical Textile Mission Program, Ministry of Textiles, Government of India. Institute is in process of revision of its undergraduate courses in compliance of NEP 2020 and its implementation from the coming academic semester. He appealed to all the Alumni, industry personals to share their ideas and views to design the academic curriculum for the Undergraduate students from the department in line with NEP 2020.

Mr. Ketan B. Sanghvi, Hon. Treasurer, India ITME Society while giving his inaugural address as a chief guest congratulated the TAI-Mumbai Unit and V.J.T.I., Department of Textile Engineering for organizing such

Mr. Ketan Sanghvi, Hon. Treasurer, India ITME Society giving his Inaugural Address as a Chief Guest of the event

unique event after ITMA-2023. He said that theme of ITMA 2023 was "Transforming the world of textiles". He also displayed the statistics of country – wise and segment wise participation. He said that the industry was going through a difficult phase with drop in order positions and a pessimistic short term outlook which was having a dampening effect on the machinery manufacturing industry. Digitalisation, automation, sustainability, circularity, artificial intelligence were the terms increasingly being heard from the global leaders and from the user industry. The Spinning industry was increasing its focus on processing recycled & regenerated fibres, increasing use of AI and smart processing. Mr. Sanghvi also gave information about India ITME society's promotional activities.

Mr. N. D. Mhatre, Director General (Tech.), Indian Textile Accessories & Machinery Manufacturers Association (ITAMMA) in his presentation briefed about the key

Mr. N. D. Mhatre, Director General (Tech.), ITAMMA during his presentation

trends observed during ITMA 23 along with the statistical data. He talked about Sustainability, Digitalization, Circularity, Smart factory, Industry 4.0 / 5.0, He stated that Transformation starts with Innovation' – "Start-up Valley", Transforming the World of Textiles through Sustainable Innovations & Digital Advancements", Human-Machine collaboration developed to establish a symbiotic relationship and Social & environmental Sustainability was in focus at ITMA to reduce waste, energy consumption & environment impact while ensuring fair & ethical treatment of workers. He also gave the details about the various machines displayed at the show with their strength and capacity.

Mr. Navin P. Agrawal, Vice President, Textile Engg. - Fabric Forming, A.T.E. Enterprises Pvt. Ltd. discussed about the advanced materials, automation and digital future, innovative technologies, and Sustainability and circularity. He also discussed about the Impact of Digitalisation and Automation

on Sustainability, Textile Chemicals and a Circular World, Textile Recycling for a Circular Economy and transition towards a Circular Textile Industry. He covered the developments

Mr. Navin P. Agrawal, Vice President, Textile Engg.-Fabric Forming, A.T.E. Enterprises Pvt. Ltd. during his presentation

in weaving & knit segment with details information about the various machines of SMIT, Picanol, ITEMA, Tsudakoma, Toyota, Staubli, Groz-Beckert, Karl Mayer, Mayer & CIE, Santoni, Pailung, etc.

Dr. Ashok Athalye, Professor - Textile Chemistry, ICT, Mumbai in his presentation highlighted the key points of Take Away from ITMA 2023. He talked on Farm to Fashion

Dr. Ashok Athalye, Professor-Textile Chemistry, ICT, Mumbai during his presentation

– Value Chain. He showed the complexity in textile processing and said that the developments on display at ITMA would help in reduction in Cycle time and reduction in consumption of water, energy, dyes, chemicals and thus effluent load. These factors would result increase in profits and decrease in environmental impact.

Mr. R. R. Patil, Vice Chairman, TAI, Mumbai Unit presenting Vote of Thanks

Mr. R. R. Patil, Vice Chairman, TAI, Mumbai Unit proposed the Vote of Thanks. The seminar was very successful and was attended by around 125 participants including students.

Delegates

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35 companies from Quebec and Canada gain huge success with major investment in the Technical Textile and Garment Industries at ITMA 2023

A proud delegation of 35 companies and organizations from Quebec and Canada, bringing together over 100 executives from the technical textile and garment industries, attended ITMA 2023, the world's biggest trade show in the area of manufacturing innovation and technology, from June 8 to 14, 2023, in Milan, Italy.

Organized by TechniTextile Québec, CTT Group, the mmode Cluster, Vestechpro and the Comitésectoriel de main-d'œuvre de l'industrie textile du Québec (CSMO Textile), the mission proved a tremendous success. It enabled business leaders to discover the latest technological advances, which are essential to keeping their manufacturing operations up to date.

The delegation brought together companies specializing in the development and production of technical textiles intended for the furniture, construction, environment, civil engineering, apparel, transportation, sports and leisure, and personal protection markets, as well as the industrial and medical sectors.

The growing demand for innovative technical materials, enthusiasm for buying locally, repatriation of some production operations previously carried out abroad and labour shortage are all factors prompting organizations to make major investments in automation and integrating cutting-edge technology into their manufacturing activities.

A survey of participants conducted after the trade show revealed that 90% of companies expect to invest millions of dollars during the next year to acquire new equipment. In 70% of cases, this equipment will meet new production needs, while in 50%, it will replace equipment at the end of its useful life. The figures clearly indicate that the industry's growth is set to continue. These strategic investments are aimed at accelerating the transition to 4.0—a key initiative for improving the technical textile industry's productivity.

Valuable Support in the Selection and Decision-Making Process

Each day, technology managers were tasked with identifying the most interesting and relevant cutting-edge technologies, based on manufacturers' needs. They presented their discoveries to participants during technology review sessions.

The mission was also able to count on the support of the expert team at CTT Group—a key technology transfer centre specializing in technical textiles and advanced materials—to guide executives in analyzing and selecting manufacturing equipment and textile materials. Vestechpro, an apparel research and innovation centre, was also on hand to offer valuable support.

Alliances and Partnerships

The mission also facilitated alliances, partnerships and networking among Quebec and Canadian organizations. Collaboration is integral to the sector's innovation strategy.

Many business leaders took advantage of the opportunity to meet with clients and future business partners from around the world.

Ready for 2027!

All the manufacturers have already confirmed their intention of taking part in the experience again at the next ITMA show, which will take place in Hanover, Germany, in 2027.

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MAS Holdings secures a stake in HeiQ AeoniQ™: a sustainable alternative to synthetics

MAS Holdings, a global apparel & textile manufacturing and tech conglomerate, headquartered in Sri Lanka with a global footprint across 16 countries, secures a stake in HeiQ AeoniQ™ as part of its Plan for Change initiative to support the development of next-generation cellulosic filament fibers to replace polyester and nylon.

HeiQ from Switzerland, leader in materials innovation, and MAS Holdings, a global apparel & textile manufacturing and tech conglomerate headquartered in Sri Lanka, entered a partnership for MAS to secure a stake in HeiQ AeoniQ GmbH, a subsidiary of HeiQ Group that will produce HeiQ AeoniQ™, a climate-positive cellulosic yarn.

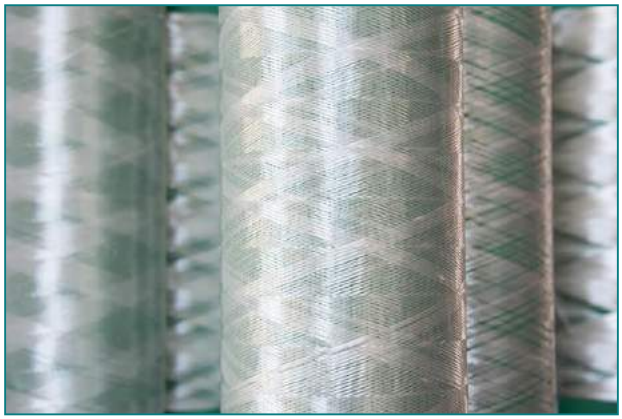
With this investment, MAS Holdings becomes the first manufacturer to partner with HeiQ AeoniQ™ in their efforts to provide a sustainable alternative to polyester and nylon. The investment to be made by MAS Holdings is part of the group's strategy to drive a positive environmental impact. The MAS Plan for Change aims to generate 50% of the company's revenue through sustainable products by 2025, revolutionizing the textile industry with a focus on innovation, sustainable sourcing, and pioneering circularity at scale.

With the closing of this deal, HeiQ and MAS agreed to a 5-year Offtake Agreement for 3,000 tons of HeiQ AeoniQ™ yarn in 2025 and 5,000 tons per year from 2026 to 2029. MAS will finalize this commitment within a stipulated time period after achieving milestone 1. HeiQ and MAS firmly believe that rapid scaling is key to facilitating the fast adoption of sustainable, circular technologies such as HeiQ AeoniQ™.

HeiQ AeoniQ™: a game-changer for the textile industry

Since Q4 2021, HeiQ's launch of the HeiQ AeoniQ™ technology has been attracting the attention of major global players in the textile and clothing industries.

With the proprietary manufacturing method, for the first time in history, a cellulosic filament yarn can be made from a wide range of non-valorized feedstock and is able to reproduce comparable performance features of polyester or nylon, while being sustainable and endlessly circular.



The HeiQ AeoniQ™ pilot plant in Austria is manufacturing this revolutionary continuous cellulosic filament yarn since Q3 2022, with a 100 tons capacity to be upscaled to 300 tons by the end of 2023.

The HeiQ AeoniQ™ production scale-up is planned to have its definitive boost by early 2026 with the construction of an entirely new gigafactory capable of a 30,000-ton output per year, in a 250M USD estimated investment.

Carlo Centonze, CEO of HeiQ Group, said, "Since the beginning, HeiQ has pioneered textile innovation, revolutionizing sustainable functionality and enhancing the lives of billions. Now, with the introduction of HeiQ AeoniQ™, we solidify our unwavering commitment to disrupting the textile industry—a sector that has long held the dubious distinction of being the world's second-largest polluter. MAS' investment serves as resounding proof that leading textiles value chain players recognize HeiQ AeoniQ™ as the ultimate game-changer, placing their trust in its transformative power."

Group Chief Executive Officer of MAS Holdings, Suren Fernando adds, "MAS was built on the foundational belief of doing the right thing. As a global organization nurturing over 100,000 individuals, we are convinced of our responsibility

to drive positive change within the apparel industry through sustainable product solutions. We believe that this investment is an important step in our efforts to reshape our industry by driving innovation, collaboration, and scale. With HeiQ AeoniQ™ as a key catalyst, we are poised to pave the way for a more sustainable future."

Polyester and nylon, two oil-based fibers, virtually non-recyclable, account for about 70% of all the global textile production, they take between 350 to 1000 years to degrade in nature, are currently close loop recycled at less than 1%, and are at the origin of 35% of the microplastics that can be found in today's oceans. HeiQ AeoniQ™ was innovated and is being hyper-scaled up to change this course of action.

