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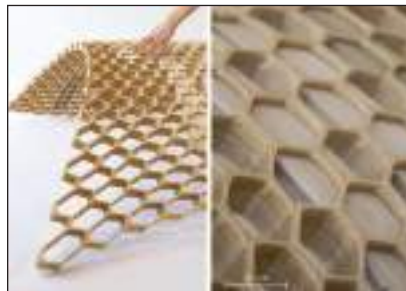
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Improvement of Surface Wettability & UV Resistance of Wood

Recent advancements in wood modification aim to enhance the inherent qualities of this versatile biological material, which includes renewability, ease of processing, and thermal insulation. This study focuses on evaluating the effectiveness of lignin as a protective agent for less durable wood species. The results showed that the treatments significantly improve the hydrophobicity of wood surfaces, particularly in pine wood, and provide protection against UV ageing. By Rene Herrera and Oihana Gordobil, University of the Basque Country (UPV/EHU), Faksawat Poohphajai, Aalto University School of Chemical Engineering, and Anna Sandak, University of Primorska.



Wood is a highly adaptable biological material with numerous advantages, including its renewability, ease of processing, thermal, and acoustic insulation properties. In contrast to commonly used fossil-based materials like concrete, steel, and plastics, wood offers additional benefits such as carbon fixation and the ability to reduce carbon footprint.

However, due to its hydrophilic nature, wood tends to expand or shrink, which can compromise its dimensional stability, durability, and restrict its range of applications. Consequently, the natural characteristics of wood necessitate treatments to address these issues and extend its service life, thereby expanding the areas for potential applications.

Furthermore, wood is often perceived as a less durable material, and the visual appearance of wood-based products plays a crucial role, particularly since wood tends to undergo colour variations when exposed to direct sunlight, resulting in a general greying or darkening effect.

Additionally, excessive exposure to water accelerates the process of photo degradation, as it opens up the cell wall regions of the wood, making them susceptible to ultraviolet (UV) radiation.



The energy carried by UV radiation can lead to the degradation of non-structural components within the wood. These natural effects pose significant challenges to the widespread acceptance of wood as a bio-building material, requiring measures to enhance the service life of wood products.

Currently, various methods are employed to protect wood from external factors, including chemical modifications, thermal treatments, and the application of additives or chemicals as coatings or penetrating finishes with protective formulations.

These approaches often involve the covalent bonding of chemicals, altering wood moisture sorption properties or filling the cell wall with chemical compounds to block hygroscopic groups and reduce sorption sites.

These methods contribute to the long-term durability and enhance the dimensional stability of wood. To address concerns related to the toxicity and environmental impact of the chemical treatments traditionally used, there remains a need for sustainable and bio-based solutions that target multifunctional material protection while addressing the limitations of current approaches.

Innovative wood treatments explore the use of natural bioactive additives or products that can be impregnated into the wood, as well as the use of micro or nanocarriers that can deliver components at various scales, targeting multiple properties.

In this context, lignin, a macromolecule abundant in nature, emerges as one of the most promising raw materials. This polyphenolic polymer is primarily derived from the underutilised byproduct of the pulp and paper industry (as precipitated kraft pulping black liquor), but is also a native and intrinsic component of wood.

The utilisation of lignin for wood protection presents an interesting alternative, given its significant phenolic content and inherent functionalities, such as pathogen resistance, thermal stability, biodegradability, antioxidant activity, and UV radiation absorption.

However, to unlock the full potential of lignin in wood applications, modifications are necessary to break down its molecular structure and enhance its reactivity.

Gordobil et al. used esterified organosolv lignins isolated from hardwood and softwood as protective agent for wood products resulting in a stable hydrophobic and oleophobic behaviour on wood veneers over time, which was confirmed by the accelerated aging test.

Other authors evaluated the use of lignin nanoparticles for wood surface treatment using a dip-coating technique and



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observed higher protection to UV irradiation and oxidation of treated than untreated wood samples.

Additionally, an innovative approach to wood treatment involves surface preparation through plasma treatment, which offers an environmentally friendly method to modify or enhance the effects of applied products on wood surfaces.

In this study, the potential use of lignin as a sustainable protective agent for less durable wood species, such as beech and pine, was evaluated. The objective was to simultaneously improve relevant properties of wood, such as dimensional stability and UV resistance, by means of sustainable and eco-friendly modification process to enhance its service life performance.

Simple vacuum impregnation methodologies were employed to impregnate lignin in various forms, and their effectiveness in reducing the hydrophilic nature of wood and protecting its surface against UV ageing was compared.

To enhance wood hydrophobicity, kraft lignin was acetylated to shield the phenolic hydroxyl groups, and lignin nanoparticles were utilised to address their inherent heterogeneity, making them more homogeneous, and thus to improve stability.

The results were evaluated based on the targeted properties, and the hydrophobic effect was further enhanced through the application of plasma treatment.

Materials Used

Samples from Slovenian plantation-grown wood were used for this study, the softwood species European black pine (*Pinus nigra*) and the hardwood species European beech (*Fagus sylvatica* L.).

Samples of heartwood boards free of defects were cut with dimensions of 2 mm (rad.) × 15 mm (tang.) × 30 mm (long.) and conditioned (moisture content: 6.75% (*Pinus nigra*); 7.83% (*Fagus sylvatica* L.), both at 25 °C; 65% relative humidity).

Thirty replicates were used for each modification set and for the reference set.

Three different types of lignin were used to impregnate the wood: (1) Softwood kraft lignin (L) isolated from the Lignoboost process, (2) softwood kraft acetylated lignin (AL), and (3) softwood kraft lignin nanoparticles (LNPs) produced in a pilot plant with an average size of 183.6 nm.

For the impregnation process, L and AL were prepared in NaOH solution (1%) at a concentration of two percent (w/v) and LNPs in water at a concentration of two percent wt.

Each set of samples was kept at 50 deg C for 48 h and then weighed and impregnated with lignin solutions in a vessel connected to a pump, applying a vacuum impregnation cycle for approximately two hours at room temperature. After the impregnation process, the excess product was removed by rinsing wood with water, and the samples were conditioned at 50 deg C for 48 h.

Characterisation

The physical changes in wood after impregnations were measured in terms of weight percent gain (WPG), absorption dose (AD), and density.

Changes in wettability and surface free energy of wood were evaluated by the sessile-drop technique using optical tensiometer Attention Theta Flex Auto 4 (Biolin Scientific, Gothenburg, Sweden).

Three replica measurements were performed on each sample (10 samples per treatment) with distilled water, ethylene glycol, and diiodomethane as test liquids. The measurement of the drop shape (volume 4 µL) started at the initial drop contact with the assessed sample surface and lasted for 60 s.

The free surface energy was calculated from the interactions of the liquid and the solid states following the routine proposed by Owens, Wendt, Rabel and Kaelble (OWRK). The total surface free energy (γ_{tot}), as well as its polar (γ_p) and disperse (γ_d) components were determined for all samples.

A multiple comparison procedure analysis of variance (ANOVA) was used to determine which means were significantly different from others, as well as the confidence levels and Tukey significant difference (TSD) was applied after rejecting the null hypothesis.

For each set of treatments, water sorption and desorption isotherms were calculated using a dynamic vapour sorption apparatus (DVS—surface measurement system).

Each sample was cut and a small piece (± 20 mg) was taken including the surface and the internal part of the wood.

It was then placed on an aluminium plate connected to an ultra-sensitive microbalance capable of recording mass changes at a resolution of 0.1 mg at established sorption–desorption conditions. Climate control is assured by mixing dry nitrogen (0% Relative Humidity, RH) with saturated water vapour (100% RH).



Lignin nanoparticles (LNPs) treatment on wood properties



European beech (Fagus sylvatica L)



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The mixture of both gases was controlled in the closed loop system by continuous monitoring of the relative humidity with ultrasonic (time of flight) sensors. The samples were subjected to a gradual increase in relative humidity (20, 40, 60, 80, and 95% RH), followed by a sequential reduction to 0 percent RH.

The instrument maintained the sample at a constant RH until the weight change per minute fell below 0.002 percent for at least 15 min.

The maximum period of the sorption–desorption step was set as 360 min. The moisture content was computed on the dry mass basis (absolute moisture content) as a percentage ratio of the water mass to the dry matter’s mass of the tested material.

From the obtained data, the hysteresis and the sorption–desorption curves after two consecutive cycles were calculated, which is a recommended protocol for all materials of unknown sorption characteristics.

These may be altered by the permanent physical–chemical changes (or chemical reactions) occurring in the presence (or absence) of moisture.

A set of samples (5 samples per treatment) was subjected to cycles of UVA (100%, 8 mW/cm²), UVB (100%, 2.4 mW/cm²), and UVC (20%, 10 mW/cm²) radiation (Irradiation chamber Opsytec) at 15 cm and 25 deg C.

The effect of radiation was monitored by measuring the colour changes after 300 h of UV cycles. Samples were scanned with an office scanner HP Scanjet 2710 (300 dpi, 24 bit) and saved as TIF files.

Colour changes were assessed by means of a MicroFlash 200D spectrophotometer (DataColor Int, Lawrenceville, IL, USA) following the CIE Lab system where colour is expressed with three parameters: L* (lightness), a* (red-green tone), and b* (yellow-blue tone).

The selected illuminant was D65 and the viewer angle was 10 degrees. Five replica measurements were performed on each sample and the confidence levels and TSD were applied in the same way as was described. Thermogravimetric analyses were performed using a thermogravimetric analyser Discovery TGA-5500 (Waters TA Instruments).

For the thermal analysis, 5–10 mg of each wood sample was cut including the surface and the internal part of the wood, then placed in a platinum crucible and analysed under N₂ and O₂ atmosphere (25 mL/min) from 25 to 800 °C with a heating rate of 20 °C/min.

Thermogravimetric (TG) and derivative thermogravimetric (DTG) data generated by the instruments were decoded using TA Instruments TRIOS software (2021).

Leaching tests were performed according to EN84 with some modifications. Briefly, each set of treatments (5 samples each) was subjected to vacuum for two hours and then immersed into 500 mL of distilled water for 240 h, with the water being changed every 24 h.

Subsequently, the wood samples were collected and dried at 50 deg C for 48 h to calculate the weight loss, wettability changes by water contact angles (WCA) measurements, and colour changes.

An atmospheric plasma diffuse coplanar surface barrier discharge (DCSBD) was used as a post treatment method with the objective of determining changes in the hydrophobicity of the treated surfaces.

