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इपिरि न्यूज़ IPIRTI NEWS

Delivering Innovative Solutions for Industry, Society and Environment

Vol. 18, No. 2

Apr - Jun, 2017

“WELCOME”



The Director and Staff of IPIRTI cordially welcome Dr. Harsh Vardhan who has taken over as Hon'ble Minister for Environment, Forest & Climate Change & President, IPIRTI Society

Dear Readers



Green Forestry & Climate Change

Climate change has emerged as a serious global environmental issue and poses a threat and challenge to human kind. There is strong evidence that unabated emissions of Carbon dioxide and other green house gases are its main cause. Forests are both a source and a sink of carbon. Thus, managing forests for carbon storage will help to absorb atmospheric Carbon dioxide. As trees have

a much longer lifespan, they act as long-term reservoirs that lock up the Carbon for decades, even centuries, in the form of cellulose and lignin.

Wood and wood based products act as a Carbon sink throughout their life. Across the product life cycle, wood has the lowest net energy consumption and the lowest CO₂ emissions of any material.

The longer the wood/bamboo stays in use, the longer the Carbon sink effect of the product. Recovering the energy from forestry products at the end of their life, as a substitute for fossil fuels, increases wood's positive Carbon effect. Use of fast growing plantation wood/Bamboo by the Plywood and Panel industries and application of green technologies will go a long way in tackling the problems of global warming and climate change mitigation.

Agroforestry for raising Plantation Wood/ Bamboo in India has expanded significantly in recent decades with support from the industry with new successful agro forestry/farm-forestry models being practiced across the country. Estimates show that about 65% of the country's timber requirement is met from trees grown on farms. Agroforestry also generates significant employment opportunities and is perhaps the only alternative to meet the target of increasing forest/tree cover of India to 33%, as envisaged in the National Forest Policy of 1988. Agroforestry has also the proven potential to mitigate the climate change effects through Carbon sequestration in the long run.

The energy audit and the measurement of Carbon foot prints involved in the production of Plywood and Bamboo products have been carried out in a commercial unit. The study reveals that the total energy requirement for the production of Plywood and Bamboo products is very less compared to other conventional materials. The emission of green house gases and effluent has been found to be well within the tolerance limits prescribed by the Pollution Control Boards. The effluents collected during the production have indicated negligible level of solids and the toxic chemicals. Plantation Timber/Bamboo products have a far less harmful foot print than many other materials in terms of green house gas emissions and embodied energy. Forestry products can significantly reduce the green house gas emissions impact if sourced from sustainably managed plantations.

Dr. B. N. Mohanty, *IFS*
Director, IPIRTI

RESEARCH & DEVELOPMENT

Development of light weight composite panel products

Increasing scarcity of the raw materials and the increased price of traditional composite panels has led to the search of alternative products at lower cost without compromising the strength properties. The higher weight of the product makes it unsuitable for certain applications and involves higher man power in many aspects like for working, transporting etc. Designing the product to various shapes with high weight materials is very difficult.



The aim of this study is to provide an engineered wood panel of lightweight construction that can be manufactured cost-efficiently and meets the strength properties as per relevant standards. This product development reduces the pressure on timber resources and also minimizes the energy consumption.

In this study different chemicals which would have foaming tendency and is compatible with phenolic and amino resin systems have been explored by Ms. Sujatha D., Scientist and her team at IPIRTI Bengaluru. The foaming agent percentages to be incorporated with the phenolic and amino resins have been optimized. The process parameters viz., the adhesive composition, the percentage adhesive requirements and the hot pressing parameters for making light weight panels using phenolics and amino resin with and without veneer overlay have been worked out. The light weight panels made using phenolics and amino resin with and without veneer overlay were evaluated for physical and mechanical properties as per relevant specification. The strength properties conform to the requirements of relevant standard. Ammonium Carbonate is found to be the best suited foaming agent that is compatible with phenolics and amino resins in reducing the weight of the product and also yields requisite strength properties as per relevant specification. Addition of blowing agent surfactants and plasticizing agents improved the water absorption and thickness swelling properties of the panels.