About HeiQ

Founded in 2005 as a spin-off from the Swiss Federal Institute of Technology Zurich (ETH) and listed on the London Stock Exchange Main Market (XLON:HEIQ), HeiQ is a leader in textile and materials innovation creating some of the most effective, durable and high-performance technologies on the market today. HeiQ strives to improve the lives of billions of people through pioneering textiles and materials innovation. Combining three areas of expertise – scientific research, specialty materials manufacturing, and consumer ingredient branding – HeiQ is the ideal innovation partner to create differentiating and sustainable products and capture the added value at the point of sale. With its 14 offices, 7 manufacturing sites, and 7 R&D hubs, HeiQ today employs 200+ professionals. It has a total capacity of 45'000 tons of specialty chemicals per year and serves over 1'000 industrial customers in over 60 countries. Today, HeiQ's technologies can be found in 60+ countries. For more information, visit www.heiq.com

About MAS Holdings

MAS Holdings, the largest apparel tech company in South Asia, is among the most recognized design-to-delivery solution providers in apparel and textile manufacturing. Home to a community of over 110,000 people, today, MAS spans across manufacturing plants in 16 countries, with established design locations placed in key style centers across the world. Catering to the demands of a dynamic and ever-changing industry, the MAS portfolio has expanded exponentially; into brands, wearable technology, FemTech, start-ups and fabric parks worldwide.

Over 35 years of operations, MAS has gained global recognition for its ethical and sustainable working environment and for the organization's tireless efforts in social development and women's empowerment. Today, the company's efforts to drive positive impact are outlined in the MAS Plan for Change, a commitment to create sustainable change under three areas of focus: products, lives, and planet. Through these initiatives, MAS aims to inspire all employees to be changemakers, enabling dreams and enriching the fabric of life on our planet. Visit www.masholdings.com for more details.

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ColorJet Showcases high-end Textile Printing Technology at Gartex 2023

Privileged to host Smt. Darshana Jardosh, Union State Minister of Textiles at ColorJet Booth

ColorJet, a leader in digital printing solutions, has once again demonstrated its commitment to innovation and excellence by showcasing advanced digital textile printing machines at recently concluded Gartex Texprocess India 2023. The event held at Pragati Maidan from August 3-5, 2023, garnered significant attention from industry, and even received an esteemed visit from the Union Minister of Textiles, Smt. Darshana Jardosh. The ColorJet team was privileged to host the Union State Minister of Textile and Railways, at the ColorJet Booth during her engaging visit to the Gartex exhibition.

ColorJet's participation in the Gartex exhibition provided a platform for the company to showcase its latest advancements in digital printing technology. The live demonstrations of High speed, High QualityVASTRAJET K2 and high speed SUBLIXPRESS Plus captivated the audience with its precision, speed, and exceptional print quality.

The highlight of the event was the distinguished presence of the Union State Minister, Smt. Darshana Jardosh, who graced the ColorJet booth with her visit. The Minister not only expressed keen interest in the showcased machines but also personally observed the live demonstrations. This unique opportunity allowed the Minister to witness firsthand the transformative potential of ColorJet's printing solutions in the textile industry.

At the Gartex inauguration event, Smt. Darshana Jardosh emphasized the significance of India's textile sector, highlighting that it is one of the oldest and largest sectors in the Indian economy.

Contributing to approximately one-fifth of the country's industrial production. This indicates the industry's substantial role in the nation's economic growth and employment generation.

Speaking on the occasion, Chairman, Mr. M. S Dadu of ColorJet Groupextended his sincere appreciation to Smt. Darshana Jardosh for taking the time to visit the booth and witness the company's efforts in textile printing technology.

As a leading player in the digital textile-printing sector, ColorJet remains dedicated to revolutionizing the industry in alignment with the needs of the customers, Mr. Dadu further added. The company's commitment to providing innovative and customer-centric solutions has been at the forefront of its success.

As ColorJet continues to push the envelope in digital printing, the company remains committed to providing cutting-edge solutions that empower textile businesses and industries to achieve new levels of creativity, efficiency, and success.

About ColorJet

ColorJet Group, established in 1995, stands at the forefront of the digital textile printing industry, Delivering cutting-edge solutions and pushing the boundaries of innovation. With a firm commitment to sustainability and efficiency, ColorJet has earned its position as a pioneering provider of digital textile printing solutions worldwide.

As one of the top global exporters of wide-format digital textile printers, they have revolutionized the industry, offering robust performance, minimal downtime, high-value addition, and quick return on investment. With a global presence in over 30+ countries, the company has installed more than 5,000 printing solutions and products across 450 cities worldwide.

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RadiciGroup closes 2022 with bright performance. The year 2023 begins with escalation of geopolitical tension and gloom economic scenario

Despite the challenges, the investment strategy remains unchanged with a budget of 70 million for 2023. Improving the competitiveness of the Group and investing in human capital continue to be top priorities.

With total sales of EUR 1,543 million, generated by over 30 production and sales units in Europe, Asia, and America, Radici Group closed its 2022 financial year with slight growth over 2021. EBITDA reached EUR 157 million in 2022, and net income for the year was EUR 80 million.

"We are moderately pleased with the 2022 figures," Angelo Radici, president of RadiciGroup, commented. "Despite an unpredictable and challenging year, we were able to achieve positive results. Although the rise in energy costs began to be felt in January, we managed to maintain our position in the first three months of the year due to a significant increase in demand. From the second quarter onwards, the European market experienced a significant slowdown due to the outbreak of war in Ukraine, which exacerbated the already soaring costs of energy and raw materials. The situation was completely out of hand and made worse by the fact that some raw materials were not available. This created significant challenges for us, especially in the chemical sector. We even had to stop operations at our Novara plant in the latter part of the year. Products similar to ours in the nylon supply chain from China and the US were being sold at a price lower than our variable cost."

The president continues: "At Group level, our internationalisation strategy helped us mitigate

geopolitical risks in various countries. As a result, we were able to offset the challenges in the European chemicals and textile markets by leveraging our global presence in High Performance Polymers, where our numbers have held strong. As we began 2023, we regained our footing. However, the global economic and industrial scenario for the rest of the year remains highly uncertain, and forecasts are notably cautious."

Maurizio, Angelo e Paolo Radici - Shareholders of RadiciGroup

Even in these difficult times, the Group has continued to invest. In 2022, the High Performance Polymers Business Area completed the acquisition in India of the engineering plastics branch of Ester Industries Ltd, a listed company. Additionally, it began installing two new production lines in Mexico and Brazil, and confirmed plans to install a new extrusion line at the Villa d'Ogna production site in the province of Bergamo. These choices align with the Group's goal of enhancing its worldwide presence and boosting competitiveness in high-potential growth markets. In a year where energy and raw material costs were certainly problematic, operating in geographically diverse markets and with varied applications proved to be an important tool in addressing the challenges. In this vein, a new production site spanning over 36,000 square metres has recently been inaugurated in China. The move is aimed at doubling the production capacity in line with the market's growth expectations.

"The new industrial area in China was constructed with the utmost respect for sustainability standards, achieving LEED Gold certified status," notes Maurizio Radici, vice-president of RadiciGroup. Reducing our environmental impact and improving the various ESG aspects is at the heart of everything we do. Another example of this is the investment in industrial sites within the Specialty Chemicals sector to reduce CO2 emissions. This has generated a 70% overall reduction in emissions at Group level in the past 10 years. Our investment policy remains unchanged despite the concerns and high levels of caution surrounding the 2023 landscape. Having allocated EUR 84 million for 2022, we have now approved a budget of EUR 70 million for the current year. This budget will be divided among the various business areas of the Group to improve production facilities, to purchase more flexible machinery that – specifically in the textile sector – will enable the production of special yarns, and to drive process innovation by adopting new systems aimed at improving efficiency in all company functions."

Extending the time horizon to 2018-2022, the Group has invested over EUR 277 million to enhance the competitiveness of its companies, implement Best Available Techniques, improve energy efficiency, reduce emissions, and conduct research and development activities aimed at introducing sustainable processes and solutions. These efforts include the research and development activities of Radici InNova, which are heavily focused on the circular economy.

"We have always stood out for our diligent financial management," adds Alessandro Manzoni, CFO of RadiciGroup. "Thanks to this approach, we have been able to maintain a healthy net financial position in recent years. Even with significant investments made during the year and notable increases in raw material and utility costs, this statement still holds true in 2022. Our financial position therefore remains robust, enabling us to manage and adapt to any global geopolitical or macroeconomic situations that may impact the markets we operate in."

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ITMA 2023, Milan brought a great success for ACIMIT

The 19th edition of ITMA proved to be a great success for Italian textile machinery manufacturers. ACIMIT president Zucchi noted. "So many satisfied visitors and exhibitors,

confirming the vitality of the global textile machinery industry, and of the sector in Italy particularly."

ITMA 2023, which was held in Milan from June 8 to 14 at the exhibition fairgrounds of Fiera Milano — Rho, closed with some impressive figures. Hosting 1709 exhibitors in total, the seven-day fair registered an attendance of over 111,000 people hailing from 143 Countries.

With 422 companies exhibiting their wares, Italy was by far the Country with the largest contingent, coming in first for the number of visitors as well at 29% of the total in attendance, followed by Turkey, India and Germany (6% each), France (4%) and Brazil (3%).

"ITMA remains a must even I for the industry, and the figures for the edition in Milan speak for themselves, confirming the resilience of the textile sector worldwide" comments Alessandro Zucchi, president of ACIMIT. "As far as our Country is concerned, the number of exhibitors and visitors testifies to the vitality of the en tire Italian textile supply chain. Italy's success, both in terms of visitors in attendance and orders acquired during the fair,

is the consequence of a deep rooted commitment - which is also an economic investment - put forward by our manufacturers, and the indispensabie support in implementing promotional initiatives for ITMA with the support of the Ministry of Foreign Affairs and International Cooperation and by the Italian Trade Agency".

Solutions were being proposed for more sustainable textile productions by most of the exhibitors, and here too Italian manufacturers were absolutely at the forefront, with solutions catering to saving water, energy and raw materials. Sustainability was also the main focus of the ACIMIT press conference, in which the ACIMIT Green Label Award was assigned to two Italian manufacturers, Pafasystem S.r.l and Brazzoli S.r.l., who among ACIMIT's associated members have proved to be the most committed to reducing the amount of carbon dioxide equivalent emissions produced during the operation of their machinery over the past few years.

