Provisional Programme

1st Day

Wednesday, 08 September 2010

08:30 am: Reception to participants and registration

09:30 am: Opening session

Short welcome speeches by:

- **Dr. Fernando Caldeira, Coordinator of the Scientific and Organisation Commissions of ECOWOOD Conferences**
- **Prof. Roger M. Rowell, Prof. Emeritus, University of Wisconsin, Madison, WI, USA**
- **Prof. Lemos de Sousa, Director of CIAGEB – Research Centre on Global Changes, Energy, Environment and Bioengineering (UFP)**
- **Dr. Álvaro Monteiro, Director of the Faculty of Science and Technology (UFP)**
- **Prof. Salvato Trigo, President of Fernando Pessoa University (UFP)**

10:00 am: Keynote Address

Market-Oriented Research for a Sustainable Cork Industry –

An Innovative R&D Approach

Susana Silva, PhD

CORTICEIRA AMORIM, S.G.P.S., S.A., Portugal

11:00 am: Coffee break

Session 1 – Wood as a Construction Material

11:30 am **Deviation of LCI Results from Primary Industry Data and Application of Derived LCA in the Framework of Sustainable Construction Certification Schemes Using the Example of Glue Laminated Timber**

Stefan Diederichs and Sebastian Rüter

Johann Heinrich von Thünen Institute (vTI), Federal Research Institute for Rural Areas, Forestry and Fisheries,Institute for Wood Technology and Wood Biology, Hamburg, Germany

00:00 pm **Advantages of Diferent Timber Structural Solutions for Single-Family Buildings**

António Alberto de Jesus Murta[1], Humberto Salazar Amorim Varum[2] and Jorge Tiago Queirós da Silva Pinto[1]

[1] ECT, Department of Engineering, Trás-os-Montes e Alto Douro University (UTAD), Vila Real, Portugal. [2] Department of Civil Engineering, Aveiro University (UA), Aveiro, Portugal

00:30 pm **Quantification of Structural Wood Product Stocks and Flows in Single Family Homes in the United States**

Robert A. Sianchuk and Paul N. McFarlane

Department of Wood Science, Faculty of Forestry, University of British Columbia, Vancouver, B.C., Canada

01:00 pm: Lunch

Session 2 - Recycling and Reduction of Wastes

02:00 pm **A Review of Potential Methods for Reducing the Level of Contaminants in Recovered Wood**

Mark Irle, Zenjebil Jouini and Amine Bouslamti

02:30 pm **The Use of Recycled Paper in The Manufacture of Gypsum Ceiling Tiles**

Basílio Frasco Vianez, Ceci Sales-Campos, Marcela Amazonas Cavalcanti and Suiane Claro Saraiva

Department of Forest Products, National Institute for Amazon Research, Manaus, AM - Brazil

03:00 pm **Liquefaction of Wheat Straw and its Application to Carbon Fiber Precursors**

M. Hakkı Alma

KSÜ Orman Fakültesi, Bahçelievler, Kahramanmaras, Turkey

03:30 pm **Recovered Wood in Portugal – Recycling of Wood Packaging Waste**

Filipa Cardoso Morais de Almeida Pico[1] and Alexandra de Jesus Branco Ribeiro[2]

[1]EMBAR - Associação Nacional de Recuperação e Reciclagem de Resíduos de Embalagens de Madeira. [2]CENSE, Departamento de Ciências e Engenharia do Ambiente, Faculdade de Ciências e Tecnologia, Universidade Nova de Lisboa, Campus de Caparica, Caparica

04:00 pm: Coffee break

04:30 pm The Cultivation of Amazon Wild Mushroom on Wood Residue

Ceci Sales-Campos, Basílio Frasco Vianez, Maria Aparecida de Jesus, Meire Cristina Nogueira de Andrade and Raimunda Liége Souza de Abreu