This study reveals that light weight panels made using Melamine Urea Formaldehyde and Phenol Formaldehyde resin with foaming agent for all the categories of particle boards has yielded better physical and mechanical properties when compared to control boards made without foaming agents. This indicates that addition of appropriate percentage of foaming agent to the phenolic and amino resins results in decreased weight/bulk density of the panels without compromising the strength properties.

Development of new fire-retardant adhesive composition for manufacturing of wood based panel products.

The main limitations of using plywood for interior and industrial applications is in the flammability properties of wood which is a natural growing material that consists of mainly combustible organic compounds. The growing use of plywood for structural use had evoked considerable interest in the possibility of reducing the fire hazard by using veneer treated with fire retardant chemicals. Many commercial coating and fire resistant composition have been available to improve the fire resistance. However very few literatures are available on flame retardant used in resin based adhesive system in plywood industries with



combination in phenolic or amino resin as an additive or reactive. In accordance, in the present study an attempt was made by Shri S.C. Sahoo, Scientist and his team at IPIRTI, Field Station Kolkata to provide cost effective, fire retardant, wood binding adhesive composition by taking thermosetting resin used in plywood industry like phenolic and amino plastic resin to substitute chemicals used in conventional fire retardant plywood making process. The main objective of this study was to develop effective fire-retardant adhesive composition and to investigate the fire retardant properties of the plywood and its impact on physical and mechanical properties of the plywood.

The study deals with to develop a fire retardancy adhesive composition for plywood and also to investigate the fire retardant properties of plywood manufactured by using PMUF resin modified with phosphate. The study on the impact of adhesive on the physical and mechanical properties viz. fire-resistance, environmental protection and good bonding. PMUF resin was synthesized with molar ratio of F:P:M:U at 4.6:2.0:0.42:0.29 with Tri Cresyl Phosphate (TCP). Di-Sodium Octa-borate Tetra hydrate (DOT), precipitate silica and Sodium silicate powder as an additive for glue formulation. Two sets of 12 mm plywood were also manufactured and fire resistance and mechanical properties were studied as per IS:5509:2000. It was observed that satisfactory fire retardancy properties like flame penetration, flammability and rate of burning was achieved when tested as per IS:5509:2000. Plywood samples conforms the properties as per the requirement of IS:5509:2000.

For more details contact: Director, IPIRTI, Bengaluru.

EXTENSION

Industry visits

10.04.2017: Shri. Amitava Sil, Officer-In-Charge, IPIRTI, Field Station, Kolkata visited M/s. Shree Durga Industry, Kolkata for bulk pre-inspection of Plywood as per IS 303 & IS: 7638 on the request of Inspector General, BSF, Jammu (J&K).

13.04.2017-15.04.2017: Ms. Sujatha D. and Shri. Uday D.N., Scientists Bengaluru visited M/s. Plystone Plywoods Pvt. Ltd., Perumbavoor, Cochin for attending the floor level problems faced by the firm.

16.04.2017-17.04.2017: Shri. Uday D.N. Scientist visited M/s. Kerala State Bamboo Corporation Ltd., Angamaly, Cochin for short film shooting on “Bamboo the Game-Changer: Some success stories” along with representatives from M/s. Swift Solutions Pvt. Ltd. Angamaly.

24.04.2017: Shri. Amitava Sil, Officer-In-Charge, IPIRTI, Field Station Kolkata visited Tripura Bamboo Mission (TBM), Agaratala and M/s. IL&FS Clusters Development Initiative Ltd, Agartala & had meeting with Shri. V.G. Jenner, IFS, Mission Director, Tripura Industrial Development Corporation Limited (TIDCL) and Shri. Kedar Krushna Panda, Senior Manager respectively for discussion on the bamboo related works carried out by their organisations.