Among the many Government representatives in attendance, ITMA 2023 hosted high-level delegations from two of the world's major textile producing countries, India and Uzbekistan. ACIMIT's top management thus met with the President of Uzbekistan Shavkat Mirziyoyev and the Indian Minister of Textiles, Mrs. Darshana Vikram Jardosh,

showcasinp the excellence of Italian technology on offer. Other significant encounters took place with the Ambassador of Iran Mohammad Reza Sabouri, as well as with representatives of the Italian Government, such as the undersecretary of the Ministry of Foreign Affairs and International Cooperation, the Honourable Giorgio Silli.

In conclusion, a comment by ACIMIT president Zucchi: "This edition will be remembered for the message it conveyed, as exhibitors presented numerous technological innovations focusing on a search for greater sustainability and a more decisive digitization of textile production processee. Sus tainability and digitization: a combination that constitutes the key to success for the entire textile supply chain, and which I am sure will see new developments at ITMA's next edition, to be held in Hannover (Germany) from September 16 to 22, 2027."

ACIMIT - Association of Italian Textile Machinery Manufacturers, represents an industrial sector that comprises roughly 300 manufacturers (employing around 13,000 people), which produce machinery for an overal worth of around 2.7 billion euro, of which 86% are exported. Creativity, sustainable technology, reliability and quality are the hall marks that have made Italian textile machinery worldwide leaders.

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INTEX show in Sri Lanka to be held from 9-11 August 2023

Intex – South Asia's Premier International Textile Sourcing Show Back in Colombo, Sri Lanka

- International Exhibitors from 11+ countries including India, Sri Lanka, Pakistan, Bangladesh, Vietnam, China, Korea, Indonesia, Taiwan, Thailand, USA, UK and more
- India Pavilion with 70+ companies representing the entire textile value chain
- International Business Forum – the global knowledge sharing platform featuring WGSN, Cotton USA and more

Intex, the highly anticipated International Textile Sourcing Show, is back in Sri Lanka and scheduled to take place from 9 – 11 August 2023, at BMICH (Bandaranaike Memorial International Conference Hall), Colombo.

Since 2015, Intex has been facilitating business collaborations, fostering innovation, and promoting trade opportunities. This year, Intex Sri Lanka will present a range of exhibitors spanning the entire textile value chain including yarns, fabrics, accessories, denims, dyes and ancillary support systems comprising certifications & designing solutions and more.

Keeping in mind, Intex Sri Lanka's continuous support for the industry, Dr. Kingsley Bernard, the Chairman & CEO of the Sri Lanka Export Development Board said, "The EDB has joined hands with Worldex India in organizing the Intex South Asia exhibition since its inception in 2015 taking into consideration the opportunities created for the Sri Lankan apparel exporters to source their raw materials under one roof. I hope this event will be an opportunity for Sri Lankan exhibitors and apparel manufacturing companies to upgrade the industry, move up the value chain and gain a competitive advantage."

With Sri Lankan garment exports touching US$ 5.93 billion in 2022, Intex looks to strongly support Sri Lanka's apparel sector across multiple levels by increasing industry and brand visibility, helping to expand market presence internationally, and creating opportunities to strengthen its position in the regional and global supply chains.

Yohan Lawrence, Secretary General of the Joint Apparel Association Forum (JAAF) stated, "The Joint Apparel Association Forum is very proud to once again partner with Intex in Colombo and are really excited in having a physical show in August this year. Intex is being organised at the right time as post-Covid, the Sri Lankan apparel industry has seen an incredible recovery with the industry operating at full capacity."

In 2022, Sri Lanka imported US$ 146.47 million in yarn, US$ 311.78 million in knitted fabrics, and US$ 278.38 million in woven fabrics from India. The India Pavilion at Intex Sri Lanka which brings over 70 companies from India including members of the Cotton Textiles Export Promotion Council (TEXPROCIL), looks to fulfil these and other demands for raw material by the Sri Lankan apparel industry.

Ms. ArtiBhagat, Executive Director of Worldex India, the organisers of Intex Sri Lanka since 2015 said, "Sri Lanka's textile & apparel sector has a strong international reputation for quality, craftsmanship and ethical manufacturing practices. Intex Sri Lanka aims to help the industry sharpen its competitive edge through value additions in order to further enhance product quality, diversity and availability."

In addition to the exhibition, Intex Sri Lanka will showcase the flagship market intelligence event – the Interactive Business Forum (IBF) Seminar Series featuring WGSN, Cotton USA and industry stalwarts to name a few. Topics including market trends, sustainability, digital transformation, supply chain management, traceability and more would provide valuable insights and knowledge to navigate the evolving textile landscape.

INTEX Sri Lanka is endorsed and supported by Sri Lanka Export Development Board (EDB), Joint Apparel Association Forum (JAAF), Sri Lanka Apparel Exporters Association (SLAEA), Sri Lanka Apparel Sourcing Association (SLASA), Sri Lanka Apparel Brands Association (SLABA), Sri Lanka Chamber of Garment Exporters (SLCGE), Fabric & Apparel Accessory Manufacturers Association

(FAAMA), Free Trade Zone Manufacturers Association (FTZMA), The Cotton Textiles Export Promotion Council (TEXPROCIL), High Commission of India, Colombo, KOTRA Colombo, Embassy of Indonesia in Colombo, Sri Lanka and others.

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Gartex Texprocess India set to display advanced technologies in garment and textile machinery July 2023

Gartex Texprocess India, the comprehensive tradeshow on garment and textile machinery, is ready to captivate industry professionals, exhibitors and buyers at Pragati Maidan, New Delhi from 3 – 5 August 2023. The exhibition serves as the definitive gateway to India's textile and garment industry, offering a one-stop platform for selling and sourcing a wide range of products, services and technologies related to the complete production value chain.

The exhibition showcases cutting-edge technologies that facilitate efficient manufacturing, value added machinery, including software solutions that optimize supply chain management and streamline production processes. Furthermore, the event will feature advancements in garment manufacturing, embroidery, fabrics, digital textile printing, knitting, washing and processing industries and much more, offering endless creative possibilities and customization options.

Efforts of the Indian government have consistently been to position India as the world's leading textile manufacturing hub. The trust and support from the government have always resulted in boosting the confidence of the exhibitors and visitors in the platform. Looking forward to the show and its inauguration, Smt. Darshana Jardosh, Hon'ble Minister of State for Railways and Textiles, Government of India, shared: "I

think this platform will help in making India a leading textile manufacturing destination and forging global partnerships for boosting the textile manufacturing across all the states in India. This exhibition will encourage textile and clothing industry stakeholders to actively participate in the inclusive growth of the sector across India. On the occasion of the upcoming exhibition, I extend my warm welcome to the exhibitors, participants and visitors from India and outside."

The integration of automation and software players underscores the industry's commitment to embracing advanced technologies to enhance productivity, efficiency and creativity in garment manufacturing processes. This year, the industry

can expect to explore cutting-edge offerings from renowned brands such as Jaysynth, Mimaki, Epson, Morgan Technica, GrozBeckert, DuPont, Schmetz India, Juki, Brother, Kansai, Siruba, Durkopp Adlerand many more.

Expressing his thoughts before the show, Mr Raj Manek, Executive Director and Board Member, Messe Frankfurt Asia Holdings Ltd, said: "I welcome the Indian and International fraternity and professionals from the garments and textiles segment to the upcoming edition of Gartex Texprocess India. We are glad to bring an advanced version of the show with participation from companies in the domain of software and automated machinery alongside the manufacturing value chain players. With a history of successful editions of the event, I am optimistic for the great business and knowledge convergence about to happen at the upcoming show."

Mr Gaurav Juneja, Director, MEX Exhibitions Pvt. Ltd., stated, "Gartex Texprocess India represents the rapidly emerging Indian garment and textile markets, an ideal place to reach out to domestic as well as international customers through a single platform and grow the businesses multi-fold. The upcoming edition will give rise to new business opportunities and potential leads and help grow brand awareness through visibility. With some of the best brands on board and the scale of innovations they will be exhibiting, especially from the automation and software brands – it strongly indicates that the show will allow the visitors to access and experience the latest technological innovations with advanced systems."

Committed to fosteringa dynamic and inclusive platform, Gartex Texprocess India is excited to highlight that the show has witnessed increased participation from international players, including Sri Lanka, China, Bangladesh, Italy, Japan and Germany, reflecting the global significance and reach of the event. These international participants have either joined directly or through their Indian counterparts.

Additionally, esteemed associations such as the Surat Embroidery Association and Surat Digital Textile Printing Association will come together to forma dedicated Surat Pavilion, showcasing renowned brands representing the digital textile printing, textile weaving, processing and manufacturing sectors, highlighting the strength and expertise of Surat's garment manufacturing industry.

India's prestigious industry body - the Ministry of Textilesand associations like the Denim Manufacturers Association and Surat Embroidery Association cultivates an ideal opportunity for all the exhibitors to establish connects. The show also incorporates dynamic platforms like Denim Show and has created featured zones for Screen Print India and Fabrics & Trims Zone.

When visiting Gartex Texprocess India, potential visitors should not miss thethree-day power-packed conference on garment manufacturing, sustainability, denim trends and fashion.

With eight successful editions under its belt, Gartex Texprocess India continues to be the premier platform for industry professionals, exhibitors and visitors to discoverand explore the advancements in the industry. Don't miss out on this comprehensive trade show that brings together the best of garment and textile machinery.

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ITMA ASIA + CITME Show owners enhanced cooperation to launched combined exhibition in Singapore

The show owners of ITMA ASIA + CITME have extended their collaboration to organise the combined textile machinery exhibition in a second Asian location. The combined exhibition has been held biennially in Shanghai since 2008.

Show owners - CEMATEX (the European Committee of Textile Machinery Manufacturers) and its Chinese partners comprising China Textile Machinery Association (CTMA) and the Sub-Council of Textile Industry, CCPIT (CCPIT-Tex) - have selected Singapore to host the exhibition in 2025.

ITMA ASIA + CITME, Singapore 2025 will be held at the Singapore Expo from 28 to 31 October 2025. It will be organised by ITMA Services and co-organised by Beijing Textile Machinery International Exhibition Co.

Mr Ernesto Maurer, President of CEMATEX, said: "We have successfully held seven editions of ITMA ASIA + CITME in Shanghai. As part of our strategy to support the aspirations of local manufacturers in South Asia, South East and the Middle East to modernise their operations, we are augmenting the series with a second location in Asia to better reach out to the textile hubs in these regions."