Five samples from each treatment were exposed to a micro discharge for two s/mm of sample at one mm distance from the surface under ambient conditions. After plasma exposure, samples were conditioned (23 °C, 65% RH) and the WCA was measured.

Physical & Hygroscopic Properties

The degree of impregnation was evaluated through the weight percent gain (WPG) resulting from the treatments applied to the wood, and by calculating the absorption dose of the product. The absorption dose is the difference between the oven-dried weight and the conditioned weight of the samples.

The results showed no statistical differences in WPG among the different treatments. However, when considering the wood species, it was observed that hardwood samples (beech) exhibited WPG values that were 40 percent lower compared to softwood samples (pine), irrespective of the specific lignin treatment employed.

Additionally, the absorption dose of the products was similar in both species, with a slightly higher percentage observed in the softwood samples.

The results suggest that beech, which has a higher density and cell wall thickness compared to softwood, exhibits reduced permeability and slower moisture loss during the conditioning process. This is supported by the slight increase in moisture content (MC) observed after treatment.

Nevertheless, a linear correlation was identified between WPG and density for both pine wood and beech wood. The findings suggest that the effectiveness of the lignin treatment is primarily influenced by the substrate.

In general, the treatments are better suited for low-density species since they possess a higher impregnation capacity and have a more suitable anatomical configuration. In contrast, denser species may require longer impregnation times or cycles to penetrate the cell wall adequately, thereby achieving more optimal results.

To assess the effectiveness of water repellence, the static water contact angle (WCA) was evaluated over time and changes in the surface free energy of the wood were calculated.

Both treated wood species exhibited an increase in WCA, but higher values were observed in the softwood species, showing hydrophobic values (WCA > 90°), during the first few seconds in all treatments except for beech-LNPs treatment, which was slightly higher than the reference hardwood sample.

After 90 s, the WCA were smaller in all samples, but the values for pine-L and beech-L treatments remained relatively steady, indicating that this treatment allows for only a partial wetting of wood surfaces.

It is important to note that all samples were sanded (280-grit sandpaper) to achieve the same surface roughness, ensuring that the evaluation of surface properties occurred under consistent conditions.

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Consequently, the variations observed in WCA were primarily attributed to the surface chemistry of each wood species and their interaction with the functional groups present in the lignin solutions (mainly carboxyl, methoxy, and hydroxyl groups).

The analysis of the surface free energy components of wood showed that the polar share was reduced to values below one mJ/sqm in the treatments applied to pine wood and beech-AL.

This indicates a decrease in the wettability of the wood after these treatments, particularly with acetylated lignin, where higher water contact angles (WCA) and lower polar interaction on the surfaces were observed.

This shift toward lower wettability in pine wood treatments and beech-AL can be attributed to the modification of the surface free energy as a consequence of the applied treatments.

Acetylated lignin, for example, may introduce hydrophobic characteristics to the wood surface, reducing the polar interaction and making it less susceptible to wetting.



European black pine (*Pinus nigra*)

To study the changes in the dimensional stability of wood samples at different moisture contents, experimental adsorption and desorption tests were performed and the sorption isotherms and the hysteresis behaviour were analysed.

Similar isotherms of both untreated and lignin-based treated wood were shown, with a sigmoid shape isotherm (type II), typical adsorption performance of monolayer-multilayer lignocellulosic materials.

Analysis of the hysteresis plot revealed varying effects on the hygroscopic behaviour of wood among the treatments and wood species. The width of the hysteresis loop in wood depends on internal bonding between individual cell wall polymers.

With the increased number of bonds, the loop increases. In the case of treatments on softwood, pine-AL exhibited a stable performance across the entire moisture range, while pine-LNPs showed stability from 75 percent relative humidity (RH) onwards.

On the other hand, in hardwood treatments, beech-AL displayed minor differences in equilibrium moisture content (EMC) within the 35–65 percent RH range, while beech-LNPs showed similar behaviour from 65 percent RH.

However, both pine-L and beech-L did not demonstrate significant improvements in dimensional stability, exhibiting similar dimensional changes to those observed in the untreated samples.

Furthermore, the reduced effect of LNPs treatment on hygroscopic properties could be explained by the mechanism of lignin nanoparticle formation, in which dissolved lignin is precipitated in water (antisolvent).

This process leads to the formation of a core-shell structure, where hydrophobic regions are assembled first to form the particle's core, while the most polar molecules are adsorbed on the surface, creating a layer with low water repellence.

The observed differences in moisture sorption and release rates can be attributed to various factors, including the wood microstructure, chemical composition, and pore structure. These characteristics play a significant role in determining the dimensional stability of wood.

In this study, it was evident that the softwood species, with their distinct microstructure and chemical composition, may possess favourable attributes that contribute to their enhanced dimensional stability when compared to hardwood.

Moreover, the changes in the EMC after treatments are crucial in determining a wood's ability to withstand dimensional changes. The treatments had a notable impact on the EMC, particularly in the case of beech wood.

This suggests the need for potential improvements in impregnation parameters or sample preparation to enhance its dimensional stability.

Although the dynamic vapour sorption (DVS) analysis does not follow the standard for the determination of moisture stability on wood samples, it is considered a useful technique for the determination of sorption isotherms of materials providing numerous advantages in comparison with a traditional static method.

Post-leaching Cycle

The retention levels, WCA, and colour changes in the treated wood after a leaching cycle are presented. The WPG loss in all treated samples was lower than the initial WPG, particularly in softwood, where more than 70 percent of the product was retained in all treated samples.

Conversely, the retention of lignin in hardwood samples was negligible for beech-L (1%), while it reached a maximum of 58 percent for beech-LNPs.

The observed WPG loss in all cases can be attributed primarily to the removal of water-soluble wood extracts and unreacted solution. The effectiveness of the impregnation

process is directly correlated with the permeability of the wood species.

It can be concluded that pine wood is suitable for impregnation with lignin-based treatments, as it exhibits lower leaching compared to beech wood. Treatment of beech was found to be less effective, most likely due to a more closed cell structure, making it less receptive to lignin impregnation.

The type of lignin affects treatment effectiveness. It was observed that impregnation with unmodified lignin was more leachable in both species. This indicates that it is more difficult for untreated kraft lignin to penetrate the wood structure, and thus further modifications to the lignin or adjustments in particle size are necessary to enhance its retention.

The water contact angle (WCA) was measured after the leaching test to assess changes in the surface wettability of the treated samples. It is noteworthy that all treated samples exhibited similar tendencies in terms of WCA values after 60 s.

However, it is particularly interesting to notice the hydrophobic behaviour in the pine-L treatment. This suggests that the impregnation of pine wood with the specific treatment resulted in a surface that repels water, indicating improved water resistance and potential durability of the treated wood.

Additionally, colour changes (ΔL , Δa , Δb , ΔE) were measured after leaching to assess the impact on the appearance, considering that the original wood colour was noticeably altered due to the treatment. The results showed no tendency regarding the treatment or wood species after leaching.

However, it is noteworthy that both the pine-L treatment and the beech-LNPs treatment overall exhibited reduced colour changes (Δ colour). Furthermore, it was observed that pine-LNPs and beech-AL treatments shift toward a darker surface and reddish tone on the surfaces, as indicated by their negative lightness values (ΔL) and positive Δa values.

Enhanced Water Repellence

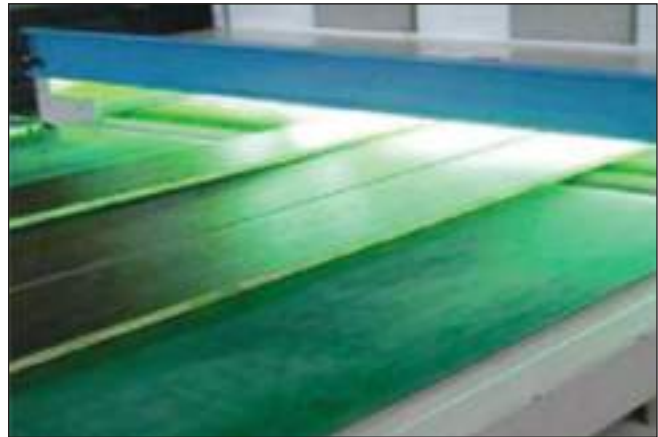
All target properties were enhanced after the lignin-based treatments. However, to explore potential post treatments that could enhance the effectiveness of lignin treatments, samples were subjected to micro discharge using ambient air as the process gas with an atmospheric plasma (DCSBD).

First, reference samples were tested, resulting in a decrease of approximately 30 percent in WCA from its initial value for pine wood and approximately 50 percent for beech wood.

This effect indicates that surface activation in the reference samples led to increased liquid absorption rather than repellence, aligning with findings reported by other researchers. With regards to the treated samples, the results were compared with the obtained values of water contact angle (WCA) without plasma treatment.

All the treated samples, after plasma micro discharge, showed a decrease in polarity at the initial time ($WCA > 10\%$). This tendency remained constant over time, with improved WCA values exceeding 50 percent. The treated surfaces exhibited hydrophobic characteristics ($WCAs > 90^\circ$), particularly in the case of softwood surfaces (pine). This hydrophobic nature was maintained over time, with contact angles exceeding 110 degrees after 60 s.

The resulting values after surface plasma treatment suggest that the changes in surface chemistry or composition, such as oxidation or modification of hydroxyl, carbonyl, and carboxyl groups associated with the added lignin, could be responsible for the observed effects.



In previous studies using DCSBD treatment to modify surface polarity, researchers reported an increase in water contact angles (WCA) due to the degradation of hemicellulose on the surface during the discharge process.

These findings indicate that plasma treatment has the potential to further alter the surface properties of the samples and enhance their hydrophobicity.

However, it is important to note that the exact mechanisms underlying these changes in surface structure and chemistry are still not fully understood.

Further research is needed to investigate the specific molecular interactions and transformations that occur during plasma treatment. Additionally, the long-term stability and durability of the modified surfaces should be assessed to determine their practical implementation in various applications.

Conclusions

The results of this study provide valuable insights into the effects of kraft lignin (L), acetylated lignin (AL), and lignin nanoparticles (LNPs) treatment on wood properties when applied at ambient temperature within short impregnation cycles. Similar weight percent gain (WPG) was found among the treatments.

However, hardwood samples (beech) exhibited lower WPG values than softwood samples (pine), indicating reduced permeability and slower moisture loss during the conditioning process.

The treatments improved the hydrophobicity of the wood surfaces, with higher water contact angles (WCA), particularly in softwood species. This suggests that the treatments had a more pronounced effect on the surface chemistry of pine wood, allowing for only partial wetting of the surfaces.