National Institute for Amazon Research –INPA, Department of Forest Products – CPPF, Manaus, AM - Brazil

05:00 pm Proposal of a Product for Export

Karen Lumi Fernandes Kohashi[1], Claudete Catanhede do Nascimento[2] and Karla Mazarelo Ferreira Maciel[3]

[1]PIBIC/FAPEAM; [2]INPA/CPPF; [3]INPA - National Institute for Amazon Research / Coordination of Research in Tropical Forestry – CPST, Manaus – AM, Brazil

05:30 pm The Future Energy Sawmill

Henning Horn[1], Anders Qvale Nyrud[1] and Tor-Martin Tveit[2]

[1] Production technology and quality, Treteknisk, Oslo, Norway. [2] Single-Phase Power AS, Røyrvik, Norway.

06:00 pm: Posters session with drinks reception (Hall of the 1st floor)

2nd Day

Thursday, 09 September 2010

Session 3 – New Methods and Chemicals for Wood Preservation

09:00 am Wood Preservation Based on Heat Treatments

Roger M. Rowell

Professor Emeritus, University of Wisconsin, Madison, WI, USA and Guest Professor, EcoBuild, Stockholm, Sweden

09:30 am On the Use of Wood Protection by Means of Electro Osmotic Pulsing Technology Against Subterranean Termites

Andreas Treu[1], Lina Nunes[2], Sónia Duarte[2] and Erik Larnøy[1]

[1] Norwegian Forest and Landscape Institute, Section Wood Technology, Ås, Norway. [2]Laboratório Nacional de Engenharia Civil, Lisboa, Portugal

10:00 am Production of Bioactive Compounds Against Wood Contaminant Fungi: An Artificial Intelligence Approach

A. Teresa Caldeira[1], Henrique Vicente[1], José M. Arteiro[1], José C. Roseiro[2] and José Neves[3]

[1] Escola de Ciências e Tecnologia, Departamento de Química e Centro de Química de Évora, Universidade de Évora, Évora, Portugal. [2] Unidade de Bioenergia, Laboratório Nacional de Energia e Geologia, Lisboa, Portugal. [3] Departamento de Informática, Universidade do Minho, Braga, Portugal

10:30 am Coffee Break

11:00 am Plant Oils as "Green" Substances for Wood Protection

Nasko Terziev[1] and Dmitri Panov[2]

[1] Swedish University of Agricultural Sciences, Uppsala, Sweden. [2] University of Tartu, Institute of Chemistry, Department of Nature and Technology, Estonia

11:30 am Biodegradation of *Ceiba Pentandra* by Two White Rot Fungi and Control Using Spent Water of *Parkia Biglobosa* Seed

A. C. Adetogun[1], A. O. Omole[2] and R.O. Adejumo[1]

[1]Department of Forestry and Wildlife Management,University of Agriculture, Abeokuta, Nigeria. [2]Department of Forest Resources Management,University of Ibadan, Ibadan, Nigeria

00:00 pm Effect of Bark Extract of *Erythrophleum suaveolens* (Guillemin & Perrottet) Brenan on Fungal Activities in Wood of *Triplochiton scleroxylon* K. Schum

Ogunsanwo, Olukayode, Yekin and Adedeji, Gabriel, A

Department of Forest Resources Management, University of Ibadan, Nigeria

00:30 pm: Lunch

Session 4: Developments in Processes and Bonding

01:30 pm Processing of Non-Wood Fibre Plants to Quality Fibres for Boards and Composites in a Novel Pilot Plant

Ralf Pecenka and Hans-Jörg Gusovius

Leibniz Institute for Agricultural Engineering Potsdam-Bornim (ATB), Germany

02:00 pm N-Doped Carbonized Sugi (*Cryptomeria japonica*) Wood Replacing Pt-Based Catalysts

Toshimitsu Hata[1],Sylvie Bonnamy[2] and Paul Bronsveld[3]