*Shri Amitava Sil , Officer In-Charge
IPIRTI Field Station , Kolkatta with Shri.
Bhajan Sharma & Shri. Prosenjit Sharma,
Entrepreneurs on Bamboo based products at
Aralia Village, West Tripura*

He further visited Aralia Village & Amtali at West Tripura and had interaction with Entrepreneurs Shri. Bhajan Sharma, Shri. Prosenjit Sharma and Shri. Rajesh Bhowmik on bamboo based products and Agarbatti manufacturing under IL&FS clusters. He also visited Narasingha area of West Tripura and had interaction with Mrs. Madavi Dev, Artist of Ujjayanta Craft producer group on mat weaving and mat based products.

25.04.2017-28.04.2017: Shri. Narasimha Murthy, Scientist, Bengaluru visited Bijapur Forest Department, Madhya Pradesh to impart bamboo preservation training to the local people.

25.04.2017: Shri. Amitava Sil, Officer-In-Charge, IPIRTI, Field Station, Kolkata visited M/s. Mutha Industries, Agartala and had meeting with Shri. Sanjay Singh, Director (T) and Shri Rabin Bose, Vice President, about bamboo lumber works being carried out. He also visited Hazamara Forest, Tripura West for video shooting on harvesting of Kanak kaich Bamboo (*Bambusa offinis*) and had interaction with farmers and people engaged in harvesting of bamboos.

26.04.2017: Shri. Amitava Sil, Officer-In-Charge, IPIRTI, Field Station, Kolkata visited Central Academy for State Forest Service (CASFoS), Burnihat, Assam and had meeting with Shri. Roshan Horo, *IFS*, Principal, CASFoS & Shri. Banteilang Rumngong, Deputy Director, State Institute of Rural Development (SIRD), Meghalaya and discussed about bamboo activities. He also visited Bamboo Technology Park at Jambari-II, Chaygaon, Assam and had interaction with Shri. Satya N. Khandelwal, Technical Head. He also visited private plantation area of Jati Bamboo (*Bambusa tulda*) in Jambari, Kamrup district, Assam and had interaction with farmers engaged in bamboo plantations.



Interaction with Shri Roshan Horo, IFS, Principal, CASFoS, Burnihat and Shri Banteilang Rumngong, Deputy Director, SIRD, Meghalaya, by Shri Amitava Sil, Scientist, IPIRTI Field station Kolkata

26.04.2017-28.04.2017: Dr. Pradeep Kumar Kushawaha, Scientist, and Shri. S.S. Banajiger, Technical Officer IPIRTI Bengaluru visited Central Academy for State Forest Service (CASFoS), Burnihat, Assam for Trial run and Installation of 50 KVA DG set.

27.04.2017: Dr. B.N. Mohanty, *IFS*, Director, IPIRTI and Shri Amitava Sil, Officer-In-Charge, IPIRTI, Field Station Kolkata visited M/s. Timpack Pvt. Ltd, Burnihat, Meghalaya and had discussion with Shri. Inderpal Singh and Shri. Angad Singh Bhusri regarding video shooting on the manufacturing process Bamboo Mat Corrugated Sheet inside the factory premises.

They also met Shri. Chinmay Pundilikao Gotmare, IAS, Deputy Commissioner, Re- Bhoi district, Meghalaya and discussed about bamboo activities.

Dr. B.N. Mohanty had discussion with Shri. S. Ashutosh, *IFS*, Addl, PCCF, Forest & Environment Dept, Govt. of Meghalaya at CASFoS, Burnihat, Assam regarding bamboo activities.



Dr. B.N. Mohanty, IFS, Director, IPIRTI with Shri Chinmay Pundilikao Gotmare, IAS, Deputy Commissioner, Nongpoh, Re- Bhoi district, Meghalaya and Shri Sil, Officer In Charge, IPIRTI Field Station, Kolkata during Video Shooting

04.05.2017: Shri. S.C. Sahoo, Scientist, IPIRTI Field Station, Kolkata visited IPIRTI Centre Mohali for installation and demonstration of newly purchased resin manufacturing kettle.

09.05.2017: Dr. B.N. Mohanty, *IFS*, Director, IPIRTI visited Odisha Forest Development Corporation Ltd., Bhubaneswar and had discussion with Managing Director, OFDC about setting up of Bamboo Common Facility Centre and Agarbathi unit in the Bamboo rich areas of the State.