The hygroscopic behaviour of the treated wood varied among the different treatments and wood species. While pine-AL and pine-LNPs showed stability in terms of equilibrium moisture content (EMC) at higher relative humidity levels, beech-AL and beech-LNPs exhibited minor differences in EMC within specific RH ranges.

Although the treatments resulted in a darker and less homogeneous colour of the samples, pine-AL, beech-AL, and beech-LNPs treatments exhibited relatively minor changes in colour parameters, indicating a lesser impact on the visual appearance.

Thermal analysis showed lower degradation in L and AL treatments, indicating that these treatments contributed to the formation of a protective layer or barrier, reducing susceptibility to oxidative degradation and enhancing fire resistance properties.

Moreover, UV ageing tests indicated that the treated samples exhibited better resistance to degradation caused by UV radiation compared to the reference samples.

The leaching tests demonstrated the effectiveness of the impregnation process. Pine wood showed less leaching compared to beech wood, suggesting its suitability for lignin-based treatments.

Additionally, the micro discharge plasma treatment (DSCBD) applied to the treated surfaces increased their

hydrophobic character with WCA values exceeding 90 degrees and remaining consistent over time. This surface post treatment could improve moisture resistance and durability of lignin-based impregnations.

In summary, the investigated lignin-based treatments showed promising effects on various wood properties, including moisture sorption, hydrophobicity, colour stability, thermal performance, and leaching.

Bio-based wood treatments simultaneously improving relevant wood properties are particularly interesting for future industrial upscale due to the lack of sustainable and eco-friendly solutions targeting multifunctional material protection.

Conducted research contributes toward understanding the effects of bio-based treatments on different wood species and provides insights for their application in various sectors.

Further research is necessary to explore the full potential of lignin and further improve its effectiveness, optimisation, as well as to upscale the treatment process. (Source: FDM Asia). □

Government launches ‘one nation-one pass’ regime for seamless transit of timber and other forest produce



In a move which may provide a significant impetus to the agroforestry sector, the environment ministry launched the National Transit Pass System (NTPS) as a “One Nation-One Pass” regime to facilitate seamless transit of timber, bamboo, and other forest produce across the country. Currently, the transit permits are issued by different states based on state-specific transit rules.

Since each state has its own transit regulations, one has to get a separate transit pass issued in each state. The entire process, therefore, makes it quite a time consuming process, causing hurdles in transporting timber and forest products.

The NTPS, launched by environment minister Bhupender Yadav, will now enable seamless transit of timber, bamboo, and other forest produce across the country.

Flagging-off two vehicles carrying timber and other forest produce from Gujarat and Jammu & Kashmir which were bound for West Bengal and Tamil Nadu, Yadav said the impact of the NTPS extends beyond merely encouraging agroforestry and tree farming as it promises to incentivize the entire value chain. “The

system will also serve as a bridge between the rural and urban economy,” he said. Under the new system, the QR coded transit permits will help check-gates across various states to verify the validity of the permits and allow seamless transit.

“This initiative will streamline the issuance of timber transit permits by providing a unified online mode for tree growers and farmers involved in agroforestry across the country, thus encouraging them to actively adopt the precept ‘Wood is Good: Grow More, Use More’,” said environment secretary, Leena Nandan.

The launch of NTPS is in addition to the ministry’s other programmes such as the Indian Forest and Wood Certification Scheme and the Trees Outside Forest Initiative which were conceived to support ease of doing business.

“These initiatives are geared towards tapping into the substantial potential of tree cultivation in and beyond forest landscapes, aligning with national goals of environmental conservation, ecological balance, and sustainability,” said the environment secretary.

She said, “NTPS is designed for user convenience, featuring desktop and mobile applications for easy registration and permit applications. Transit permits will be issued for tree species which are regulated, while the users can self-generate No Objection Certificates (NOC) for exempted species.

“The NOC generated in the originating state under NTPS for exempted tree species will be valid across other states, even if the species is not exempted in those states.”

Presently, 25 states/UTs, including Madhya Pradesh, Jharkhand, Bihar, Chhattisgarh, Andhra Pradesh, West Bengal, Tripura and Jammu & Kashmir, have embraced the unified permit system, streamlining inter-state business operations for producers, farmers, and transporters. □

ARCHIDPANEL
SINCE 1976

EDHMR • MDF • PRE-LAM

A SUSTAINABLE WORLD PANEL BY PANEL

On the auspicious day of Guruwar Pukhya Naxatra, Archidply Industries Ltd. forays into MDF & HDF manufacturing through its 100% subsidiary company ARCHIDPANEL Industries Pvt. Ltd. located at Industrial Estate Sidcul in Sitarganj Uttarakhand. The plant was inaugurated on January 25th 2024 by the chairman Mr. Deen Dayal Daga.

crores annually to the group's turnover. The project falls under the Mega Industrial and Investment Policy of Uttarakhand offering various subsidies.

It has been an enriching experience for Mr. Rajiv Daga, Managing Director of Archidply Industries Ltd. who has led this greenfield project alongside his senior team members.

The facility is located in close proximity to Eucalyptus Timber which is the main raw material used in the manufacturing of MDF & HDF and thus making it cost effective. ARCHIDPANEL will further enhance its wood panel offerings to consumers through its existing sales and marketing network. The addition of MDF & HDF will further strengthen the positioning of the brand as a "one stop" solution of all interior requirement which includes Plywood, Laminate, Doors.

Medium Density Fibreboard (MDF) is an Engineered wood, manufactured with hardwood fibres, bonded together under high pressures and temperature upto 240 degrees Celsius, by synthetic resin and wax.



The Bhumi Pujan took place in June, 2022 and on site work started from October 2022 after the blueprint of the plant was completed.

The facility is spread over 25 acres of land on which the civil team has built covered area of 1.5 lac sqft. In the first phase 250 CBM/day capacity has been installed which will add 200





UNIQUE KEY FEATURES OF ARCHIDPANEL

- **CUTTING EDGE TECHNOLOGY**

ARCHIDPANEL is manufactured using the cutting edge Multi Opening Press technology which is established as a superior technology for producing uniform density across the board and hence making it a more durable and stronger product.

- **VARIETY OF PRODUCTS**

The Brand offers a plethora of products under its umbrella, namely MDF Interior Grade, Exterior Grade, HDF (“EDHMR”), Pre-laminated MDF and EDHMR.

- **RENEWABLE & RECYCLABLE**

It is manufactured using short cycle rotational eucalyptus wood which is grown for 3-4 years hence making the product environment friendly compared to other wood based products. Eco-friendly MDF can also be recycled at the end of its life cycle.

- **VERSATILE & DURABLE**

It can be easily cut, shaped, and finished to meet various design requirements. ARCHIDPANEL MDF is suitable for various kind of applications. It is formable, chipping-free, easily moulded, and cost effective, making it a highly wanted product in the interior solutions industry.

- **QUALITY CHECKS**

The Scalper equipment ensures the in built quality checking system during the manufacturing process.

- **SUPER SMOOTH SURFACE**

ARCHIDPANEL MDF Boards have uniformly smooth surfaces due to the superior Sanding machine. The even surface, free from nubs and external particles, is a perfect substrate for laminates or veneers.

- **HIGH MOISTURE RESISTANCE**

ARCHIDPANEL HDF boards “EDHMR” are very strong with high resistance to extreme climate of heat and moisture. Their high resistance makes them suitable for all locations in India and applications such as kitchens cabinets, wall panelling etc.





- **RESISTANCE TO BORERS & TERMITES**

ARCHIDPANEL MDF Boards chemical composition allows for resistance to termites and borers ensuring greater durability.

- **EXTENSIVE RANGE OF DESIGNS**

ARCHIDPANEL offer a vast variety of Decorative designs for the panels due to its close proximity to its Decorative Laminate facility.



Record year for U.S. hardwood exports to India

Total value of American hardwood lumber and veneer exported reached USD 8.482 million in 2023

The total value of exports of U.S. hardwood lumber and veneers to India in 2023 was USD 8.482 million, according to the American Hardwood Export Council (AHEC), the leading international trade association for the American hardwood industry. The statistics, which have been compiled from the latest data released by the United States Department of Agriculture (USDA), were announced following AHEC's successful participation at INDIAWOOD, which ran from February 22 - 26, 2024 at the Bangalore International Exhibition Centre (BIEC), in Bengaluru, India. A total of fourteen U.S. hardwood log, lumber and veneer exporters participated at the show under the banner of the American Hardwood Pavilion.

A closer look at the numbers for 2023 reveal that total hardwood lumber shipped from the United States to India increased by 3 percent in value to USD 7.024 million (up from USD 6.839 million in 2022) and by 21 percent in volume to 11,604 cubic meters (up from 9,614 cubic meters in 2022). At the same time, direct exports of American hardwood veneers to the market reached USD 1.458 million whilst exports of logs fell to USD 3.569 million (down by 47 percent) and 6,250 cubic meters (down by 36 percent). A record year of exports to India coupled with India's growing appetite for temperate hardwoods in the face of decreasing local supply has bolstered U.S. hardwood exporters to become increasingly active in India.

The top six American hardwood species exported to India last year were white oak (USD 1.894 million and 2,880m³), red oak (USD 1.251 million and 2,160m³), hickory (USD 1.175 million and 1,428m³), ash (USD 1.09 million and 1,964m³), maple (USD 662,000 and 1,417m³) and walnut (USD 301,000 and 326m³). The biggest increases were seen in the value and volume of exports of ash (235 percent and 282 percent), maple (242 percent and 231 percent), and walnut (45 percent and 52 percent). Committed to supplying India, which has demonstrated a growing appetite for U.S. hardwoods in recent years, AHEC participated at INDIAWOOD with an American hardwood pavilion, which included 14 U.S.-based hardwood exporters.



AHEC also hosted a 'mini-convention' and trade servicing mission to Jaipur following the conclusion of INDIAWOOD. Several U.S. hardwood exporting companies in addition to AHEC staff and technical consultants traveled to Jaipur in Rajasthan in

order to conduct a series of factory visits in conjunction with the Federation of Rajasthan Handicraft Exporters (FORHEX). Building on previous successful activities that have been jointly hosted by AHEC and FORHEX, the trade servicing mission aimed to facilitate real trade between manufacturers in Jaipur and AHEC members. Visits to some of the leading manufacturers also helped American hardwood exporters better understand their needs, whilst the seminar threw the spotlight on new opportunities for American hardwoods, particularly for products destined for export markets.