Mr Gu Ping, President of CTMA, said: "Asia is the world's biggest textile manufacturer and exporter. We are delighted to extend our cooperation with CEMATEX to bring ITMA ASIA and CITME to other parts of Asia to support our members' marketing efforts."

Billed as The Leading Textile Technology Exhibition Driving Regional Growth, ITMA ASIA + CITME, Singapore 2025 is expected to gross 60,000 square metres. It aims to attract over 700 exhibitors and a visitorship of 30,000.

Mr Maurer added: "Singapore is no stranger to hosting a huge textile machinery exhibition. ITMA ASIA was held in Singapore in 2001 and 2005 before it combined with CITME. We moved the exhibition to Shanghai to enable our members to take advantage of the buoyant textile sector in China after the country joined the World Trade Organisation in 2001."

A Vibrant Destination

Due to its world-class facilities and business-friendly environment, Singapore is an attractive destination for exhibitions and conferences.

Mr Charles Beauduin, Chairman of ITMA Services, explained: "Singapore is an attractive MICE destination and well connected to the growing textile hubs in South Asia and Southeast Asia, as well as the Middle East. Its extensive airlinks and visa-friendly policies make it an accessible destination for these visitors. The exhibition also requires robust infrastructural and technical facilities to support live machinery demonstrations, which Singapore's exhibition venue can provide."

The decision to host the second combined exhibition in the island republic is welcomed by the Singapore Tourism Board (STB).

Mr Yap Chin Siang, Deputy Chief Executive of STB, said: "We are pleased to host ITMA Asia + CITME for the first time in Singapore. ITMA Asia + CITME is an important Asian and global platform for growth, connectivity, and trade integration in the textile market. The choice of Singapore as host affirms our position as a global hub for MICE and business, where entrepreneurs and forward-thinking partners meet. We look forward to welcoming ITMA Asia + CITME participants to Singapore in 2025."

The upcoming ITMA ASIA + CITME exhibition will be held in Shanghai at the National Exhibition and Convention Centre from 19 to 23 November 2023. It was postponed from last year due to the pandemic. Grossing 160,000 square metres, the combined exhibition has, to date, attracted over 1,400 exhibitors.

The ITMA ASIA + CITME series will continue to be held biennially on even years in Shanghai. The 2024 combined exhibition will be held from 14 to 18 October 2024.

About ITMA ASIA and ITMA

CEMATEX launched its ITMA ASIA show in 2001, followed by a second show, supported by the Japan Textile Machinery Association in 2005. Both exhibitions were held in Singapore.

CEMATEX is the owner of ITMA, the world's largest textile and garment technology exhibition. ITMA, the Olympics of textile machinery exhibitions, is held every 4 years in various European locations since 1951. Its latest exhibition in Milan, ITMA 2023 grosses 200,000 square metres. The showcase has attracted over 1,700 exhibitors from 47 countries.

About CITME

The CITME show was launched by China Textile Machinery Association in 1988. It was held every 2 years in Beijing until 2006. The show shifted to Shanghai in 2008 as part of the combined ITMA ASIA + CITME exhibition.

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Smt. Darshana Jardosh, Minister of State for Railways and Textiles, inaugurates Gartex Texprocess India 2023, 3rd August in New Delhi

The Indian government is continuously spinning new initiatives in the form of projects, incentives and goals to push the value chain of the Indian textiles and garments industry. To help brands leverage national, global and individual aspirations, GartexTexprocess India 2023 opens today at Pragati Maidan, New Delhi.

Inaugurated by Smt. Darshana Jardosh, Hon'ble Minister of State for Railways and Textiles, Government of India, Gartex Texprocess India 2023 –9th edition, commenced on 3rd August Pragati Maidan, New Delhi and concluded on 5th August 2023.

Sharing her thoughts at the inauguration, Smt. Darshana Jardoshsaid "India's textile sector is one of the oldest and largest sector in the Indian economy accounting for one-fifth of the country's industrial production. The industry must adopt the concept of circularity to extend the lifespan of textiles by upcycling, recycling, reusing, and reducing the textile waste. The growth of the textile sector is one of the top priorities of the government and our efforts are to attract global industries and investment as well as create facilities and infrastructure for textile industry. Our focus should be to create environmentally and socially equitable sector. There are 185+ exhibitors in the exhibition and I am excited to explore the products and technologies at the show of GartexTexprocess India 2023."

Establishing itself as one of the prominent shows in the segment, GartexTexprocess India has grown to attract the interest of international brands alongside the ever-growing participation of Indian players.

Present at the inauguration were distinguished guests and dignitaries that included:

1. Chief Guest: Smt. Darshana Jardosh, Minister of State for Railways and Textiles, Government of India
2. Guest of Honor: Shri Rohit Kansal, Secretary Ministry of Textiles
3. Mr Arvind Mathur, Vice President, Denim Manufacturers Association (DMA)
4. Mr Simon Lee, Managing Director of Hyosung Group (Hyosung Corporation India Pvt Ltd & Hyosung India Pvt Ltd)
5. Mr Aamir Akhtar, Group President & CEO Textiles, Jindal Worldwide Limited
6. Mr. Raman Dutta, General Secretary, Brands & Sourcing Leaders
7. Mr. Dadu, Chairmain, ColorJet
8. Mr. Sanjay Jha, Director, UNIX Stitchmachines Private Limited
9. Mr. Karan Dua, Managing Director, Geminy Sewing Machines
10. Mr. Murari Director, Baba Textile Machinery
11. Mr. Arpan Shah, Senior Vice President, Gujarat Garment Manufacturers Association
12. Mr. Parmeet Singh - Regional Sales Director, Groz-Beckert Pvt Ltd
13. Mr. Nicola Messali, Sales Director, Morgan Tecnica
14. Mr. Kishan Daga, FounderAnchor, Concept N Strategy
15. Mr. Prashant Agarwal, Co-founder & JMD, Wazir Advisors
16. Abhinav Arya, Director of Fabcare
17. Mr. Deepak Choudhary, Director, Aura Technologies
18. Mr. Akhilesh Rathi, Director, Dainik Bhaskar Group
19. Mr Winston Pereira, Genral Manager, Messe Frankfurt Trade Fairs India Pvt Ltd
20. Ms Himani Gulati, Director, MEX Exhibitions Pvt Ltd
21. Mr Gaurav Juneja, Director, MEX Exhibition Pvt Ltd

The show has commenced on an affirmative note today as companies from across the globe are exhibiting their finest products. Expressing gratitude for the successful launch of the show, Mr Raj Manek, Executive Director & Board Member, Messe Frankfurt Asia Holdings Ltd, shared: "It is an absolute honour for us to once again welcome Hon'ble Minister of State for Railways and Textiles, Government of India, Smt. Darshana Jardosh, for inaugurating the show along with all the distinguished guests present here. The government of India's initiatives on developing PM Mega Integrated Textile Region and Apparel (PM MITRA) parks, the benefits under the Technology Upgradation Fund Scheme

(TUFS) and several other measures signal growth prospects for the industry. During this momentous period of India, a robust industry platform like 'GartexTexprocess India' plays a vital role in building new collaborations and expanding business networks for tapping new markets and opportunities."

Envisioning yet another buzzing edition of GartexTexprocess India this year, Mr Gaurav Juneja, Director, MEX Exhibitions Pvt Ltd, stated: "It is our privilege to once again welcome Smt. Darshana Jardosh, Minister of State for Railways and Textiles for inaugurating the show. The products on display and the exhibitor profile at this edition reflect a mix of product, manufacturing, processing, technology and services companies developing various solutions for the industry. The global trends in emerging technologies and trends have brought the automation and software players alongside the manufacturing companies to the show floor which makes GartexTexprocess India an undisputable platform in its field. Also, I am extremely proud and happy to see how deeply the roots of GartexTexprocess India have penetrated within India and have successfully profiled the nation as a potential market of business and investment."

The 15,000 sqm of exhibition ground packed with 300+ brands showcasing 500+ product from 185+ companies includes:Jaysynth, Mimaki, Epson, Morgan Technica, GrozBeckert, DuPont, Schmetz India, Juki, Brother, Kansai, Siruba, Durkopp Adler and more, represent globally celebrated brands from the industry.

The support of prestigious industry associations like the Denim Manufacturers Association, Surat Texmac Federation, Surat Embroidery Associationand the Ministry of Textiles has added great value to the show and has created an opportunity to encourage the companies to widen their business network and exchange knowledge and expertise in the domain across three days.

About the Organisers

Background information on MEX Exhibitions

MEX Exhibitions Pvt. Ltd. is an international exhibition company with a strong presence of over four decades in the advertising industry, over 26 years in publishing & 19 years in exhibitions. The company has produced more than 100 market-leading trade exhibitions for various segments in addition to publishing various magazines & advertising trade directories of repute. Successful exhibitions are conducted all over India, Dubai, Singapore and Thailand.

Background information on Messe Frankfurt

The Messe Frankfurt Group is one of the world's leading trade fair, congress and event organisers with their own exhibition grounds. With a workforce of some 2,160 people at its headquarters in Frankfurt am Main and in 28 subsidiaries, it organises events around the world. Group sales in financial year 2022 were around €454 million. We serve our customers' business interests efficiently within the framework of our Fairs & Events, Locations and Services business fields. One of Messe Frankfurt's key strengths is its powerful and closely knit global sales network, which covers around 180 countries in all regions of the world. Our comprehensive range of services – both onsite and online – ensures that customers worldwide enjoy consistently high quality and flexibility when planning, organising and running their events. We are using our digital expertise to develop new business models. The wide range of services includes renting exhibition grounds, trade fair construction and marketing, personnel and food services.

Sustainability is a central pillar of our corporate strategy. Here, we strike a healthy balance between ecological and economic interests, social responsibility and diversity.

For more information, please visit our website at: www.messefrankfurt.com/sustainability

With its headquarters in Frankfurt am Main, the company is owned by the City of Frankfurt (60 percent) and the State of Hesse (40 percent).