14.06.2017-15.06.2017: Shri. S.C. Sahoo, Scientist, IPIRTI Field Station, Kolkata visited M/s. Maple Moulding Pvt Ltd., Maharastra for demonstration of treatment of preservative chemicals on pressure treatment and estimation of retention of preservative chemical in plywood.

23.06.2017: Shri. S.C. Sahoo, Scientist, IPIRTI Field Station, Kolkata visited M/s. Century Plyboards (P) Ltd, Kolkata for discussion on cold setting laminating adhesive.

28.06.2017-30.06.2017: Dr. Pradeep Kumar Kushawaha, Scientist visited Jadua Nursery, Hajipur, Bihar for Trial run of Bamboo processing machine under the sponsored project of Institute of Forest Productivity (IFP), Ranchi.

Meetings/Seminars/Conferences

28.04.2017: Dr. B.N.Mohanty, *IFS*, Director, IPIRTI and Shri Amitava Sil, Officer-In-Charge, IPIRTI, Field Station Kolkata attended Green Gold Summit initiated by Govt of Assam held at Assam Administrative Staff College, Jawaharnagar, Khanapara, Guwahati on 28.04.2017. Dr. B.N.Mohanty, *IFS*, Director, IPIRTI presented a paper on “Technologies for Bamboo Processing for valued added products” under technical session on “Managing Productivity Of Bamboo Crop, Harvesting Practices, and Innovation for High Value Added Bamboo Products”.



Dr. B.N. Mohanty, IFS, Director, IPIRTI presenting a paper in the technical session during Green Gold Summit, Assam

Research Advisory Committee (RAC) Meeting of IPIRTI



A view of 61st RAC meeting of IPIRTI, Bengaluru held on 7th June 2017

61st meeting of the Research Advisory Committee (RAC) of IPIRTI held on 07th June, 2017 in the Conference Hall at IPIRTI, Bengaluru under the chairmanship of Shri. Sajjan Bhajanka, President, FIPPI, New Delhi. Dr. B.N. Mohanty IFS, Director Co-Chaired the meeting and Dr. Manoj K. Dubey, Joint Director was the Convenor of the meeting.

Highlights :

After reviewing ongoing Institute projects, following Research projects proposed by the Scientists of IPIRTI were approved by Chairman and members of RAC:

1. Development of composites from beverages tetra packs wastes.
2. Development of geopolymer for the manufacture of wood- geopolymer composite
3. Development of transparent wood polymer composite.
4. To study the effect of age and log diameter of Melia dubia on veneer quality and end products.
5. A study on the effect of high temperature treatment on the dimensional stability, color, water repellency and strength of bamboo scrimber.
6. Study on processes to increase yield of bamboo for composite by chemical and mechanical methods.

7. Assessment of demand and supply of particle board and MDF in India.
8. Investigation of scenario of Bamboo utilization in North East India.
9. Development and validation of test methodology on wood identification.
10. Development of low temperature thermosetting adhesives for plywood lamination.

The following new sponsored projects taken were placed before RAC for ratification:

1. Development of a technology for colouring of veneers with relevance to Gurjan, Beech & Eucalyptus species.
2. Testing and Evaluation of Physical and Mechanical properties of *Acacia mangium* and *Melia dubia*
3. Opening a Sub-centre/ Unit for Bamboo Development (IPIRTI) at Bijapur (CG).
4. Demonstration- cum -Hands on Exercise with Bamboo Primary Processing Machines for Bamboo Skill Development during North East Festival events.
5. Chemically compatibility study with plywood adhesive and efficacy study of the “WOODLIFE PLUS” against wood destroying organism as a suitable wood preservative for manufacture of plywood.
6. Efficacy study of PF powder resin with liquid Phenolic resins to increase solid content and hence bonding strength during manufacturing of BWR and BWP plywood.