"India emerged as the biggest growth market for U.S. hardwood lumber in the first half of 2023 and this trend continued throughout the year. Our participation at INDIAWOOD reflects our commitment to cater to and expand further in this market at a time when demand for American hardwoods is at an unprecedented high. However, this growing interest must be supported by a better understanding of the physical properties and potential for applications offered by the different species of American hardwood. Our participation at the show as well as the seminar with FORHEX provided the perfect opportunity to share this knowledge and to build a stronger relationship with Indian architects, interior designers, furniture designers, and manufacturers," concluded Roderick Wiles, AHEC Regional Director. □

Implementation of Mandatory QCO on MDF, Particle Board and Block Board has been postponed for a year

Quality Control Order, QCO for mandatory BIS on MDF, Particle Board, and Block Board has been postponed for a year. The new date of implementation is 11 Feb, 2025 as per DPIIT, Ministry of Commerce, Government of India notification dated 12th March. The wood based board QCO 24 will be effective for the small and micro industry from 11th May 2025 and 11th August 2025 respectively. □

Dieffenbacher supplies CEBRO MDF plant to Thailand

Wisewoods expands production capacity in Phetchaburi



The CPS+ continuous press, the centerpiece of the new DIEFFENBACHER MDF plant for Wisewoods Co. Ltd. in Khao Yoi, Phetchaburi, Thailand, is currently under construction.

Thai MDF producer Wisewoods Co. Ltd. has commissioned DIEFFENBACHER to supply a CEBRO MDF plant to expand its production capacity at the company's headquarters in Khao Yoi in the province of Phetchaburi. Plant assembly has been underway since January 2024, with the first board production scheduled for the third quarter.

In keeping with DIEFFENBACHER's CEBRO smart plant concept, the new plant will use Z-Sifter technology and the PROjet glue-saving system to help Wisewoods achieve operational excellence, one of CEBRO's four pillars.

Wisewoods exclusively uses rubberwood fibers as the raw

material for its MDF boards. "Before processing rubberwood, it's important that the latex components are eliminated from the raw material," says Visarut Palarit, Deputy Director at Wisewoods. "The unique Z-Sifter technology was a key reason we chose DIEFFENBACHER for our new MDF plant," he adds.

"The many Z-shaped sifting stages of the DIEFFENBACHER Z-Sifter provide a sharp separation line, making the separation of lighter rubberwood particles possible. With its high sifting efficiency and low power consumption due to the proven airflow management system, the Z-Sifter is Southeast Asia companies' first choice of latex removal technology," explains Holger Ries, Area Sales Director at DIEFFENBACHER. "The Z-Sifter also efficiently eliminates other contaminants such as wood residues, glue lumps, fiber deposits, minerals and metals from the fiber flow. This ensures high-quality board surfaces and protects downstream machinery from damage, especially when producing thin board," he continues.

PROjet is an MDF blow-line gluing system that delivers resin savings of up to 15% compared to conventional blow-line technology. It's applicable for both UF and MUF resin. With PROjet, MDF manufacturers can produce board surfaces with fewer resin spots.

DIEFFENBACHER will also supply Wisewoods with the glue preparation and dosing system, the forming station and forming line, a CPS+ continuous press and the raw board handling system. The contract with Wisewoods also includes plant electrics and automation. □

Red sanders found only in India, yet it's imported from smuggling zones



Despite red sanders being endemic to Rayalaseema in India is importing it from unexpected sources such as Malaysia, Myanmar, China and even Slovakia. The first three are also smuggling destinations for the prized wood.

India imported 2,871 cubic metres of red sanders from Malaysia, 700 cubic metres from China, 493 cubic metres from Myanmar and 17 cubic metres from Slovakia, as per data from 2006-2019. While exports have been fluctuating over the past decade, the Research and Information System for Developing

Countries (RIS), a Delhi-based autonomous policy research institute, said apart from AP, states such as Telangana, TN and WB are also exporting it. RIS professor SK Mohanty said most exports were in raw form as it fetched Rs 25 lakh to Rs 50 lakh per tonne.

"Those who purchase seized red sanders from state govts export it raw for immediate returns and don't want to wait to process it. It is time value-added products were given importance so that India can earn more in exports," he said. Value-added products such as musical instruments and furniture get more value in the international market, he said.

"We have not created adequate infrastructure for exporting red sanders. We need precision technology and skilled artisans to cut and carve the wood into value-added products. Woodcutters from Tamil Nadu can be trained as artisans," he said

Mohanty said that India should learn from China which uses festivals such as Christmas and Ganesh Chaturthi to sell its products. India should capitalise on the demand for red sanders in China and make products, he said, adding that Japan, South Korea and the United States have also emerged as export destinations to some extent. □

Duroply Launches Podcast Series ‘Beyond Blueprints’



Duroply, premium and most experienced among the leading plywood players in India, has unveiled its latest initiative, “Beyond Blueprints”, a podcast series where interior designers and architects bring to life their evolution and factors that have evolved their design philosophy.

Duroply Executive Director and Chief Executive Officer, Akhilesh Chitlangia is the host of this unique podcast series that addresses a critical emerging need where many Indians have begun getting interiors of their houses designed by a professional interior designer and architect.

All videos of interviews with architects and interior designers are available on the Duro TV Channel on YouTube, while all the episodes of podcasts can be found searching for Beyond Blueprints on Spotify.

Akhilesh Chitlangia, Executive Director and Chief

Operating Officer, Duroply, said, “We believe that everyone deserves a well-designed home that reflects their personal style and preferences. With ‘Beyond Blueprints,’ we hope to demystify the world of interior design and architecture, making it understandable and accessible to all.”

He further added, “Our goal is to empower individuals with the knowledge and inspiration they need to make their homes aesthetically beautiful and at the same time, functional spaces. Through engaging conversations with industry experts, ‘Beyond Blueprints’ aims to empower every Indian to see their thoughts take shape in their home’s interior design. This podcast is a valuable resource for anyone interested in the world of interior design.”

On the necessity of such a podcast series, Chitlangia added, “With rising affluence, and the trend of larger homes, more Indians are now wanting to go that extra mile to engage an architect and interior designer. As an innovation driven customer centric Company, we have been providing solutions that we feel is the need of the masses. ‘Beyond Blueprint’ was conceived to address this need to gain insight into the creative minds that shapes home design.”

‘Beyond Blueprints’ offers a unique opportunity for homeowners to delve into the world of architects and designers, gaining a deeper understanding of the thought processes and ideas that go into creating stunning living spaces.

An interior designer or an architect is also a human being and he/ she also goes through the same pulls and pressures of life. This journey gives birth to innovative ideas and solutions, that is a fusion of aesthetics and functionality, beauty and affordability, and grandiose looks and efficient space management. Duroply invites homeowners, design enthusiasts, and anyone interested in the world of interior architecture to tune in and explore the endless possibilities of home design. □

Seventeen countries pledge in COP28 to use more sustainably harvested timber for construction purposes

An announcement made at COP28 to increase the use of timber in construction purposes as a key decarbonisation strategy has been applauded by several organisations, including the International Sustainable Forestry Coalition (ISFC) and the Wood Processors and Manufacturers Association. The announcement was made at a COP Presidency event under the auspices of the Forests and Climate Leaders Partnership (FCLP) which is co-chaired by the United States Special Presidential Climate Envoy, John Kerry and the Minister of Lands and Natural Resources for Ghana, Samuel Jinapor.

The announcement said:

“A coalition of 17 countries – Commonwealth of Australia, Canada, Republic of Congo, Republic of Costa Rica, Republic of Fiji, Republic of Finland, Republic of France, Federal Republic of Germany, Republic of Ghana, Japan, Republic of Kenya, Republic of Korea, Kingdom of Norway, Islamic Republic of



Pakistan, Kingdom of Sweden, United Kingdom of Great Britain and Northern Ireland, United States of America – have endorsed the following statement:

“Recognizing that wood from sustainably managed forests provides climate solutions within the construction sector, we commit to, by 2030, advancing policies and approaches that support low carbon construction and increase the use of wood from sustainably managed forests in the built environment. Such policies and approaches will result in reduced GHG emissions, and an increase in stored carbon.”

The convening chair of the ISFC, Dr David Brand, said: “The construction sector and the built environment account for more than a third of global emissions and it is critical that countries move quickly to lower carbon emissions and increase stored carbon by using far more timber in buildings.

“We also need to replace plastics with fibre based products and bring sustainably produced bio-based materials at scale into textiles and fuels and pharmaceutical production systems. We are pleased that the ISFC is specifically referenced in the supporting documentation for this announcement.”

Mark Ross, CEO of the Wood Processors and Manufacturers Association, said: “Initiatives such as the ‘Building for Climate

Change’ regulatory programme and ‘Lowest Carbon Building Procurement Policy’ are good starts, but more needs to be done by the [New Zealand] government such as recognition of the value gained in long-term carbon storage from the domestic manufacture of harvested wood products.

“As a country we have a lot to gain through supporting increased timber usage. It is essential that our new government now steps up and joins the global parties in committing to advancing policies and approaches that support low carbon construction.”

Launched in September 2023, the ISFC aims to advocate for the increasing the global provision of renewable materials in the context of a circular bioeconomy; supporting growth that is compatible with climate and nature recovery imperatives; embedding science-based principles in policy and incentives; and increasing benefits to rural and Indigenous Peoples.

New Zealand-based Wood Processors and Manufacturers Association focuses on promoting wood as the heart of a future zero-carbon economy. □

Rushil Decor ventures into Eco-Friendly Plywood Segment



Rushil Decor Limited (“RDL”) (BSE: 533470, NSE: RUSHIL), a global leader in modern interior infrastructure and eco-friendly wood panels, announces its expansion into the eco-friendly plywood segment. The company, known for its sustainable MDF and laminates, is committed to environmentally responsible practices and aims to revolutionize the plywood industry with its latest venture.

The eco-friendly plywood, made from wood sourced through agroforestry, is a sustainable alternative that promotes environmental conservation. Agroforestry utilizes wasteland for growing wood trees, providing a renewable source of wood while preventing deforestation. Rushil Decor’s commitment to green practices extends to its integrated green ecology approach, ensuring a positive impact on the environment.