For more information, please visit our website at: www.messefrankfurt.com

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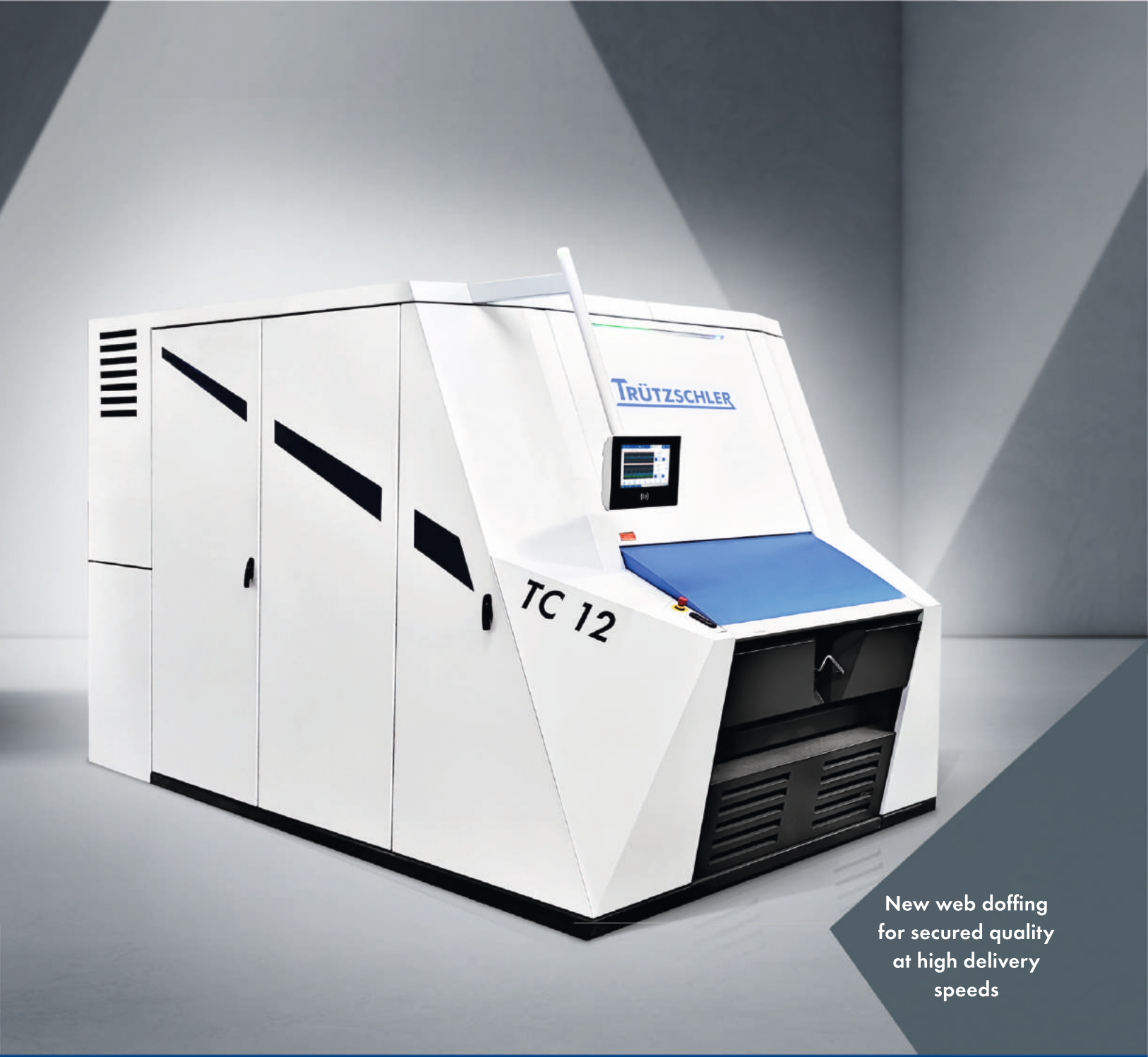

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Trützschler Group

The Integrated Draw Frame (IDF) an important part of Trützschler's Portfolio, offers a range of innovative features

IDF 3: The shortest path to perfect quality

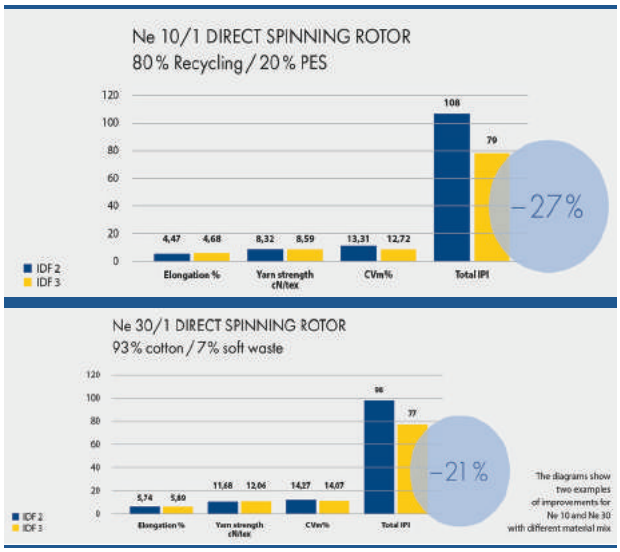
Usually, it's not possible to get everything you want. But with the new integrated draw frame IDF 3, you really can. It offers a range of innovative features that give customers even better quality, efficiency and handling – as well as accelerated can change times and improved productivity.

The perfect symbiosis: the IDF 3 and the TC 30i.

The Integrated Draw Frame (IDF) has developed remarkably in recent years. Although there were some doubts when the IDF first hit the market twenty years ago, it has now demonstrated its positive impact on short spinning processes. "As a result, the IDF is a key part of our product range today. Two generations of this machine have already delivered valuable performance improvements for our spinning customers worldwide. And our innovators have now successfully created the third generation: The new integrated draw frame IDF 3", says Jörg Schmitz, Senior Expert R&D Spinning Preparation.

Proven to deliver excellent quality

Trützschler's technical experts decided it was time to give the IDF a turbo boost by adding components and features from other areas of our draw frame portfolio, including our popular autoleveller draw frame TD 10. First, the team adapted the precise, robust measuring devices DISC LEVELLER and DISC MONITOR to fit the specifications of card and IDF 3. The resulting IDF DL and IDF DM interact perfectly with the existing 1-zone drafting system, which results in more homogeneous slivers and higher yarn quality. Switching to the IDF DL and IDF DM system instead of the previous measuring funnel adds more benefits than advanced detection of sliver deviations. The new system also works entirely without compressed air, which reduces operating costs.

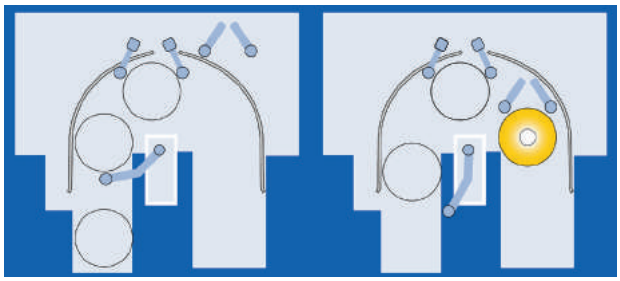


Two examples of improvements for Ne 10 and Ne 30 with different material mix.

In addition, the IDF 3 make-over includes a complete redesign of the drafting zone in line with all Trützschler drafting systems. This further stabilizes the drafting process and significantly improves the yarn imperfection total IPI for recycled fibers and raw cotton, while also blending with synthetics. Yarn strength and elongation are also improved.

Can changer becomes a game changer

Improving the IDF is only possible if innovators also look at the card and can changer, because there is huge potential if the interaction between the three elements are optimally balanced. This is particularly true for the DIRECT SPINNING process, with its small can sizes. Each time a full can is replaced by an empty can, the delivery speed of the card and IDF needs to be drastically reduced – and this slows down the production process. Every second that can be saved from this can change process adds to the overall productivity. In this context, our teams have optimized the can changer to save our customer's valuable time. The delivery speed of the IDF 3 stays at the high level of 300 m/min during can changes, which increases efficiency by 3%.



The can changer becomes a game changer.

Easy operation, great performance and high quality

It's essential that machines are easy to operate and offer good accessibility in order to enable accurate machine settings and effective maintenance. For this reason, the IDF 3 is designed to open directly towards the operator. This makes it easy to reach all of the adjustment points within the working area.

Thanks to our QUICK START autopiecing function, operators do not need to open the drafting unit. Instead, they simply insert the sliver end into the IDF DL, which saves up to 60 seconds during each piecing event. Depending on the number of piecing processes performed, this saved time quickly adds up to a significant increase in productivity. Trützschler's technicians have also improved the pressure adjustment on the IDF 3 by adding an easy-to-reach digital pressure manometer. This makes it possible to precisely set the pressure and directly monitor limits on the drafting system via the display screen. The IDF 3 can also be configured with the exclusive Trützschler features T-LED, SMART TOUCH and RFID to further enhance handling.

Jörg Schmitz, Senior Expert R&D Spinning Preparation at Trützschler Spinning

Our third generation of IDF proves that you really can have it all. Customers benefit from better quality, higher efficiency and easier handling.

About Trützschler

The Trützschler Group SE is a German textile machinery manufacturer headquartered in Mönchengladbach, Germany. The company is divided into four business units: Spinning, Nonwovens, Man-Made Fibers, and Card Clothing. Trützschler machines, installations and accessories are produced and developed in ten locations worldwide. This includes four factories in Germany (Dülmen, Egelsbach, Mönchengladbach, Neubulach), as well as sites in China (Jiaxing and Shanghai), India (Ahmedabad), the USA (Charlotte), Brazil (Curitiba) and Switzerland (Winterthur). Service companies in Türkiye, Mexico, Uzbekistan and Vietnam and service centers in Pakistan, Bangladesh and Indonesia provide customer proximity in key regions for the textile processing industry. For more information visit: www.truetzschler.com.

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Uster Technologies AG

Uster Fabriq Assistant – the whole story for quality info

Automated data preparationsaves time and ensures decision-making security

The new Uster Fabriq Assistant is a central platform for automated processing, analyzing, and visualizing quality data from Uster fabric inspection systems. Its three value modules – AI Classification, Quality Reporting and Central Management – give fabric producers the whole story for quality, saving time and driving operational excellence.

Uster's latest innovation in the field of fabric inspection is an online tool giving a user-friendly summary of quality performance data from every fabric roll inspected in the mill. A range of statistical analysis tools highlight key info through various charts, histograms or trend diagrams. With the new Uster Fabriq Assistant, there is no need to toil over manual data. It's all automated, so decision-making is simpler and much faster for fabric manufacturers.

Classification and reporting tasks

Fabriq Assistant introduces three value modules. AI Classification is at the heart of the system, delivering levels of accuracy and performance that human operators could never match. The Artificial Intelligence attaches codes to each image generated by the Uster Fabriq Vision products. Without this AI Classification, mill personnel would have to spend time and effort inserting codes to each defect at a PC, to carry out a data review. Artificial Intelligence means data classification is fully automated, so producers can save over 80% of the time taken by manual methods.