08.05.2017: Dr. B.N. Mohanty, IFS, Director, IPIRTI attended the first meeting of the Global Technology Watch Group (GTWG) Steering Committee of Technology Information, Forecasting and Assessment Council (TIFAC) under the Chairmanship of Dr. Jagdish Kishwan, Former ADGF-WL, MoEF&CC at New Delhi.

02.06.2017 and 07.06.2017: Dr. Manoj K. Dubey, Joint Director, IPIRTI attended the meeting for off-boarding of selected schemes of MoEF&CC from DBT portal at Ministry of Environment, Forest & Climate Change, New Delhi.

53rd Annual General Meeting (AGM) of IPIRTI Society



A view of 53rd AGM meeting of IPIRTI, Bengaluru chaired by Shri. Anil Madhav Dave, Hon'ble, Minister

The 53rd Annual General Meeting (AGM) of IPIRTI held on 21st April 2017 at MoEF&CC, New Delhi under the chairmanship of Shri. Anil Madhav Dave, Hon'ble Minister of State (Independent Incharge) for Environment, Forest and Climate Change, Government of India and President, IPIRTI Society. On this occasion, the following special documentary/publications were released by the Hon'ble Minister:

- i) A video CD on "Eucalyptus and Poplar" Agro Forestry for Plywood: A Huge success in North-West India" an IPIRTI presentation was released and also played before the House.
- ii) The Hindi version of Product Profiles of IPIRTI
- iii) The latest Research Reports of IPIRTI

Also the Progressive farmers and Entrepreneurs viz. Shri. Sushil Kumar Aggarwal, Managing Director, M/s. Oriental Plywood Industries, Yamuna Nagar, Harayana; Shri. Tejinder Singh Punia, Progressive Farmer, Mohali, Punjab; Shri. Bhajan Singh Shergil, Progressive Farmer, from Chandigarh and Shri. Sanjay Singh, Director M/s. Mutha Industries Pvt. Ltd., Agartala, Tripura were felicitated by the Ex-Hon'ble MoEF&CC.

The Hon'ble Minister during his address appreciated the Model Bamboo House and other products developed by the IPIRTI. He also emphasized to promote & transfer the research outputs to rural and tribal areas in partnerships with other stakeholders.

07.06.2017: Dr. Manoj K. Dubey, Joint Director, IPIRTI participated and gave presentation on Bamboo sector in a meeting to undertake Science & Technology Intervention in North Eastern Region (STINER) co-chaired by Secretary Ministry of Development of North Eastern Region (DoNER) and Scientific Secretary of Principal Scientific Advisor of Govt. of India, New Delhi.

Visit to abroad

18.05.2017-21.05.2017: Dr. B.N. Mohanty, *IFS*, Director, IPIRTI and Dr. Vipin K. Chawla, Scientist participated in 3rd Sarawak Timber and SMEs Expo 2017 held at Borneo Convention Centre Kuching (BCCK), Kuching, Sarawak, Malaysia organized by Sarawak Timber Industry Development Corporation (STIDC) and Ministry of Industrial & Entrepreneur Development, Trade & Investment (MIETI) and show- cased Wood panel products including Bamboo composites developed by IPIRTI, Bengaluru.



Visit of Dignitaries

03.04.2017: Shri. Jeet Singh Virk, *IFS*, APCCF and Shri. T.S.K. Reddy, *IFS*, CCF from Maharashtra Bamboo Board visited IPIRTI, Bengaluru and had meeting with Dr. B.N. Mohanty, *IFS*, Director, IPIRTI about Bamboo Development in the State.

03.04.2017: Shri. N.Vaze, Chief Executive Officer, M/s. Sleek Board (India), LLP, Maharashtra visited IPIRTI, Bengaluru and had meeting with Dr. B.N. Mohanty, *IFS*, Director, IPIRTI regarding proposal for development of standards for interior applications.

13.04.2017: Shri. V.K. Sharma, M/s. National Plywood Industries Ltd., Adhunik Infrastructures (P) Ltd, West Bengal visited IPIRTI Field Station, Kolkata and had discussion with Shri. Amitava Sil, Officer-In-Charge, IPIRTI, Field Station Kolkata on the testing facilities available at the institute.