Rushil Decor, upon receiving prior approvals, will form a joint venture with an existing plant in Chikmanglur, Karnataka and its promoters to establish Rushil Modala Ply Limited, a 51% subsidiary of Rushil Decor. The proposed new subsidiary company will have initial investment upto INR 20 crores in the proportion of 51 :49 by RDL and Joint venture partner respectively. With this strategic venture, Rushil has solidified its position as a comprehensive solution provider in the home decor segment by catering to existing customers the multiple products, boasting an extensive product portfolio that now includes:

1. Laminates
2. MDF Boards
3. PVC
4. Wooden Flooring
5. Plywood

Mr. Krupesh Thakkar, Chairman of Rushil Decor, expressed confidence in the venture, stating, “The incremental turnover post-expansion of our eco-friendly plywood capacity is projected to be about INR 60 crores in FY24-25 & around INR 150 crores in FY25-26. We expect to commence commercial production immediately upon completion of company incorporation formalities in the current financial year i.e. 2023-24, with a positive impact on Rushil’s ROCE.”

In addition to the eco-friendly plywood venture, Rushil Decor is progressing with its plans to manufacture jumbo laminates, a value-added product, at a new plant, scheduled to start commercial production in H1’25, the project has the potential to generate additional sales of approximately INR 150 crores in FY 2025-26 with an EBITDA margin in the mid to high teens.

Collectively, these two new project initiatives are expected to contribute approximate INR 300 crores of incremental turnover with incremental EBITDA in excess of INR 40 crores in FY25-26. Rushil Decor aims to achieve sales of INR 1200 crores and EBITDA in excess of INR 200 crores in FY25-26.

RDL has 5000+ dealers and distributors across India. The advantage of distribution of Eco Ply will be huge as the existing network is available and no additional investments are needed in building the supply chain. RDL exports almost 30% of its revenue. With new laminates (specifically 14 x 6 & 12 x 5 / 6) set to start production, and its thrust on exports will yield a high margin with a significant contribution to the sales and profits of the company. With ecofriendly products in MDF and Ply and accreditation as BIS product suppliers under 3-star export status, RDL’s products are fetching better margins. □

Call for plywood manufacturers to diversify into niche global markets



International Tropical Timber Organisation (Itto) executive director Sheam Satkuru

Malaysian plywood manufacturers should diversify into producing hardwood plywood products for niche markets internationally beyond the construction industry. They can consider diversifying into the production of wooden flooring, high-density fibreboard and wood panels that cater to interior usage of buildings, according to International Tropical Timber Organisation (Itto) executive director Sheam Satkuru. Most Malaysian plywood manufacturers now produce products for the construction industry.

“They need to upgrade their factories and prepare to invest in new technologies and machinery to manufacture new plywood products to be competitive in the international market.

“The future of tropical plywood is to capture the niche market from eco-friendly hardwood plywood for the construction industry. The tropical plywood industry should adapt to changing demand to supply products to both lower and higher end-users,” she told StarBiz.

She said to encourage plywood manufacturers to upgrade their plants and invest in new machinery, the Malaysian government could help by providing tax rebates or other incentives if these manufacturers are producing legally certified plywood products for export.

Satkuru is Itto’s first female executive director and second Malaysian to head this only inter-governmental organisation focused exclusively on the sustainable management of tropical forests and the sustainable and legal trade of tropical timber and timber products.

Before her election as Itto executive director in December 2021 for a four-year term, Satkuru was Itto director of operation (October 2017 to January 2022) and was based in Europe for Malaysia. She has nearly 30 years of experience in tropical forest policy and the wood products industry.

“Tropical plywood production has undergone major changes in location, from Japan and Indonesia to Malaysia (until the 2000s) and then to China, India and to a lesser extent Vietnam.

“This is due to the relative competitiveness of plywood processing in the major producer countries and growth in domestic plywood demand in China and India, declining availability of large-diameter peeler quality logs and changes in production technology, rising production costs and the increased availability of panel substitute products,” said Satkuru. She said China and Vietnam have now become major tropical manufacturing hubs for processed wood products (SPWP).

According to Japan Finance Ministry’s latest data carried by Itto in its bi-monthly “Tropical Timber Market” report, the country has raised the imports of plywood from China and Vietnam in recent years and sharply cut the shipments from top suppliers Malaysia and Indonesia.

In 2022, Malaysia and Indonesia were tied as both countries exported 702,700 cubic metres (cu m) of plywood to Japan, but the export volume fell to 533,300 cu m and 543,700 cu m respectively in 2023.

During the same period, China and Vietnam had raised their plywood export volume to Japan from 108,600 cu m and 134,000 cu m each to 142,900 cu m and 178,800 cu m, respectively.

Japan is the No. 1 export market for tropical hardwood plywood produced in Sarawak. In 2023, Japan paid RM1.21bil (free on board value) for 474,402 cu m imported from Sarawak, and this represented about 81% in value and 77% in volume out of the RM1.49bil earned by Sarawak in the export of 613,548 cu m for the year.

In 2021, Sarawak exported 987,694 cu m of plywood worth RM2.15bil, according to export figures from the Sarawak Timber Industry Development Corp (STIDC).

Sarawak’s plywood production volume has dropped significantly over the years as log shortage and rising log prices have impacted plywood manufacturing activities.

One of the leading timber companies, Jaya Tiasa Holdings Bhd, shut down its loss-making plywood plants three years ago while most other companies have reportedly cut down their annual production volumes due to the weak imported plywood prices in the Japanese market.

Satkuru said Malaysia, Indonesia and Thailand are also important tropical SPWP producers based on plantation timber.

As log production from tropical natural forests is declining as a result of governments’ sustainable forest management policy, she said degraded tropical forests should be reforested through the cultivation of high-value fast-growing timber species.

Satkuru called for joint ventures by consuming and producing countries to embark on industrial tree plantation projects on a share-profit basis to ensure the supply of wood materials for the wood-processing mills.

On global deforestation, Satkuru said many Itto member countries are making serious attempts to reduce the deforestation levels, adding, “I foresee in the next five to seven years, many countries will substantially improve in the deforestation levels.”

The world lost an estimated 10 million ha of forest (an area the size of South Korea) per year between 2015 and 2020, only slightly less than the 12 million ha per year lost between 2010 and 2015, according to global forest resources assessment 2020.

Based on Itto reports, the deforestation levels in Malaysia and Indonesia have fallen to near record lows. Malaysia achieved a 57% reduction rate from 2015-2017 to 2020-2022 period.

Itto Strategic Action Plan 2022-2026 lists one of the priorities as to “reduce tropical deforestation and forest degradation, enhance forest landscape restoration and the resilience of forest ecosystems to climate change and conserve biodiversity and ecosystem services”.

Satkuru said tropical forests represent 45% or 1.84 billion ha of all forests. On funding for Itto projects in member countries, she said Itto had for the first time in 10 years raised more than US\$7mil in 2023 from voluntary contributions, mainly by Japan, China and the United States.

“We are now targetting non-traditional donors as it is insufficient to rely only on traditional donors for the funds. We are in talks with three potential external donors, one of them is expected to come to fruition in 2024.

“We need a minimum of US\$10mil a year to fund Itto projects in Asia, Latin America and Africa. In addition, we require about US\$7mil a year for the administration requirements of Itto,” she added.

Since it became operational in 1987, Itto has funded more than 1,200 projects, pre-projects and activities valued at more than US\$430mil. A major Itto project in Sarawak is the Lanjak Entimau Wildlife Sanctuary, a 1,870-km large protected area for especially orang utan conservation.

“Malaysia has always been seen as a shining beacon of tropical forestry leadership,” said Satkuru. “Malaysia is one of the founding members of Itto, which currently has 76 members from both producing and consuming countries.”□

Blum Introduces ‘REVEGO’ New Pocket System for Furniture Units



Pocket systems from Blum conceal functional furniture units and improve the quality of life in your home, yet assembly could not be simpler. Blum’s REVEGO the new pocket system, provides a seamless solution for large cabinet fronts, concealed kitchen units, and complete living areas as per your needs. This innovative design not only offers versatile options but also ensures easy planning and assembly, enhancing overall usability.

More and more people are combining their kitchen, dining, living, and working areas into one contemporary open-plan space. With increasing urbanisation and more densely populated metropolitan areas, the living spaces of the future are also likely to be smaller. The pocket systems from Blum open up brand-new opportunities; the ability to quickly open up complete living areas when you need them and simply close them off again helps to create a homely atmosphere. This brings completely new design possibilities for rooms, both big and small.

The new pocket systems product category is characterised by the ease of use that is synonymous with Blum: with the TIP-ON motion technology, users open cabinet doors with the lightest of touches and slide them away completely into the

pocket. The kitchen workspace, home office, and laundry room are now easily accessible. To close off the space, the user simply presses the door to release it from the pocket and then presses it again to elegantly conceal the entire area. When they are closed, the doors conceal the furniture units, including their pockets, making REVEGO the ideal solution for the multifunctional use of space.

What makes the pocket systems so innovative? The unique one-touch door system for single and double-door applications is impressive, not least thanks to its fully integrated technology and ease of integration into the kitchen layout or furniture units. The smart fixed-width cabinet solution can also be easily incorporated into plans featuring standard cabinets: pocket widths are 100 mm for the single-door REVEGO uno and 150 mm for the double-door REVEGO duo. When it comes to design, the solution offers plenty of room for manoeuvre: the single doors can be 450 to 900 mm wide, and the double doors can be 450 to 750 mm wide, as well as 1800 to 2500 mm high. The pocket systems can also be produced and pre-assembled by the manufacturer for delivery to the place of installation. Final assembly on site is therefore simplicity itself: put up, align, and mount the pockets; install the doors and track; make any final adjustments; and that’s it!

Blum’s REVEGO product innovations have earned the prestigious Red Dot Award for outstanding design in 2022. The distinctive pocket door system captured the attention and admiration of the jury due to its seamlessly integrated technology and exceptional design quality. The unique features and excellent design of REVEGO make it stand out, earning it this prestigious design award. The fully integrated technology not only showcases innovation but also underscores the commitment to excellence in both form and function. This recognition reaffirms Blum’s dedication to delivering cutting-edge solutions that seamlessly blend advanced technology with superior design aesthetics.□

Anticipating a Transformative Year: The Indian Furniture Industry's 2024 Outlook



As we step into the New Year, the Indian furniture industry braces itself for a transformative journey in 2024. With shifting consumer preferences, technological advancements, and a burgeoning demand for innovation, the sector is poised for unprecedented growth. In this landscape, the pivotal role of global manufacturers becomes increasingly evident as they contribute to shaping the industry's trajectory.