With Fabriq Assistant, old-fashioned manual data collection and analysis are consigned to history. Fabriq Assistant automatically gathers all the information from connected Uster fabric inspection systems – and applies smart analysis principles to calculate the most meaningful results. The Quality Reporting value module lets managers focus on the most important decisions, based on the guaranteed accuracy of advanced technology.

Benefits from synergies

Fabriq Assistant unites all the data from AI Classification and Quality Reporting. Combining classified details of defects with smart analysis of inspection data gives producers a valuable advantage: Fabriq Assistant not only gives alertsof issues, it also goes a stage further by both describing and locating a problem. This is the knowledge required to enable continuous and systematic improvements to be made.

Combining data from AI classification and Quality Reporting unleashes the full power of the value modules. The real impact comes from meaningful data which is automatically analyzed. "Using the synergies from AI classification and Quality Reporting maximizes the business value for all stakeholders in the production and the quality department," says Michelle Salg, Product Manager Fabric Inspection at Uster Technologies.

Centralized efficiency

Fabriq Assistant cuts down the unnecessary workload on managers, allowing them to focus on steering profitable production. The third value module, Central Management, makes this benefit clear, as all the required data is presented on a unified platform at the manager's desk, ina real time-saving benefit. It means there is no need to check for machine alarms or identify finished rolls. Fabric inspection info for all connected Uster systems is readily available at this central platform.

"We have customers who produce thousands of meters of fabric daily. Imagine the difference the Central Management or Fabriq Assistant with its full capability makes for them," says Salg. "It's not only about managing a large number of machines but also controlling the quality of the whole production." The dashboard on the manager's screen shows the number of defects, ongoing articles and orders, start and end time of rolls, and downtime, at a glance.

Indispensable assistant

Data from fabric inspection builds a reliable picture, as a sound basis for decisions. Cutting-edge hardware can be seamlessly integrated into production – at line running speeds up to 1,000 meters per minute – for consistent and efficient defect detection. After that Uster Fabriq Assistant takes over.

Automation also allows users to customize their experience in a highly flexible way, to suit their own mill organization, thanks to the smart machine learning technology in Fabriq Assistant. For fabric producers it's an indispensable route to greater efficiency and productivity.

About Uster Technologies

Uster Technologies is the world's leading provider of quality management solutions from fiber to fabric.

High-technology instruments, systems and services cover quality control, prediction, certification and optimization. The portfolio comprises quality management, laboratory testing and in-line process control instruments for fibers, staple fiber, and filament yarns, fabrics and nonwovens.

Uster Statistics, the unique global benchmarks for textile trading, complement a portfolio of value-added services that includes training, consultancy and worldwide after-sales.

The Uster philosophy aims to drive innovation forward by meeting market needs – always with 'quality in mind'.

Uster Technologies is headquartered in Uster, Switzerland and operates worldwide. It has sales and service subsidiaries in major markets and Technology Centers in Uster (Switzerland), Knoxville (USA), Suzhou (China) and Caesarea (Israel).

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Mimaki Europe B.V.

Mimaki Launches Most Productive Tiger600-1800TS Dye Sublimation Printer to Boost Adoption of Digital Textile Printing

Mimaki Europe, a leading provider of industrial inkjet printers, cutting plotters, and 3D printers, is debuting the new Tiger600-1800TS, Mimaki's most productive sublimation transfer printer, on its stand (H7-C304) atITMA 2023. This latest high-speed, compact and robust roll-to-roll inkjet printer has been designed to accelerate the analogue to digital transformation within the textile printing industry.

The Tiger600-1800TS boasts a maximum printing speed of 550 m2/h (43% faster than the previous model) owing to the renovated high-speed printhead and Mimaki's proprietary image quality enhancement technologies. The

printer's size has also been halved compared to the previous system, with the paper mounting and winding system both located at the back of the machine. This smaller footprint enables customers to easily install multiple units to meet fluctuating demand, whilst also increasing overall production capacity.

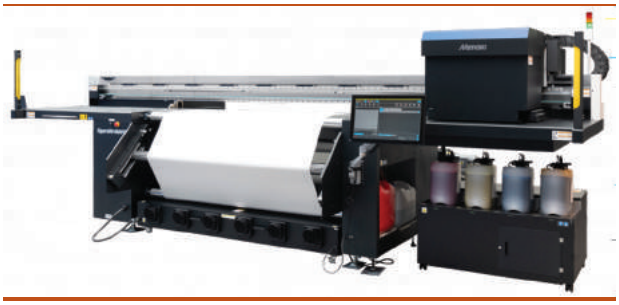
"All of these latest and innovative developments ideally position the Tiger600-1800TS to compete with analogue textile operations and support the move to digital print production," explained Arjen Evertse, General Manager Sales, Mimaki Europe. "The benefits of digital printing are wide-ranging compared to lengthy, complicated and unsustainable analogue production methods. Digital printing offers a seamless, cost-effective solution for producing smaller quantities that can be adjusted to fit varying demand. It also enables greater design flexibility and reduces environmental impact by enabling local production, minimal inventories and therefore, wasted products, as well as completely cutting out the wastewater that results from the analogue process."

A further environmental benefit of the Tiger600-1800TS will be the imminent bluesign® (1) certification of its MLSb510 series sublimation transfer inks. This certificate, expected to be awarded in June 2023, will provide assurance that these inks are of highest quality combined with due consideration for the safety of consumers and print operators, and environmental conservation, and therefore, contributing to the sustainability of the textile industry.

Mimaki's renowned expertise in developing reliable, easy-to-use and efficient solutions has also not faltered in the development of the Tiger600-1800TS. The printer's ink tanks can be replaced without interrupting the printing process, minimising down time. Maintenance of the printer is also reduced with its roller paper feeding method eliminating the need for the application of adhesives onto a belt.

"The Tiger600-1800TS captures the needs of our customers and prospects perfectly with all of its advanced engineering and practical, user-friendly features. We're confident this new addition to the Mimaki portfolio will further promote the shift to digital textile printing, thereby supporting this inspiring industry to be quicker to adapt to changing production requirements, whilst also being more environmentally conscious,"Arjen concludes.

(1) bluesign: A certification for products from sustainable supply chains within the textile and apparel industry. The certification programme is administered by bluesign technologies ag, situated in Switzerland.



Mimaki's latest dye sublimation printer, the Tiger600-1800TS

About Mimaki

Mimaki is a leading manufacturer of wide-format inkjet printers and cutting machines for the sign/graphics, industrial, textile/apparel and 3D markets. Mimaki develops the complete product range for each group; hardware, software and the associated consumable items, such as inks and cutting blades. Mimaki excels in offering innovative, high quality and high reliability products, based upon its aqueous, latex, solvent and UV-curable inkjet technology. In order to meet a wide range of applications in the market, Mimaki pursues the development of advanced on-demand digital printing solutions. Mimaki Engineering Co. Ltd., (President: Kazuaki Ikeda) Nagano (Japan), is publicly listed on the Tokyo Stock Exchange, Inc.

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LAIP

Desire for innovative products leads the organisation to be more efficient

LAIP: the present is an expression of a future project

This is one of the keys to comprehend LAIP's productive strength, a desire for constant renewal, acceptance of new market challenges, new technologies, and the ability to have a constant dialogue with customers, not only before and during the sale, also aftersale.

The desire for innovation is expressed in the ability and courage to change to be more efficient, more present, including communication, and in the flexibility and ability to respond to market needs. Driven by the desire for the best performance, that is not only technical, the companycomplied to the new business languages, guaranteeing competence and speed in answering to the many requests of customers and especially to those customers who look to LAIP for a personalized response to their needs for industrial dyeing.

LAIP has thus supplied dyeing machines of entire compartments in factories specially made by customers to insert LAIP products, this is a sign of the established trust that the market places in the company and in its machines.

The difference can be seen in the passion that everyone puts into their work, from the engineers to the assemblers, everyone committed to taking care of even the smallest detail, seeking solutions closest to the customer's needs and innovation and to the quality of all the elements of the machines.

A constant success that saw the company as a protagonist at the recent ITMA: great affirmation of esteem from customers who came to visit the booth at the fair and excellent feedback from a great number of new customers who appreciated the work and production capabilities.

LAIP presented new and higher performing machines in addition to its great classics:

198 HT, the highly demanded machine for tow – packages and fibre dyeing, it allows the same liquor ratio to be maintained even with partial loads!

BID, (Bobbins Injection Dyeing) ensures absolute repeatability, productivity and reliability for multicolour printing and dyeing of yarn in bobbins.

Nautilus, the cutting-edge machine. Conceived with a double belt, it is suitable for dyeing delicate fabrics keeping the low liquor ratio constant by the maximum fabric load up to 40 %. The low water consumption means low electrical consumption and energy saving.

250 HT Jet, the easy machine that never stops to get perfectly dyed fabrics with no abrasions nor creases.

Beam, the ideal machine to dye high end silk and technical fabrics, tubular and warp knit for sportwear enabling the optimisation of production times and superlative technical performance.

One constant is to be able to make machines that can prove effective in all-around energy savings, not an easy task in dyeing sector, and LAIP, as always, meets the challenge and the results are manifest. Less water consumption, more efficient components, more automation and indeed, significant energy savings.

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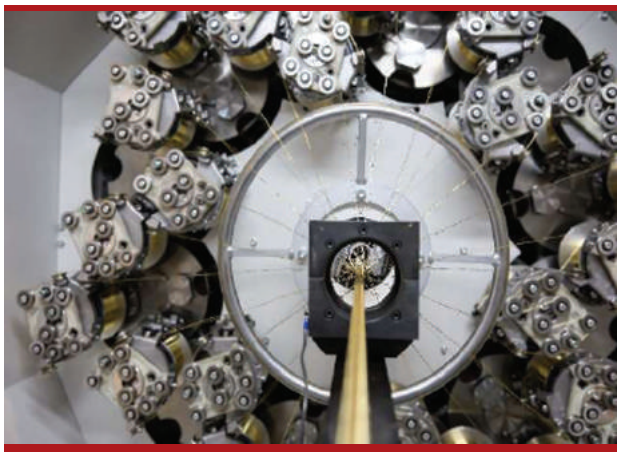
Mayer & Cie.