28.04.2017: Shri. Mikihiro Inou, Secretary General, Japan Wood Products Information & Research Centre, Tokyo and Shri. Atsuo IDA, M/s Forest Economy Research Institute, Tokyo had visited IPIRTI, Field Station Kolkata and had discussion with Shri Amitava Sil, Scientist regarding current situation of Indian wood products, wood product standards, industries and markets in India.

02.05.2017: Mrs. Pravathi Sahoo, Brand Manager, M/s. Fine Ply visited IPIRTI Field Station, Kolkata and had discussion with Shri Amitava Sil, Officer-In-Charge regarding the testing of wood based panel products at the institute.

11.05.2017: Students of B.Sc Forestry from Forest College and Research Institute (FC&RI), Mettupalayam and Students of B.Sc Forestry from Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli, Maharashtra visited IPIRTI, Bengaluru. Dr. Manoj K. Dubey, Joint Director addressed the students.

12.05.2017: Shri. Giriraj Singh, Hon'ble Minister of State, Ministry of Micro, Small & Medium Enterprises (MSME), Govt. of India visited IPIRTI, Bengaluru.

16.05.2017: Shri. Prasanta Kumkar Majumdar, M/s. Prasanti Herbal visited IPIRTI Field Station, Kolkata and had discussion with Shri Amitava Sil, Scientist regarding construction of low cost bamboo houses at beach area.



Shri. Giriraj Singh, Hon'ble Minister of State, MSME addressing the Scientists at IPIRTI Bengaluru

25.05.2017: Shri. Deepak Das, M/s. Global Marketing Company visited IPIRTI Field Station, Kolkata to discuss with Shri. S.C. Sahoo, Scientist, IPIRTI Field Station, Kolkata regarding statistical data of consumption of phenol in west Bengal plywood industry.

06.06.2017: Shri. A. Bubna, Director M/s R.D Industrial Corporation, Kolkata visited IPIRTI Field Station, Kolkata to discuss with Shri. S.C. Sahoo, Scientist regarding sponsorship of project on wood preservative.

07.06.2017: Mr. Mikhiro Inoue, Secretary General, Japan Wood-Products information & Research Centre, Tokyo and Mr. Atsuo IDA visited IPRITI, Bengaluru and had discussion with Dr. B.N. Mohanty, IFS, Director, IPIRTI about the Indian Wood Products, Demand and Supply, Import and Export, etc.

15.06.2017: Shri. Anil Oberoi, Retd. PCCF & HoFF, Madhya Pradesh visited IPIRTI, Bengaluru and had discussion with Dr. Manoj K. Dubey, Joint Director, IPIRTI.

22.06.2017: Shri. Arun Choudhury, Director, M/s. Sudha Industries, Kolkata visited IPIRTI Field Station Kolkata to discuss with Shri. S.C. Sahoo, Scientist regarding testing of Good Laboratory Practice (GLP).

28.06.2017: Shri. Varun Surana, Director, M/s SKB Export, Kolkata had visited IPIRTI Field Station Kolkata to discuss with Shri. S.C. Sahoo, Scientist regarding testing of plywood extender.

Other activities

Swachhata Drive

28.04.2017, 26.05.2017 and 30.06.2017: Swacchhata Day was observed by organizing Campus Cleanliness Drive inside the campus & facilities. Staff and Trainees of the institute took part in the drive.

World Environment Day

World Environment Day was celebrated on 05th June, 2017 under the theme “Connecting People to Nature”. About 40 school children from Vidya Soudha Public School, Bengaluru invited for celebration. Painting and Slogan writing competition also conducted.



Poster Presentation by School Children

International Yoga Day

“International Yoga Day” was celebrated on 21st June, 2017 at IPIRTI, Bengaluru. All the staff of the Institute actively participated in the Yoga Session conducted by the representative of Art of Living as a part of the event. Yoga Competition was also organized.



A view of Yoga Session at IPIRTI

TRAINING

One Year Post-Graduate Diploma Course on Wood and Panel Products Technology:

33 trainees are undergoing the 28th Batch of one year Post Graduate Diploma Course in Wood and Panel Products Technology (WPPT).