The India furniture market size reached US\$ 23.9 Billion in 2023. Looking forward, IMARC Group expects the market to reach US\$ 54.3 Billion by 2032, exhibiting a growth rate (CAGR) of 9.3% during 2024-2032. The analysis indicates a significant surge in consumer demand for functional and aesthetically pleasing furniture, driven by an increased focus on home spaces influenced by remote work trends and changing lifestyle patterns.

“In the dynamic landscape of the Indian furniture industry, 2024 is poised to be a year of profound change. As we witness shifting consumer preferences, Formica India is committed to bringing forth innovative solutions that seamlessly blend global design excellence with our rich cultural heritage.” – Mr. Ajay Khurana, MD, Formica India.

As environmental consciousness takes center stage, there is a palpable shift towards furniture crafted with eco-friendly materials and manufacturing processes. This presents an opportunity for both local and global manufacturers to align with these evolving preferences and contribute to a greener future.

In this dynamic landscape, global manufacturers are set to

play a pivotal role in the growth journey of the Indian furniture industry. With their vast experience, technological prowess, and commitment to innovation, these manufacturers are well-positioned to bring cutting-edge designs and international quality standards to the Indian market.

Mr. Khurana further adds, “Collaboration is key in this era of transformation. Formica India recognizes the importance of forging strategic alliances with global manufacturers to introduce cutting-edge designs and elevate the overall industry standards. Together, we aim to redefine the possibilities within the Indian furniture market.”

One notable trend is the increasing collaboration between Indian furniture companies and global manufacturers to introduce a diverse range of products that blend cultural aesthetics with contemporary design sensibilities. This synergistic approach not only enriches the local market but also opens up avenues for global manufacturers to tap into the rich tapestry of India's design heritage.

Strategic Expansion and Innovation

To delve deeper into the expectations for 2024, it is crucial to understand the strategic expansions and innovations that global manufacturers are poised to bring to the Indian furniture landscape. Research indicates that a significant number of global players are gearing up to establish or expand their presence in the Indian market, capitalizing on the country's robust economic growth and burgeoning middle class.

Moreover, the incorporation of advanced technologies such as augmented reality (AR) and virtual reality (VR) in the furniture retail experience is expected to gain traction. This innovation not only enhances the customer shopping experience but also allows global manufacturers to showcase their diverse product portfolios in immersive and interactive ways.

With sustainability gaining prominence in consumer preferences, global manufacturers are dedicating increased efforts and investments towards eco-friendly practices and materials. The insights highlight a growing consumer trend where a substantial portion places a high priority on furniture brands showcasing a commitment to environmental responsibility. This shift underscores the imperative for global manufacturers to seamlessly integrate sustainable practices into their production processes, contributing significantly to the eco-conscious evolution of the Indian market.

In conclusion, 2024 promises to be a landmark year for the Indian furniture industry, marked by innovation, sustainability, and collaborative efforts between local and global players. The research-backed insights underscore the need for adaptability and foresight as the industry navigates through a landscape shaped by changing consumer expectations and global influences. As global manufacturers contribute their expertise and innovations to this growth journey, the Indian furniture industry stands at the threshold of an exciting era of transformation. □

Forestry offers pathway for sustainable future, says Executive Director at conference



ITTO Executive Director Sheam Satkuru delivers her keynote address on the opening day of the International Conference on Sustainable Management of Tropical Forests. Photo: R. Carrillo/ITTO

IITTO Executive Director Sheam Satkuru said in her keynote address at the International Conference on Sustainable Management of Tropical Forests that sustainable forest management in the tropics provides a viable way forward for the planet.

The two-day conference, attended by about 200 experts, officials and stakeholders from Malaysia and around the world, is exploring the nexus between forestry and sustainable development towards establishing a holistic strategy for conserving the long-term vitality of tropical forests.

Ms Satkuru said forests, especially tropical forests, are critical for dealing with global challenges such as climate change, biodiversity loss and poverty.

“The effective implementation of sustainable forest management (SFM) in the tropics has never been more pressing,” she said. “Sustainably managed tropical forests and associated legal and sustainable timber supply chains are vital for ensuring the longevity of tropical forests while addressing forest and biodiversity conservation and responsible production and consumption.”

Ms Satkuru said the sustainable harvesting, processing and trade of tropical timber and other forest products serve many purposes, such as supplying consumers worldwide, contributing to local and national economies, and enhancing the value of tropical forests—a key factor in reducing forest conversion to other economic land uses.

“When sustainably managed, tropical forests are healthy, productive and renewable ecosystems and contribute nature-based solutions to global challenges,” she said. Moreover, sustainable forest management is essential for achieving the 2030 Agenda for Sustainable Development and most of the Sustainable Development Goals.

In her address, Ms Satkuru presented on trends in tropical timber production and trade between 1990 and 2020, based on an ITTO report to be released later this year, and outlined the work ITTO is doing to promote legal and sustainable timber supply chains and sustainable wood use.

In summing up, Ms Satkuru said sustainable forest management in the tropics, forest-based enterprises, and international tropical timber trade are means for adding value to tropical forests by contributing to the environment, economies and livelihoods.

“It is critical to dispel the misconception that harvesting in a tropical forest leads or contributes to deforestation,” she said. “Timber, when sourced, processed and used legally and sustainably, is a renewable, carbon-storing and recyclable material—a cornerstone of sustainability.”

The conference features speakers from academia, the private sector, government and non-governmental organizations. In addition to her keynote address, Ms Satkuru moderated a session on the theme, “Climate-smart SFM—What are the options?” □

Gattani Industries Enters Into Laminate Manufacturing with Plant In Gujarat



The leading plywood manufacturer based in the North-East is going to set up a decorative laminate and plywood manufacturing unit in Ahmadabad, Gujarat. The plywood unit has started production, and they are producing blockboards and flush doors. Their laminate production will start in March.

Initially, they are setting up one press with a capacity of 1.8 lakh sheets per month and in next four to five month they are planning for second press to increase there capacity to around 3.6 Lakhs sheet per month.

Mr. Makhhan Gattani, Managing Director, Gattani Industries, said to that he has planned to enter into laminate manufacturing since a year. He feels that Gujarat is a suitable place for venturing into laminate manufacturing because the place is hub for laminate production. They will focus on 1mm and 0.8mm

laminates that will commence production soon.

Gattani is a well-known brand of plywood manufacturing in the north-eastern states located Jorhat, Assam. With plywood, they also produced WPC at their facility in Assam. Mr Gattani says that he has a vision to reach out to the pan-India market for its plywood brand. With the commencement of production of plywood in Gujarat, they can supply their material in the pan India.

“The plywood unit has started production, and they are producing blockboards and flush doors. Their laminate production will start in March. Initially, they are setting up one press with a capacity of 1.8 lakh sheets per month and in next four to five month they are planning for second press to increase there capacity to around 3.6 Lakhs sheet per month.”

They have a strong presence in North-Eastern states, along with West Bengal, Bihar, Jharkhand, Odisha, UP, etc., and nearby regions. With the new plant, they will reach out to other markets with the vision of having a national presence. Mr. Ayush Gattani Executive Director says that Ahmedabad is very near to Kandla Port, so they will easily source sustainable raw materials for Block Board and Flush Door for units located in Gujarat. The company says that their target is to increase capacity in the coming years at their Gujarat-based manufacturing setup. □

Increasing Core Veneer Import From Nepal & Vietnam

Plywood import fear has been looming over overseas producers from Nepal and Vietnam, with the QCO on mandatory BIS on Plywood. As per report, the producers are looking to supply Core Veneer to Indian Plywood units, if the implementation dates remain the same. As per report, the number of Core Veneer Containers from Vietnam has increased to 25% in the month of January, and it has reached ports as well as factories located in Haryana and Punjab. A Haryana based plywood producer said that he has been using a good quantity of Vietnam core veneer, which is now cost effective due to less moisture content.

Vietnam based Core Veneer importers view that the quantity would improve in the near month, because the prices have eased compared to previous month, and once the plywood import will stop, it will go down further. The imported core veneers are helping plywood producers, because the timber prices were reported to control due to import, says a plywood producer. Port based Plywood units located in Gujarat, Tamilnadu has mostly shifted its production of imported core veneer and logs, as per industry reports.

Kandla, Vishakhapatnam, Cochin ports have received good volumes of logs from Brazil, Argentina, Uruguay, Australlia etc for core veneering for the plywood sector. The Plywood industry views satisfaction over the quality of imported logs and core veneers. Besides, there is a report of an increasing number of containers of core veneers from Nepal to Indian Plywood units



in January month. Plywood Industry based in Uttar Pradesh, Bihar, Jharkhand has reported to increase volume of Nepal Borne Core Veneer. Sources say that if mandatory BIS has been implemented as per schedule deadline, the number core veneer containers from Nepal will increase in the coming month. □

Increase in wood product exports from **Brazil** in February sends positive signal on markets



The global timber market showed positive signs in February 2024 despite continued overall lacklustre performance, according to the latest edition of the Global Timber Index (GTI) Report, released today. The ITTO-supported GTI tracks the timber sectors in eight pilot countries around the world, with Thailand joining this month and other countries likely to join soon.

GTI values were below the threshold of 50% in February 2024 for all participating countries, thus indicating an overall decline in their timber sectors. The three best-performing countries (although still declining) were Thailand (45.6%), Indonesia (44.0%) and Gabon (43.5%), followed by Brazil (39.6%), Republic of the Congo (35.5%), Mexico (35.2%), China (31.7%) and Malaysia (23.2%).

Despite the continued downturn, timber production and trade began returning to normal in some countries, with markets showing positive signs due to the diminishing influence of factors such as holidays. In Brazil, export orders for wood products increased in February; Gabon’s new orders held steady; Thailand’s export orders remained at the same level as January; and Republic of the Congo’s downward trend in export orders eased.

In celebration of the Spring Festival, factories in China halted operations for nearly half of February, resulting in a significant reduction in timber production and trade, but activity is expected to pick up in late March.

Some GTI pilot countries reported notable achievements towards the development of a legal and sustainable timber industry in February. For example, a new vocational training and education centre in Gabon’s Special Economic Zone, NKOK, commenced training for sawyers, peelers, joiners, sharpeners and others with the aim of creating a pool of skilled forest-sector workers for NKOK and across Gabon.

On 9 February, Mexico’s National Forestry Commission signed an agreement with the state of Mexico to strengthen forest conservation training, enhance community involvement, develop the forest industry, and improve quality of life for local communities.