[1]Research Institute for Sustainable Humanosphere, Kyoto University, Uji Kyoto, Japan. [2]CRMD, CNRS-Université, Orléans, France. [3]Department of Applied Physics University of Groningen, Groningen, The Netherlands

02:30 pm Use of Waterborne Organofunctional Silanes as Bonding Agents for Natural Adhesives

Lars Kloeser[1] and Cora Mueller[2]

[1]Wood Technology & Wood-based Composites, Faculty of Forest Science and Forest Ecology, Georg-August-University Goettingen. [2]Chemistry and Processing Technique of Composite Materials, Faculty of Forest Science and Forest Ecology, Georg-August-University Goettingen

03:00 pm Development of Environmentally Friendly Wood Adhesives from Rapeseed Flour

In Yang[1], Gyu-Seong Han[1], Sei Chang Oh[2], Sye Hee Ahn[2] and In-gyu Choi[3]

[1] Department of Wood & Paper Science, Chungbuk National University, Chungbuk, South Korea. [2] Department of Forest Resources, Daegu University, Gyeongbuk, South Korea. [3] Department of Forest Sciences, Seoul National University, Seoul, South Korea

03:30 pm: Coffee break

04:00 pm Effects of Plasma Surface Treatment on Formaldehyde Emission and Bond Strength of Beech Plywood

Ismail Aydin, Semra Colak, Cenk Demirkir and Gürsel Colakoglu

Karadeniz Technical University, Faculty of Forestry, Forest Industry Engineering Department, Trabzon, Turkey

04:30 pm Polycaprolactone (PCL)/Wheat Straw Flour Composites and their Mechanical Properties

Fatih Mengeloglu[1], Ramazan Kurt, Hulya Kalaycioglu[2] and Kadir Karakus[1]

[1]Kahramanmaras Sutcuimam University, Faculty of Forestry, Department of Forest Industry Engineering, Kahramanmaras, Turkey. [2]Karadeniz Technical University, Faculty of Forestry, Department of Forest Industry Engineering, Trabzon, Turkey

05:00 pm Enhancing the Properties of Plywood Produced by Auto-Adhesion

Jussi Ruponen, Lauri Rautkari and Mark Hughes

Department of Forest Products Technology, School of Science and Technology, Aalto University, Aalto, Finland

05:30 pm Effect of Sawdust Age on the Storage Quality of Wood Pellets

Karin Granström

Department of Energy, Environmental and Building Technology, Faculty of Technology and Science, Karlstad University, Karlstad, Sweden

08:00 pm: Conference Banquet

3rd Day

Friday, 10 September 2010

Session 5: Developments in Standards and Products

09:30 am **Policy Strategy on Downstream Processing of Forest Products: Importance of Technological Attributes of PNG Timber Species**

Peter Edwin and Barbara Ozarska

The University of Melbourne, Burnley Campus, Victoria, Australia

10:00 am **Standardization of Bamboo Based Products**

Anand Nandanwar, M Venugopal Naidu and C N Pandey

Indian Plywood Industries Research and Training Institute (IPIRTI), Bangalore, India

10:30 am **Sustainable Bio-Composites for Highway Infrastructure: Feasibility of Material Substitution in Existing Products**

Michael Karas and Lech Muszynski

Department of Wood Science and Engineering, Oregon State University, Corvallis, Oregon, USA

11:00 am: Coffee break

11:30 am **Bonding Quality and Microscopy of Eco-Panels Made of Crosscut Fir (*Abies alba*) Branches**

Alin M. Olărescu, Marina Cionca, Lidia Gurău and Cristina Timar

Faculty of Wood Industry, Department of Wood Technology, Braşov, Romania

00:00 pm **Ecological Wooden Floorings in the Past and Present in Finland**

Jonna Silvo and Katja Vahtikari

Department of Forest Products Technology, Aalto University School of Science and Technology, Aalto, Finland