Short term vocational training courses:

05.06.2017-06.07.2017: One month training course on “Plywood manufacturing technology” was conducted for four candidates at IPIRTI Field Station, Kolkata.

22.05.2016-26.05.2017: One week training course on “Testing of plywood and block board as per IS: 303, IS: 710, IS: 1328, IS: 4990 and IS: 1659” was conducted at IPIRTI, Bengaluru.

24.05.2017-26.05.2017: A training course on “Resin manufacturing” was conducted at IPIRTI Field Station, Kolkata.

SHORT TERM TRAINING COURSES FOR JUN- DEC, 2017 AT BENGALURU

| Sl. No | Title of the Training Course | Duration | Date | Fees* |
|--------|--|----------|-----------|-------|
| 1. | Testing Of Flush Door And Block Board As Per IS:2202 And IS:1659 | 5 days | Jun 12-16 | 23000 |
| 2. | Plywood Manufacturing-I (Log Storage, Centering, Peeling, Clipping, Drying, Knife Grinding) | 5 days | Jul 10-14 | 17250 |
| 3. | Plywood Manufacturing- II (Adhesives For Plywood And Plywood Manufacturing-Resin Preparation, Gluing, Hot Pressing) | 5 days | Jul 17-21 | 17250 |
| 4. | Testing Of Plywood And Block Board As Per IS:303,IS:710,IS:1328,IS:4990 And IS: 1659 | 5 days | Aug 07-11 | 23000 |
| 5. | Preliminary Bamboo Processing and Bamboo preservations | 2 days | Aug 28-29 | 6900 |
| 6. | Bamboo Composites Technology (Mat & Strip based products) | 3 days | Aug 30-01 | 11500 |
| 7. | Low Cost Phenolic Resins Using Renewable Bio Materials As Replacement For Phenol | 5 days | Sep 11-15 | 17250 |
| 8. | Low Formaldehyde Emission Adhesives For Plywood And Particle Board | 5 days | Oct 09-13 | 17250 |
| 9. | Defects And Remedial Measures In Plywood Manufacture | 5 days | Nov 13-17 | 17250 |
| 10. | Testing Of Plywood And Block Board As Per IS:303,IS:710,IS:1328,IS:4990 And IS:1659 | 5 days | Dec 11-15 | 23000 |

* 18% GST

** Programme Coordinator: Dr. V K Upadhyay, Head, IT & SORIT (upadhyay@ipirti.gov.in). You can apply online by filling and submitting the Registration Form (PDF)/Registration Form (doc). Registration has to be done 10 days before the date of commencement of the course by remitting prescribed course fee. Fees payable to the organization may be sent by crossed Demand Draft in favour of Director, IPIRTI, Bengaluru and sent by post to Post Bag No.2273, Tumkur Road, Yeshwanthpur PO, Bengaluru - 560 022.

SHORT TERM TRAINING COURSES FOR JUN - DEC, 2017 AT KOLKATA

| Sl No. | Title of the Training Course | Duration | Date | Fees* |
|--------|--|----------|-----------|-------|
| 1. | One Month Training Course on "Plywood Manufacturing Technology" | 1 Month | Jun 01-30 | 23000 |
| 2. | Block Board & Flush Door Manufacturing | 5 days | Jul 17-21 | 17250 |
| 3. | Low Formaldehyde emission adhesives for plywood and particle board | 3 days | Aug 16-18 | 11500 |
| 4. | Retention of Preservative Chemical | 5 days | Sep 11-15 | 17250 |

| | | | | |
|----|---|---------|-----------|-------|
| 5. | Testing of Plywood, Block Board, Flush Door | 5 days | Oct 09-13 | 17250 |
| 6. | Low Cost and Special Resin For Manufacture Of Plywood | 5 days | Nov 18-22 | 17250 |
| 7. | One Month Training Course on “Plywood Manufacturing Technology” | 1 Month | Nov 01-30 | 23000 |
| 8. | Preliminary Bamboo Processing | 3 days | Nov 27-29 | 11500 |
| 9. | Plywood and Adhesive manufacturing | 3 days | Dec 06-08 | 11500 |