The second meeting of the Ad Hoc Joint Task Force on the European Union Deforestation Regulation (EUDR) was held in Putrajaya, Malaysia, in early February. During the meeting, a representative of Indonesia’s Coordinating Ministry for

Economic Affairs said the Indonesian government was hoping for a concrete solution—such as delayed EUDR implementation—from the Ad Hoc Joint Task Force. The European Commission said it would cooperate with Indonesia and Malaysia to ensure that smallholders in all relevant commodity sectors remained in deforestation-free supply chains. The European Commission welcomed the commitment of the two countries to developing rigorous tracking systems and strengthening their certification systems. □

Wood Panel Import Statistics in **India**

Import of Wood Panel Products from 2019-20 to 2023-24						
Import (Value in Crores)						
Year	Plywood	MDF	Particle-board	Veneer	Sawn Timber	Log
HSN code	4412	4411	4410	4408	4407	4403
2019-20	740	685	308	1843	3121	6427
2020-21	605	387	196	1433	2717	5520
2021-22	773	432	185	2180	3055	7289
2022-23	1068	724	238	2121	4010	8569
2023-24	1009	722	146	2042	2459	5144

Export of Wood Panel Products from 2019-20 to 2023-24						
Export (Value in Crores)						
Year	Plywood	MDF	Particle-board	Veneer	Sawn Timber	Log
HSN code	4412	4411	4410	4408	4407	4403
2019-20	226	158	47	152	21	146
2020-21	241	242	29	185	27	35
2021-22	278	229	38	243	53	236
2022-23	604	482	73	305	66	68
2023-24	322	345	36	257	41	266

Import Export Gap Wood Panel Products From 2019-20 to 2023-24						
(Value in Crores)						
Year	Plywood	MDF	Particle-board	Veneer	Sawn Timber	Log
HSN code	4412	4411	4410	4408	4407	4403
2019-20	514	528	261	1691	3100	6281
2020-21	364	145	167	1247	2690	5485
2021-22	495	203	147	1938	3002	7052
2022-23	463	242	165	1816	3944	8501
2023-24	687	377	111	1784	2418	4878

Amulya Mica & Distributors & Dealers Meet at Bengaluru on 24 March 2024



Amulya Mica recently hosted a vibrant gathering for its distributors and dealers in South India at their newly inaugurated warehouse in Bengaluru, accompanied by the launch of two exciting catalogues showcasing Solid Colors. The event, held at Hotel Chancery Pavilion Bengaluru on March 24th, 2024, commenced with the ceremonial lighting, followed by Ganesh Vandana and the national Anthem, setting an auspicious tone.

The primary aim of the gathering was to introduce delegates to the newly opened warehouse facility and unveil the latest two catalogues. The company's Bengaluru Region associate Business Partner Mr. Amit Poddar & Mr. Bikas Poddar of Radheshyam Laminates, Bangalore, Vizag distributor Mr. Vishnu Pacharia of Nikita Plylam, Vizag, Hubli distributor Mr. Vijay Karaveerashetter of Karaveer Agencies, Hyderabad distributor of Amulya Mica Mr. Pawan Kumar of Vaishnavi Agencies and Saket Mica distributor Mr. Gangaram Choudhury of Srirama Marketing, Chennai's new distributor Mr. Aman Jain of S.K. Agency and entire south India's dealers more than 50 graced

the occasion. From Amulya Mica company's management team and sales team of South India had welcomed and interacted with the delegates, with the esteemed presence of MD Mr. Rakesh Agarwal and Executive Director Mr. Abhishek Agarwal.

The delegates were given a tour of the spacious new warehouse facility located in Hobli Kumblagodu, Bengaluru urban, which boasts three times the capacity of its predecessor. Stocked with a comprehensive range of products including plywood, laminates, PVC Boards, Door Frames, PVC Laminates, and Cladding, the warehouse ensures prompt delivery services covering Tamil Nadu, Kerala, Karnataka, and Andhra Pradesh. Equipped with modern logistics infrastructure, the facility promises efficient operations and reliable service to customers.

Subsequently, a meeting was convened at Hotel Chancery Pavilion Bengaluru to introduce two new catalogues Amulya Mica Imm Solid Colour Collection "CYANO" and Saket Mica Solid Colour "Monochrome" from the esteemed channel partners. These remarkable ranges redefine elegance, blending



style, innovation, and meticulous craftsmanship. Featuring a captivating array of solid colours, this collection is making waves globally. Mr. Raja Gopal Pillai, VP–South and West provided insights into new collection.. The Amulya Mica 1mm Solid Colour Collection offers an extensive variety, comprising 115 Pieces, 51 Décor Papers and 11 textures. The Saket Mica 1mm Solid Colour Collection boasts an impressive variety, including 101 Tukadi 44 Papers and 11 textures. From abstract to high glossy, stone, 3D effect, Super Matt, Flute, and wooden patterns, these collections cater to diverse interior applications. Not only are these laminates competitively priced, but also come with a reassurance, highlighting their resilience and durability.

The company’s Bengaluru Commercial head Mr. Vivek Kedia presented the power point presentation and informed how new set is ready for supplying all materials in quick and fastest way.

Mr. Amit Poddar along with Mr. Bikas Poddar also spoke about his long bond with Amulya Mica. Amulya Mica’s all products are superior quality and in regard to service always prompt delivery.

Mr. Abhishek Agarwal, Executive Director, elucidated

the company’s commitment to efficiency and innovation. He emphasized the uniqueness of Amulya Mica’s products and shed light on industry trends, such as growing demand for Solid Colors, particularly Pastel Shade., renowned for their calming effect and durability. Additionally, he highlighted E0 Plywood certification from California, a rare in panel trade, underscoring the company’s adherence to quality standards.

MD Mr. Rakesh Agarwal expressed gratitude to the delegates and welcomed new channel partners, reaffirming Amulya Mica’s dedication to growth, expansion, and quality assurance. He shared insights into ongoing projects, emerging product trends like WPC/PVC Door & Frame, certification like SGS certificate and E0 plywood certification from California, a rare in panel trade and the company’s accolades and CSR initiatives. Assuring sufficient stock availability in the new warehouse, he encouraged delegates to extend Amulya Mica’s reach across South India with Amulya Mica tagline “**चर सजाये, साथ निभाए**”.

The event concluded with a delightful gala dinner, accompanied by music and presentations of token of appreciation.□

Purbanchal Laminates has released new catalogue of Amulya Mica 1mm solid colour collection “CYANO”

Purbanchal Laminates Pvt. Ltd proudly presents the latest catalogue unveiling the Amulya Mica 1mm Solid Colour Collection” CYANO”. This remarkable range redefines elegance, blending style, innovation, and meticulous craftsmanship. Featuring a captivating array of solid colours, this collection is making waves globally.

Amulya Mica epitomizes a perfect fusion of sophistication and contemporary flair, catering to the discerning tastes of consumers, particularly the youthful and tasteful demographic. Solid-colour laminates, renowned for their versatility, provide a dynamic canvas for interior designers to apply the principles of colour psychology in their creative endeavours.

The increasing popularity of solid colours can be attributed to various factors. The rising trend of minimalism in both design and lifestyle has fuelled a preference for clean and uncluttered aesthetics. Solid colours, with their simplicity and refinement, seamlessly align with this trend. Moreover, their versatility allows them to complement various design styles, ensuring a timeless appeal that withstands changing fashions. Pastel colours, especially are revered for their ability to create a serene atmosphere, embodying resilience and durability.

The Amulya Mica 1mm Solid Colour Collection offers an extensive variety, comprising 115 Pieces, 51 Décor Papers and 11 textures. From abstract to high glossy, stone, 3D effect, Super Matt, Flute, and wooden patterns, this collection caters to diverse interior application. Not only are these laminates competitively priced, but also come with a reassuring ten-year warranty, highlighting their resilience and durability.

The practicality of solid-coloured laminates extends to their robust properties, including scratch resistance, durability, and ease of maintenance. This makes them highly desirable for



a multitude of applications in both residential and commercial settings, from kitchen cabinets to furniture and wall panels.□

Purbanchal Laminates has released new catalogue of Saket Mica 1mm solid colour collection

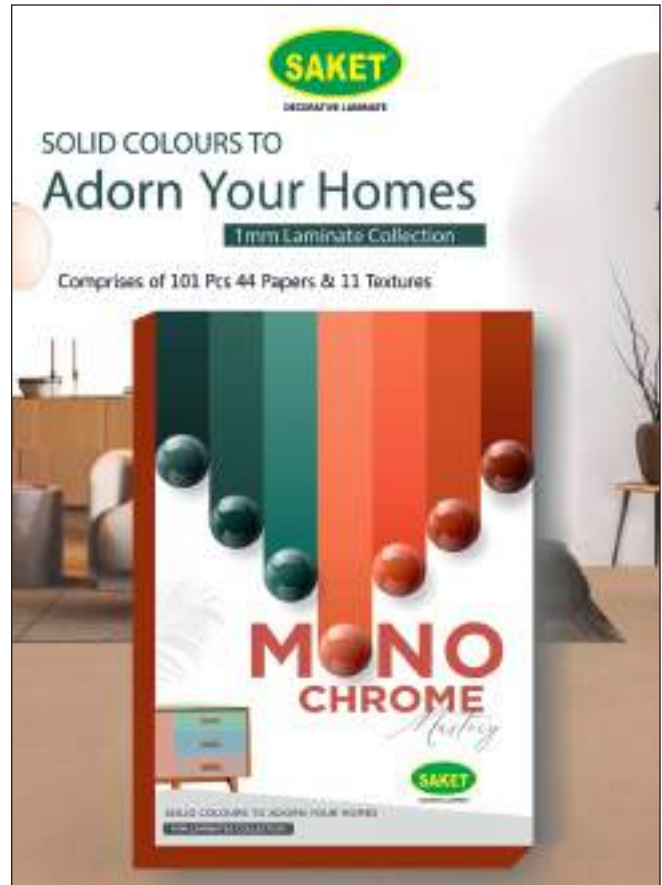
Purbanchal Laminates Pvt. Ltd is thrilled to unveil the latest catalogue showcasing the Saket Mica 1mm Solid Colour Collection, just in time for the ushering in of the New year 2024. This exceptional range of laminates positions Saket Mica uniquely, blending fashion, innovation, and impeccable craftsmanship. The collection features a stunning array of Solid colours that are currently making waves globally.

Saket Mica stands out as a perfect fusion of chic and contemporary designs, catering to the refined tastes of discerning consumers, particularly the youthful and tasteful demographic. Solid-colour laminates, known for their versatility, serve as dynamic canvas for interior designers, allowing them to apply the principles of colour psychology in their creative endeavours.