00:30 pm **Novel Fiber Reinforced Composites and Lightweight Sandwich Panels Based on Renewable Resource from the Reed-Like Plant *Typha* sp.**

Günter Wuzella[1], Arunjunai Raj Mahendran[1], Thorsten Bätge[2], Andreas Kandelbauer[3]

[1] WOOD Carinthian Competence Center (W3C), Kompetenzzentrum Holz GmbH, St. Veit an der Glan, Austria. [2] University of Natural Resources and Applied Life Sciences, Institute of Wood Science and Technology, Wien, Austria. [3] Fakultät für Angewandte Chemie, Hochschule Reutlingen, Reutlingen,Deutschland

01:00 pm: Closing session

Short speeches by:

- **Dr. Fernando Caldeira, Coordinator of the Scientific and Organisation Commissions of ECOWOOD Conferences**
- **Prof. Roger M. Rowell, *Pioneering Scientist, Retired, USDA, Forest Service, Forest Products Laboratory, Madison, WI and Professor Emeritus, University of Wisconsin, Madison, WI, USA***
- **Dr. Álvaro Monteiro, Director of the Faculty of Science and Technology (UFP)**
- **Prof. Salvato Trigo, Rector of Fernando Pessoa University (UFP).**

Attribution of the prizes for the "Best Talk Given by a Student" and for the "Best Poster"

01:30 pm: Lunch

02:30 pm Tourist Tour in Oporto

Bus will leave from university main gate

* **Optional, needs registration**

Poster Presentations

1. Wastes, Recycling and Less-Known Raw Materials

1.1. Biodegrading Activity of a Native Strain of *Pleurotus ostreatus* Found in the Brazilian Amazon in Wood Residue Substrate

Meire Cristina Nogueira de Andrade, Ceci Sales-Campos, Maria de Jesus Coutinho Varejão and Basílio Frasco Vianez

National Institute for Amazon Research – INPA. Department of Forest Products, Manaus, AM, Brazil

1.2. Composting of Wood Waste Materials Generated from the Furniture Industry in Portugal

André Andrade, Pedro Sousa, Cláudia Ferreira, Marina Moreira and M.A.P. Dinis

Fernando Pessoa University, Porto, Portugal

1.3. Utilization of Poplar Bark in a Three-Layer Particleboard

Javad Torkaman

University of Guilan,Faculty of Natural Resources, Sowmehsara, Rasht, Iran

1.4. Production of Wood Cement Boards from Municipal Wood Wastes

A. O. Omole[1] and A.C. Adetogun[2]

[1]Department of Forest Resources Management, University of Ibadan, Ibadan, Nigeria. [2]Department of Forestry and Wildlife Management, University of Agriculture, Abeokuta, Nigeria

1.5. Wood Residues in Floor Production

Francisco Antonio Rocco Lahr and Maria Fátima do Nascimento

Department of Structural Engineering, São Carlos Engineering School, São Paulo University, São Carlos, SP, Brazil

1.6. Increased Value from Sawn Low-Valued Hardwoods with Improved Production and Products

Jimmy Johansson

Linnæus University, Växjö, Sweden

1.7. Wood-Plastic Composites Made of Recycled Materials

Cláudia Ferreira, Marina Moreira, André Andrade, Pedro Sousa, M.A.P. Dinis

Fernando Pessoa University, Porto, Portugal

1.8. Pulping of European Hophornbeam (*Ostrya carpinifolia* Scop.) Wood Using Modified-kraft and Soda Methods

Mehmet Akgül

Duzce University, Forest Products Engineering Department, Faculty of Forestry, Duzce, Turkey

1.9. Contributions of Design for Training in the Amazon Interior for the Manufacture of Products with Waste Wood

Mirella Sousa e Silva[1], Claudete Catanhede do Nascimento[2], Estevão Vicente Cavalcante Monteiro de Paulo[3], karla Mazarelo Ferreira Maciel[4] and Janaina de Almeida Rocha[5]