* 18% GST

** Programme Coordinator: Mr. Amitava Sil, IPIRTI Field Station Kolkata, 2/2 Biren Roy Road (West), Sarsuna, Kolkata-61, Tele Fax:033-24983120, Mob:09874219758 (ipirtikolkata@ipirti.gov.in). Registration has to be done 10 days before the date of commencement of the course by remitting prescribed course fee. Fees payable to the organization may be sent by crossed Demand Draft in favour of Director, Indian Plywood Industries Research & Training Institute. You can apply online by filing and submitting the Registration Form.

SHORT TERM TRAINING COURSES FOR JUN - DEC, 2017 AT MOHALI

| Sl. No | Title of the Training Course | Duration | Date | Fees* |
|--------|--|----------|------------|-------|
| 1. | Testing Of Block board And Flush Door As Per IS:1659 & IS: 2202 (Part - I) | 5 days | Jun 12-16 | 11500 |
| 2. | Testing Of Fire Retardant Plywood As Per IS: 5509 | 2 days | Jul 17-18 | 5750 |
| 3. | Testing Of Plywood As Per I:S 303, 1328, 710 & 4990 | 5 days | Aug 21-25 | 13800 |
| 4. | Analysis of Raw Material (Phenol & Formalin) | 3 days | Sep 11-13 | 11550 |
| 5. | Testing Of Plywood As Per I:S 303, 1328, 710 & 4990 | 5 days | Oct 09-13 | 13800 |
| 6. | Analysis of Raw Material and Resin Manufacturing (PF & UF) | 5 days | Nov.20 -24 | 17250 |
| 7. | Retention of Preservative Chemical | 5 days | Dec 04-08 | 13800 |

* 18% GST

** Lodging and Boarding are not included and have to be arranged by the trainees.

Programme Coordinator: Dr. Ranjana Yadav (ranjana@ipirti.gov.in) IPIRTI Centre (MoEF&CC, Govt of India) B-65, Phase -7, Industrial Area, Mohali-160055, Punjab. Tele: 0172-5095875. Registration has to be done 10 days before the date of commencement of the course by remitting prescribed course fee. Fees payable to the organization may be sent by crossed Demand Draft in favour of Director, IPIRTI, Bengaluru. You can apply online by filing and submitting the Registration Form.

WELCOME



The Director and Staff of IPIRTI welcome Dr. Rashmi Ramesh Shanbhag who joined as Scientist-C in Biology Division on 3rd May 2017

Dr. Rashmi Ramesh Shanbhag
(Specialization: Forest Entomology)

CAMPUS INTERVIEW AT IPIRTI, BENGALURU



IPIRTI is an Autonomous Research and Training Institute of the Ministry of Environment, Forest & Climate Change, Government of India. IPIRTI is the only training institute of its type in the country in the field of Wood based Panel Products Technology. In addition to Short Term Training Courses, IPIRTI conducts one year PGD Course on Wood and Panel Products Technology (WPPT).

This year 33 number of trainees are undergoing the PGDC-WPPT course (28th batch). Campus interview for the successful trainees is scheduled on Thursday the 09th November, 2017 at IPIRTI Campus. Wood based Industries in need of trained persons in Middle management cadre may contact: Dr. Manoj K. Dubey, Joint Director/ Dr. V.K. Upadhyay, SORIT Division, IPIRTI, Bengaluru.

Tel. No. 080-30534004/49, E-mail to: manojkumar@ipirti.gov.in/ upadhyay@ipirti.gov.in

A TRIBUTE



IPIRTI NEWS records with profound sorrow the sad demise of Shri. Anil Madhav Dave, Hon'ble Minister for Environment, Forest & Climate Change, & President IPIRTI Society on 18.05.2017.

A condolence meeting was held at IPIRTI, Bengaluru to pay tribute to the departed soul

May his Soul rest in Eternal Peace.

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