An unprecedented successful debut

Mayer & Cie. presents braiding division for first time at ITMA 2023

Since 2019 Mayer & Cie. has manufactured both circular knitting machines and braiders at

its Albstadt headquarters. The long-established company exhibited one of the latter, an MR-15/18C/Single Deck, at this year's ITMA in Milan. Mayer & Cie.'s ITMA braiding machine handled yarn, and hose with a textile sheath has a wide range of industrial uses. The trade fair exhibit had a capstan wheel, which is especially suitable for smaller-diameter textile braiding and hoses. The optional SpeedBooster increases the efficiency of a braiding machine by up to 11 per cent.



Heart of a braiding machines: Carriers do their maypole dance while the wires meet in the braiding point.

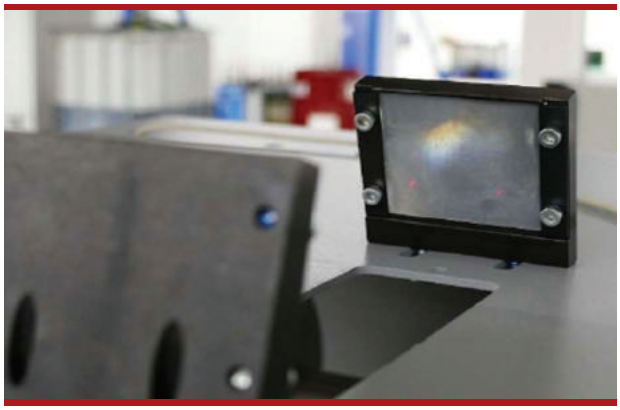
"We are very satisfied with the response to the presentation of our latest business unit," says Benjamin Mayer, Managing Partner of Mayer & Cie. "We garnered a great deal of attention for our exhibit and were able to establish cross-connections and sometimes even to 'sow' the idea of a new line of business."

Faster than the eye can follow

"Mesmerizing" and "captivating" were properties frequently attributed to the trade fair exhibit, the MR-15/18C/Single Deck, at ITMA. Following their clear pattern almost noiselessly, the 18 carriers rotated, creating their maypole braid. In actual production it is a different matter entirely. A braiding machine like the MR-15/18C/Single Deck reaches a rotor speed of up to 245 rpm. Each of the machine's 18 carriers rotates 82 times per minute, producing 2,5 metres of textile hose per minute. "Normally," Benjamin Mayer says, "a braiding machine is housed in a soundproof cabin because of the noise it makes, so even we are very seldom able to watch one at work, especially as the eye would be unable to follow it at its normal working speed."

SpeedBooster delivers better performance

To further increase the speed and productivity of its braiding machines Mayer & Cie. has developed the SpeedBooster. It takes the machine on show at ITMA to a top rotor speed of up to 270 rpm, and with the SpeedBooster the carriers rotate up to 90 times per minute.



The SpeedBooster upgrade ensures higher speeds. Technically speaking, it is a sensor-based fill level meter.

Technically, the SpeedBooster is a sensor-controlled filling level gauge. The more the fill level of the spools decreases, the faster the speed can be. An increase of up to 20 per cent is physically possible.

The SpeedBooster is an option when purchasing a new machine. It can be retrofitted to existing machines by means of an upgrade kit.

CapstanWheel for smaller-diameter hoses

The MR-15/18C/SD exhibited at ITMA has a capstan wheel. This haul-off unit is suitable for smaller hose diameters and textile braiding. The braided hose is wound several times round the capstan wheel. Its rotation draws the hose out of the braiding unit and feeds it to a winding unit. Capstan wheel and braiding unit are synchronized to achieve a high quality of braiding and a constant pitch length.

Quality and precision are highest priority in Mayer & Cie. braiding machines.

Mayer & Cie. braiding machines are fitted out with a haul-off MC as standard that is suitable for hoses and pipes with a diameter of up to 160 mm (six inches). Jaws are activated to clamp the hoses. The haul-off MC can be supplied with either a caterpillar (PAD version) or a belt take-off. The take-off and braiding unit are synchronized to ensure a high quality of braiding and a constant pitch length.

About Mayer & Cie.

Mayer & Cie. (MCT) is a leading international manufacturer of circular knitting machines. The company offers the entire range of machines required for making modern textiles. Fabrics for home textiles, sportswear, nightwear and swimwear, seat covers, underwear and technical uses are made on MCT knitting machines.

Furthermore, Mayer & Cie. regularly develops new approaches underlining its leadership in technology. Since 2019, Mayer & Cie. has augmented its portfolio by braiding machines which produce sheathings for hydraulic tubes used in aviation, automotive industry as well as in further, very specific fields of applications.

Founded in 1905, Mayer & Cie. generated a turnover of EUR 110 million in 2022 with about 450 employees worldwide. In addition to its headquarters in Albstadt, Germany, where around 350 people work, and subsidiaries in China and the Czech Republic, sales partners for circular knitting and braiding machines in around 80 countries represent Mayer & Cie.

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Lenzing Group

Lenzing inks strategic partnership with NBond to accelerate the innovation of flushable nonwovens products globally

NBond has been a long-term user of Lenzing's VEOCEL™ branded fibers in nonwoven products, and the first to incorporate VEOCEL™ branded lyocell shortcut fibers in flushable feminine care products globally.

The new strategic partnership will enable both parties to explore new possibilities for the application of VEOCEL™ branded lyocell fibers in flushable nonwoven products to address changing consumer needs.

Lenzing Group, a leading global producer of wood-based specialty fibers, has announced the signing of a strategic partnership between its flagship specialty nonwovens brand, VEOCEL™, and Hangzhou Nbond Nonwovens Co., Ltd. (NBond) to accelerate the innovation and application of wood-based VEOCEL™ branded lyocell fibers in flushable nonwovens products, from moist toilet tissues to feminine hygiene products and other personal hygiene product offerings. NBond, one of the earliest manufacturers to launch flushable feminine care products

globally, is also the first to use VEOCEL™ branded lyocell shortcut fibers in flushable feminine care products.

With collaboration key to ongoing product innovation, the strategic partnership will feature long-term technical and innovation support towards the development of new nonwoven fabrics using VEOCEL™ Lyocell fibers at NBond's production facilities.

"Lenzing has been working closely with NBond for more than a decade. The new strategic partnership with NBond represents a milestone for both companies as we continue pioneering sustainable development of the industry, and help addressing the growing demand for high quality sustainable and flushable nonwovens products in Asia and globally," said Steven Tsai, Senior Regional Commercial Director for Nonwovens Asia, Lenzing. "With VEOCEL™'s expertise and NBond's technical knowledge and consumer brand network, we are well-positioned to advance new innovations and product applications which meet the evolving needs of consumer brands and enable them to stand out from the crowded marketplace of nonwovens products."

"Sustainability is not just a topic of consensus between the suppliers and manufacturers. With the macro direction to actively reduce carbon emissions across industry value chains, sustainability has become the basic standard for any nonwoven product globally. At NBond, sustainability will remain a core focus of what we do," said Jinrui Gong, Chief Executive Officer of NBond. "Together with value chain partners and customers, we will continue to develop sustainable and biodegradable nonwovens products that are made of natural botanic materials, like VEOCEL™ fibers. Ongoing investments will also be made on innovative technologies that could improve our future product offerings."

Industry leaders join hands to empower growth in flushable nonwovens applications

A globally recognized nonwovens value chain partner, NBond's flushable products have been introduced in the US, Europe, Asia-Pacific, and more. In China and Asia-Pacific in particular, NBond has collaborated with mainstream household brands such as Kimberly-Clark, Vinda, and BabyCare on flushable products.

In addition to joint product innovation, the collaboration between VEOCEL™ and NBond will cover the three key pillars of product, service, and sustainability. On product, to differentiate from flushable products made of wood pulp, VEOCEL™ Lyocell fibers with Disperse technology will help strengthen NBond's nonwoven fabrics in wet conditions, ensuring flushability while improving user experience. Moist toilet tissues, sanitary napkins and other personal hygiene products produced by NBond which adhere to G4 guidelines and the National Standards of China for flushability of nonwoven materials can decompose easily after being immersed in water. To date, high-quality, flushable, and degradable nonwoven products made of VEOCEL™ fibers have been widely recognized as a solution that covers fiber dispersion and strength.

On service, the technical support and consultancy service provided by VEOCEL™ empowers NBond to continuously optimize wetness, strength, thickness, safety, and sustainability in nonwovens fabrics, developing a strong portfolio of flushable products that focuses on comfort and care. In terms of sustainability, VEOCEL™ branded fibers, which have been certified by the EU Ecolabel for meeting high environmental standards throughout the entire life cycle of the fibers, can help NBond address heightened global consumer demand for premium nonwovens products that are made of botanic materials which can be biodegradable and compostable at the end of use.

"With NBond, we hope to expand the portfolio of flushable nonwovens products globally, not only around flushable wet wipes and sanitary products in the hygiene and surface cleaning segments, but also multipurpose dry flushable wipes in Asia," added Steven.

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Eurecat

The Eurecat technology showcased Photonic technology and artificial intelligence to predict textile manufacturing defects at ITMA Milan

- The Eurecat technology centre presented the solution developed in partnership with Canmartex at leading textile industry trade fair ITMA in Milan.
- The innovation features predictive technologies to analyse in real time the degradation of components such as needles and helps drive the industry's sustainability, boost production and cut costs.
- An estimated 92 million tons of waste is generated annually by the textile industry, 25 percent of which is produced during fabric manufacture.

The Eurecat technology centre exhibited at ITMA (International Textile Machinery) 2023, the leading trade fair for the textile industry running until 14 June in Milan, a solution harnessing photonic and Internet of Things systems coupled with artificial intelligence algorithms which predicts potential manufacturing defects before the fabric is made and warns the production manager who can then assess them and decide what to do.

The innovation, which has been developed specifically for large-diameter circular knitting machines in partnership with textile machine manufacturer Canmartex, "helps drive the industry's sustainability, boost production and cut costs while enhancing the innovative positioning of businesses," says Xavier Plantà, director of Eurecat's Industrial Technologies Division.

The technological solution is based on real-time analysis of the degradation of the most critical components in the manufacturing process including needles and platens.

An estimated 92 million tons of waste is generated annually by the textile industry, 25 percent of which is produced during fabric manufacture. Hence the idea is to carry out predictive control using digital technologies to "prevent typical quality problems or defects such as holes, streaks and spots which are generally only identified after the manufacturing process by experts or automated computer vision-based systems once they've already occurred," adds Xavier Plantà.

"The technology's approach and strategy is to anticipate defects before they happen and most importantly take action and remedy the causes which lead to them as reflected in its 'Better to predict than to correct' tagline," he points out.