[1] PIBIC/INPA/FAPEAM; [2-3] INPA/CPST, [4,5] INPA - Nacional Institute for Amazon Research/Coordenação de Pesquisa em Silvicultura Tropical –CPST, Manaus – AM, Brazil

2. Wood Preservation

2.1 Studies for Maintenance of Integrity of Eco Treated Wood for Cable Reel Drivers

Irauadi Machado da S. Mendes[1] and Joceli Maria Giacomini Angelini[2], João Vicente Figueiredo Latorraca[3] , Moacir Romagna[4], Rosildo Santos Paiva[5]

[1]Furnas - RJ, [2]CPqD - SP, [3]UFRRJ - RJ, [4]Madem - PR, [5]UFPA - PA, Brasil

2.2 *Heterotermes tenuis* Hagen (Isoptera: Rhinotermitidae) in Samples of Five Wood Species of the Amazon State, Brazil

Raimunda Liége Souza de Abreu, Basílio Frasco Vianez, Ceci Sales-Campos, Meire Cristina Nogueira de Andrade and Emerson Oliveira Matias

Department of Forest Products, National Institute for Amazon Research, Manaus, AM – Brazil

3.6 New Formaldehyde-Free Cornstarch and Wattle Tannin Wood Adhesives for Plywood Production

Amine Moubarik[1,3], Fatima Charrier[1], Ahmed Allal[3], Antonio Pizzi[2] and Bertrand Charrier[1]

[1]Sylvadour, IUT des Pays de l'Adour, Mont de Marsan, France. [2]ENSTIB, Université de Nancy 1, Epinal, France. [3]IPREM-EPCP (UMR 5254), Université de Pau et des Pays de l'Adour, Pau, France

3.7 Lignocellulosic Composites Bonded with the Use of Oxidizing Enzymes

Jolanta Batog and Alojzy Przepiera

Institute of Natural Fibres & Medicinal Plants, Poznan, Poland

3.8 UF-pMDI Hybrid Resins for Particleboards with Improved Water Resistance

Dorota Dziurka and Radosław Mirski

Department of Wood-Based Materials, Faculty of Wood Technology. Poznań University of Life Sciences, Poznań, Poland

3.9 Improvement of Adhesive Strength of Wheat Gluten Dispersions by Additives and Enzymatical Treatment

Stefano D'Amico[1], Ulrich Müller[1] and Emmerich Berghofer[2]

[1] Competence Center for Wood Composites and Wood Chemistry (Wood K plus), Linz, Austria. [2] Division of Food Technology, Department of Food Sciences and Technology, University of Natural Resources and Applied Life Sciences, Vienna, Austria

3.10 Performance of a Novel Wood-Fiber Material with Enzymatically Modified Lignins as Binder

Dobrowolska Ewa[1], Nicewicz Danuta[1], Boruszewski Piotr[1], Borysiuk Piotr[1], Mamiński Mariusz[1], Stelzer Robert[2]

[1]Warsaw University of Life Sciences – SGGW, Faculty of Wood Technology,

Warsaw, Poland. [2]Chemnitz University of Technology, Faculty if Mechanical Engineering,

Chemnitz, Germany

3.11 Low Toxic UF-Resins for Plywood

Pavlo Bekhta and Roman Saldan

Department of Wood-Based Composites, Faculty of Wood Technology, National University of Forestry & Wood Technology of Ukraine, Lviv, Ukraine

3.12 Effect of Wood Cutting Directions on the Bonding Strength

Mustafa Altinok[1], Musa Atar[1], Hakan Keskin[2], Zeki Candan[3]

[1] Gazi University, Faculty of Technical Education, Department of Furniture and Decoration, Ankara, Turkey. [2] Gazi University, Industrial Arts Education Faculty, Department of Industrial Technology, Ankara, Turkey. [3] Istanbul University, Faculty of Forestry, Department of Forest Products Engineering, Sariyer, Istanbul, Turkey