The popularity of solid colours can be attributed to various factors. The growing trend of minimalism in both design and lifestyle has spurred a preference for clean and uncluttered aesthetics. Solid colours, with their simplicity and elegance, align seamlessly with this trend. Additionally, the versatility of solid colours enables them to complement various design styles, ensuring a timeless appeal that withstands the test of changing fashions.

The Saket Mica 1mm Solid Colour Collection boasts an impressive variety, including 101 Tukai 44 Papers and 11 textures. The design range encompasses abstract, high glossy, stone, 3D effect, Super Matt, flute, and wooden patterns, offering a diverse selection for different interior applications. Not only are these laminates competitively priced and pocket-friendly, but they also come with a reassuring seven-year warranty, emphasizing their resilience and durability.

The practicality of solid-coloured laminates extends to their robust properties, such as scratch resistance, durability,



and ease of maintenance. This makes them highly desirable for a multitude of applications in both residential and commercial settings, including kitchen cabinets, furniture, and wall panels. □

BIS Issues New QCO for Wood-Based Board Manufacturers



The Bureau of Indian Standards (BIS) released a new Quality Control Order (QCO) for the manufacturing of wood-based boards, aimed at ensuring compliance with standardisation and quality norms in the industry.

According to the QCO, the use of standard marks will become mandatory for all manufacturers of wood-based boards,

including Block Boards, Veneered Particle Boards, Prelaminated particle boards and others. The order will come into effect in a phased manner, allowing smaller enterprises more time to transition and comply with the new requirements. For small enterprises, the QCO will be applicable from February 11, 2025, while micro enterprises will have until August 11, 2025, to adhere to the mandatory standard marking.

The recent notification issued by the government has granted the Bureau of Indian Standards (BIS) significant authority over the export of wood-based boards. According to the order, the Bureau shall serve as the sole certifying and enforcing authority for exports in this sector.

The notification makes it clear that non-compliance with the Quality Control Order will attract strict penalties. Any person found violating the provisions outlined in the order shall be punishable under the Bureau of Indian Standards Act, 2016. This Act allows for financial penalties as well as imprisonment in case of serious contraventions. □

The “Re-Emergent” Properties of Wood

Parvez Alam explores the growth in metamaterials research in recent years

The emergent properties of metamaterials is a term that is associated with exponential growth in metamaterials research in recent years. A metamaterial is a material with properties resulting from its structure, rather than solely from its composition.

The recent surge in interest is in part because metamaterials, which can be rationally designed to exhibit highly varied properties and behaviours, can now also be manufactured more easily than ever before. Due to the inherent complexity of their architectures, they tend to be additively manufactured. What this means is that unique macro-scale emergent properties can be built up from lower length-scale materials and their interactions.

For example, epoxy polymer is a low stiffness and relatively ductile material at room temperature, which if reinforced using high stiffness continuous carbon fibres, will become significantly stiffer. In addition, the reinforced epoxy is now also a brittle material and will have new constraints on how it fails and fractures because of the presence of the embedded carbon fibres.

What are the implications for wood and wood-based materials? Wood is amongst the more complex common engineering materials. It never displays precise regularity in its geometry or properties at the micro-scale, and wood fibres vary geometrically along their lengths, as do their properties. This is



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not only true from one part of a tree to the next, but also in different directions within a single sawn piece.

In addition to this, factors such as growth rates, tree species, age, and environmental conditions will affect the emergent properties of wood, a hierarchical and anisotropic natural fibre reinforced cellular solid composite, essentially a natural metamaterial! If wood is already a metamaterial, a material where the properties are a function of the material architecture rather than solely a function of composition, how do we go about designing ‘new’ metamaterial structures from wood and wood-based materials?

Wood itself, as a sawn mass, is not something that can be additively manufactured. The subtractive manufacture

of wood is nevertheless entirely possible; and can be used to control wood behaviour and properties at a macroscale. Wooden metamaterials manufactured in this way are similar in principle to 2D metamaterial extrusions (sometimes termed 2.5D metamaterials), rather like honeycomb structures with different in-plane and out-of-plane properties.

Some recently published papers on the topic discuss controllable and tuneable stiffness properties in wood plates by the judicious placement of arrays of oval holes across the structure. These holes are cut out from the wooden sheet.

Other papers have focused on using wood as the physical actuators for 3D-printed biocomposite ‘meta-shells’—making the most of both original sawn woods as stiff structures controlling motion, and cellulose short-fibre biocomposites, which can be additively manufactured into complex geometrical structures. In the image below, a flat panel, manufactured additively from 3D-printed biocomposite metamaterial patterning (MMP) and integrated wood actuators, has been controllably dried to form a lightweight, self-shaped double-curved shell structure.

At the microstructural level, researchers are delignifying wood microstructures to reuse them as templates for the manufacture of unique metamaterial architectures, mimicking the cellular structure of wood and taking advantage of its natural anisotropy. Since there is a plethora of available architectures in nature, doing so unlocks almost limitless possibilities for the manufacture of novel anisotropic aperiodic metamaterials, where the functionality of the structure itself has already been proven by the host tree from where the template is taken.

Since wood is at its core, a naturally emergent metamaterial, the use of wood and wood-based materials to create new metamaterials is essentially a re-emergence of wood in terms of its structure, properties and behaviour. Wood is a viable base material to design with and has the added advantages of being both sustainable and versatile. □

Below: The image is reproduced under a Creative Commons (CC-BY) licence with the permission of Özdemir, E. et al. (2022): “Towards Self-shaping Metamaterial Shells” in: Yuan, P.F., Chai, H., Yan, C., Leach, N. (eds) Proceedings of the 2021 DigitalFUTURES. CDRF 2021. Springer, Singapore. https://doi.org/10.1007/978-981-16-5983-6_26



Guidelines issued for incubation centre registration for Wood Product Innovation



The Institute of Wood Science and Technology (IWST), Bengaluru, a research institute under the Indian Council of Forestry Research and Education (ICFRE), has launched an Incubation Centre to promote innovation and entrepreneurship in the field of wood products. With a vision to nurture a culture of invention and entrepreneurship, the ICFRE-IWST Incubation Centre aims to focus on identifying problems and developing innovative solutions that can be commercialised into viable business ventures. The centre's mission is to facilitate product development by leveraging its resources and expertise.

The Incubation Centre will identify areas for proof of concepts, prototype development, and translate them into marketable products. It will conduct hackathons and wood

campus to engage students, faculty, stakeholders, and community inventors. Additionally, the centre will inculcate the generation of Intellectual Property Rights (IPRs) among participants.

Interested students, faculty, stakeholders, community inventors, and entrepreneurs can register by submitting the necessary data in the Registration Form and paying a deposit of Rs 10,000 to ICFRE-IWST. Kindly refer to this link: <https://iwst.icfre.gov.in/docs/incubation%20guidelines.pdf>

Upon registration, incubatees must sign a Memorandum of Association with IWST and bear the costs of materials for prototype development, machine usage charges, and any other financial obligations agreed upon in the Memorandum. The Incubation Centre offers a 250 sq.mt. workspace equipped with modern wood-working machinery, an IT cell, and a library to access knowledge in wood science and technology.

Experienced scientists and technical officers from ICFRE-IWST's Wood Properties and Processing (WPP) Division and Plywood and Panel Product Technology Division will guide and assist participants in transforming their invention ideas into business models. Fields of incubation include wood and bamboo-based products, engineered wood, wood polymer composites, wood modification, wood and lignocellulose panel products, forest protection, tissue culture, and forest management and certification. □

Greenlam Industries first digital campaign for its Flagship Brand MikasaPly



Greenlam Industries has introduced its first digital campaign for its flagship brand- MikasaPly. The campaign will be promoted in the five different states of South India- Andhra Pradesh, Telangana, Tamil Nadu, Kerala, Karnataka along with Goa and Puducherry.

In a market inundated with various options for home interiors, selecting the right choice of plywood selection can often be overwhelming. Addressing this common dilemma, the brand film tackles the prevalent issue consumers face when trying to select the right product in a saturated plywood market.

It showcases a couple's quest to find the perfect plywood for their cupboard, which is frequently interrupted by a character who humorously depicts the confusion in decision-making. The film culminates with the couple revealing MikasaPly – The No Nonsense Ply, a clear and efficient solution that simplifies the selection process.

The film has been released in five different regional languages- Hindi, Kannada, Malayalam, Tamil, and Telugu across platforms like YouTube, Google Display Network, and Sun NXT (OTT platform).

Parul Mittal, Director, Greenlam Industries, said, "With the release of the digital film for our plywood brand 'MikasaPly, we aim to lay emphasis on the convenient solution of using 'The No-Nonsense Ply' for all interior needs due to its superior quality craftsmanship and durability. The 'No Nonsense' Ply is designed to deliver the finest product by selecting the best wood for the manufacturing of plywood. Our goal is to deepen our connection with specifiers, carpenters, contractors, end consumers and solidify our brand's presence in plywood and allied product category in South India. The addition of plywood to our diverse product portfolio marks a significant step towards our ambition of becoming the leading player in the wood panel industry". □

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Disclaimer: The actual product may vary from the product shown as veneers are natural products and designs are unique and naturally evolved

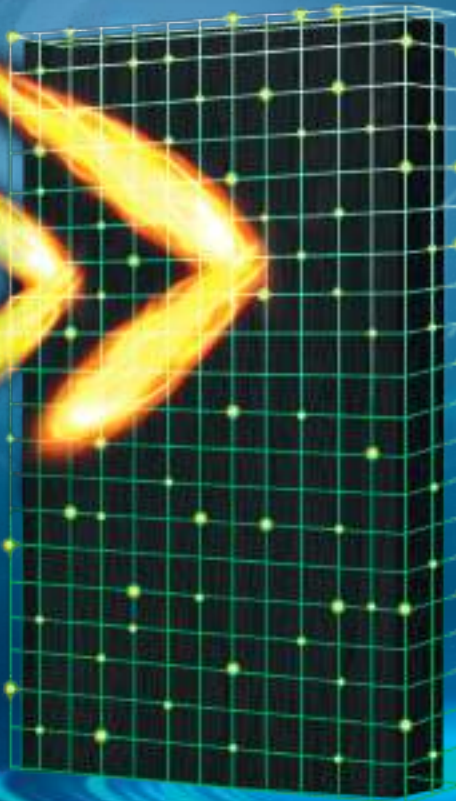
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