About Eurecat

Eurecat, Technology Centre of Catalonia, brings together the expertise of more than 700 professionals who generate a volume of income of 55 M € per year. Serving two thousand companies, Eurecat is involved in more than 200 projects of R&D national and international with high strategic value and has 181 patents and 9 technology companies. It has eleven centres in Catalonia.

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SCIENCE IN INDUSTRY

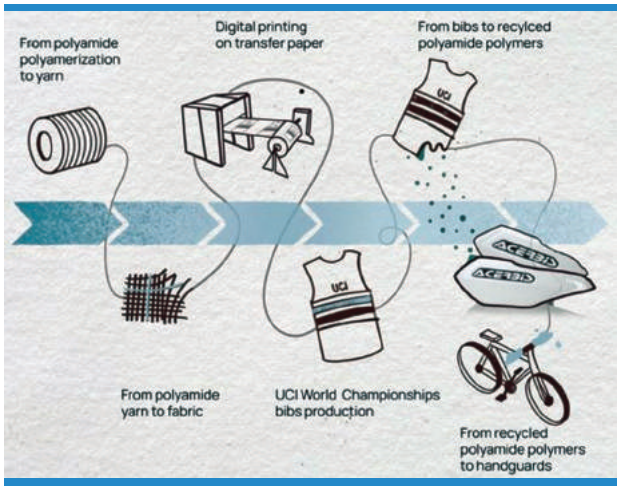
Radici Group

2023 UCI cycling world championships: staff bibs transformed into X-Elite handguards for mountain bikes

RadiciGroup and other companies from Bergamo partner for circularity. On the occasion of the 2023 UCI Cycling World Championships, the Union Cycliste Internationale chose Santini to make the bibs from totally recyclable materials, reflecting its ever-growing commitment to sustainability. The UCI's historic partner brought together a pool of companies, all in the Bergamo area (Italy): RadiciGroup, Sitip, EFI Reggiani and Acerbis.

In 2022, the Union Cycliste Internationale released the UCI Climate Action Charter, which lays out an action plan to advance the environmental sustainability of the sport with a specific principle to reduce waste and accelerate the transition to a circular economy. This year, the UCI Cycling World Championships, which will be held from 3 to 13 August, are bringing together most of the cycling disciplines in a single location: Glasgow and across Scotland. To mark the occasion, the UCI turned to its Official Partner, Santini, to make the bibs that the staff (judges, volunteers, commissaires etc.) and accredited photographers wear throughout the event. To fulfil this request, Santini created a supply chain made up of five zero-mile companies, all located in the Province of Bergamo: RadiciGroup, Sitip, EFITM Reggiani and Acerbis. The bibs for the 2023 UCI Cycling World Championships in Glasgow and across Scotland are "eco-designed", which means they are specifically created to have a second life after use. Once the event is over, the bibs could be collected and sent to RadiciGroup and transformed into new material, to be then processed by Acerbis to create X-Elite handguards for mountain bikes. This project is a concrete example of the circular economy at work, allowing 100% of the materials used to be recovered.

The production cycle - To optimise the production cycle of the bibs for the 2023 UCI Cycling World Championships, the products must be eco-friendly from the very first phase. The fabrics were therefore made from Italian nylon yarn produced by RadiciGroup. The impressive properties of the yarn guarantees that the resulting material is comfortable, high-performance, soft and luxurious: ideal for technical sportswear. The choice of nylon – an infinitely recyclable thermoplastic material – is strongly intertwined with UCI's sustainability goals for "limited-use" garments: RadiciGroup was able to channel its know-how and expertise in the field of chemistry to create "circular" bibs, working alongside the other partners. As the innovative yarn selected by RadiciGroup allows for easy and highquality printing, the fabric is also highly customisable, because sustainability does not mean sacrificing design, aesthetics or functionality. The yarn is then provided to Sitip to create the "ARAS



NG" warpknitted fabric (95 g/100 m2): a totally recyclable single-fibre material made from 100% polyamide. The resulting fabric is the first nylon of its kind, designed to meet the transfer printing needs of the third project partner, EFI Reggiani, as well as the recyclability standards requested by RadiciGroup. The choice of fabric was born from extensive applied research, in which EFI Reggiani tested a wide range of fabrics to find the best colour results and the best resistance to rubbing and perspiration, which is vital for the bibs' intended use. In addition to using the new GOTS-certified EFI Reggiani IRIS Plus waterbased inks, EFI Reggiani opted for a printing solution on transfer paper that does not consume water and requires a minimal amount of energy per square metre. Finally, the white fabric from Sitip and the transfer paper printed by EFI Reggiani arrived at Santini, who were responsible for transferring all the graphics for the 2023 UCI Cycling World Championships bibs from the paper onto the fabric. Santini also took care to assemble the garments using only thread and components made from nylon or chemically similar materials, allowing the bibs to enter the recycling process at the end of their lives without any further processing.

A second life for the bibs - At the end of the 2023 UCI Cycling World Championships in Glasgow and across Scotland, the bibs used over the course of the eleven days could be transformed into new raw materials to be used again within the cycling world. RadiciGroup has already verified that the recycling process is technically feasible at its plants specialising in the regranulation of recovered materials. The resulting materials can be used by Acerbis to create a finished product: the X-Elite handguards, which are attached to the handlebars of some mountain bikes to protect the riders' hands and shield the brake levers during falls. The bibs for the 2023 UCI Cycling World Championships are therefore born from a zero-mile production process, which saw neighbouring companies come together to achieve the common goal of creating a remarkable recyclable product.

For further information, please contact : communication@radicigroup.com. ❐

Gayatri Textile Machines

Customers' satisfaction prime moto of Gayatri Textile Machines'

Our prime motto is to satisfy customer in all respects. Only customer's satisfaction is our profit margin. Considering Quality, Prompt Delivery, Price & after Sales Service, we are getting good responses from India and International Market. Gayatri Textile Machine has gained a lot of International reputation having participated at many national & international textile trade fair like India ITME, ITM, DTG, VTG and ITMA etc.

Continuous design development / modification are being made in our range of products by studying customer's exact requirement, hence our products are successfully competing with others and exporting regularly in textile global market.

Last but not least, our entire expert technicians are working under one roof–Gayatri Textile Machines.

SCIENCE IN INDUSTRY

Cot Grinding Machine

Model GCGHY-200-25-AF

This machine has been sophistically designed and constructed to perform vibration free for high accuracy, high productivity, Superior operability with very less maintenance. Hydro – Pneumatically operated to grind R/F and S/F (Murata Airjet, Sussen, Rocos etc) Top rollers only on pneumatically operated Centrelss Grinding Attachment with 200 min. wide emery having surface finish/accuracy as per international standards. To load 75 to 80 Top rollers of R/F or S/F at a time in adjustable magazine which will come one by one for grinding automatically with auto feeding system which is controlled by digital LCD electronic timer to set grinding time. The machine is equipped with dust extraction unit.

You can use another side to grind longer rollers like Draw Frame, Comber etc are grinded between centre by the help of MT2 Dead Centre with 25mm wide emery and hydraulically operated table traverse

motion. Also we have made a provision that we have provided system for 200mm. wide emery attachment with hydro pneumatically operated Centreless Grinding attachment suitable to grind all kinds of R/F & S/F top rollers as an optional.

Net/Gross weight : 1400/1800 & 250/450 kgs

Size of cage L × W × H : 180 × 150 × 165 cm

Size of cage L × W × H : 180 × 85 × 160 cm

Ultra Violet Treatment Machine

The most advanced environment friendly and world wide accepted treatment for irradiation of all types of cots like Ring Frame, Speed Frame, Draw Frame, Comber, etc. Designed totally maintenance free to reduce lapping on buffed top rollers in spinning department. During treatment ultra violet rays improve the surface finish and control roller lapping to save costly rubber cots from damage ensuring consistency of yarn costly rubber cots from damage ensuring consistency of yarn quality and increased productivity, having 2KW, 1400 Volts, U.V. Lamp. For uniform treatment roller rotating system is provided. Treatment time is 6-8 minutes per batch for 35 top rollers of R/F and 20 of S/F. Loading and unloading of top roller is manual, safe and easy. Complete operation is controlled by auto reset timer.

Net/Gross weight : 450/650 kgs.

Size of cage L × W × H : 150 × 95 × 170 cm

Hydraulic Cots Mounting & De-mounting Machine

Machine is designed to mount & demount all types of longer top rollers like Comber, RSB Draw Frame "ALUCORE" cots etc. by horizontal attachment with roller guide, Stroke adjustment will be as per cots length. Separate Vertical attachment is provided for Ring Frame, Speed Frame & O/E & texturizing cots (Plane, PVC, Easyfit, Alucore) for more productivity. Hydraulic Power Pack is provided to operate both attachment at a time with 2HP, 3 Phase electric motor. Working pressure can be adjustable.

Net/Gross weight : 350/550 kgs.

Size of cage L × W × H : 195 × 105 × 120 cms

Spindle Lubricating Machine

Lubrication machine is designed with 2 separate guns — flushing & oiling guns for perfect flushing/clearning & oiling of spindle bolster for longer life of bearing, having trolley wheel to move one place to another place.

Due to zero leakage, there is no oil around the bolster which also ensures no fly and fluff accumulation, thus keeping the spindle/ring frame neat and clean.

Model	3 Tanks	2 Tanks
Flushing Tank	20 Ltrs	20 Ltrs
Oiling Tank	12 Ltrs	12 Ltrs
Topping Tank	10 Ltrs	—
Electric Motors	0.5 HP, 1440 RPM Single Phase	
Weight Net/Gross Kgs	110/230	100/220
Size of Case	125L × 60W × 110H cms.	

Flushing Gun (Clearning Gun)

Fitted with S.S. nozzle assmebly, which cleans the bolster from neck bearing to footstep bearing and the dirty oil will be sucked out efficiently which will go to the flushing oil tank duly filtered twice by micro filter.

Lubricating Gun (Oiling Gun)

Equipped with adjustable S.S. dual nozzle assembly and easily adjustable auto oil level gauge system to maintain automatic oil level uniformly with no overflow or leakage at all. The same gun can be used for oil topping facility.

For further information, please contact :
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Cot Grinding Machine Model GCGHY-200-25-AF

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- Cot mounting machine (Hand/Pneumatic)

Hydraulic Cots Mounting & De-Mounting Machine

Spindle Lubricating Machine

Cot Grinding Machine Model-GCGH-200

Cot Grinding Machine Model-GCGHY-200-AF

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