4. Developments in Products

4.1 Compression Properties of Wood Impregnated with New Environment Friendly Pinewood Preservation Products

Miguel Pestana[1], Rene Diaz[2], Helena Machado[1], José Santos[3], Ofélia Anjos[2,4]

[1]INRB-National Institute of Biological Resources, Oeiras, Portugal. [2]Superior Agrarian School of Castelo Branco, Castelo Branco, Portugal. [3]Laboratório Nacional de Energia e Geologia, I.P., Lisboa. [4]CERNAS – Centro de Estudos de Recursos Naturais, Ambiente e Sociedade, Coimbra, Portugal

4.2 Densified Wood for Green Composites

Andreja Kutnar[1] and Frederick A. Kamke[2]

[1] University of Primorska, Primorska Institute for Natural Sciences and Technology, Koper, Slovenia. [2] Oregon State University, Department of Wood Science and Engineering, Corvallis, Oregon, USA

4.3 Assessing the Surface Compatibility Between Bio-Sourced Fibers with Thermoplastics

Ivo Costa[1], Celeste M. C. Pereira[1] and Luisa M. H. Carvalho[2,3]

[1]INEGI-Instituto de Engenharia Mecânica e Gestão Industrial, Universidade do Porto, Porto, Portugal. [2]DEMad-Dept. of Wood Engineering, Escola Superior de Tecnologia e Gestão de Viseu, Viseu, Portugal. [3]LEPAE-Dept. of Chemical Engineering, Faculdade de Engenharia da Universidade do Porto, Porto, Portugal

4.4 Lightweight Particleboards

Dorota Dziurka and Janina Łęcka

Department of Wood-Based Materials, Faculty of Wood Technology, Poznań University of Life Sciences, Poznań, Poland

4.5 Dimensional Stability of OSB/3 Determined According to Standard EN 318

Radosław Mirski[1], Dorota Dziurka[1] and Viktor Gotych[2]

[1]Department of Wood-Based Materials, Faculty of Wood Technology. [2]Department of Mechanical Wood Technology, Faculty of Wood Technology, Poznań University of Life Sciences, Poznań, Poland

4.6 Image Correlation on Wood Surface Modification by Heat and Compression

Pekka Tukiainen, Lauri Rautkari and Mark Hughes

Aalto University, School of Science and Technology, Department of Forest Products Technology, Espoo, Finland

4.7 The Influence of Different Types of Wood Fillers on the Properties of Wood-Plastic Composites

Pavlo Bekhta and Pavlo Lyutyj

Department of Wood-Based Composites, Faculty of Wood Technology, National University of Forestry & Wood Technology of Ukraine, Lviv, Ukraine

4.8 Wood Properties in Uneven-Aged Norway Spruce Forests: A Case Study in Five Stands in Southern Finland

Riikka Piispanen, Sauli Valkonen and Pekka Saranpää

Finnish Forest Research Institute, Vantaa Research Unit, Finland

4.9 Effect of Different Wood and Plastic Species on Some Technological Properties of Polystyrene Composite Plywood

Cenk Demirkir, Semra Çolak, İsmail Aydin, Gürsel Çolakoğlu

[1]Karadeniz Technical University, Faculty of Forestry, Department of Forest Industrial Engineering,Trabzon, Turkey

4.10 Physical and Mechanical Properties of Chipboards Available in Tanzania Markets

Chelelstino Balama[1] Peter R. Gillah[2] and Lawrence Mbwambo[1]

[1]Tanzania Forestry Research Institute, Morogoro Tanzania. [2]Faculty of Forestry and Nature Conservation, Sokoine University of Agriculture, Morogoro Tanzania

4.11 Assessment of the Performance and Expansion Potential of Paint and Varnish Processing Firm Using Sanduka (*Canarium asperum* Bent.) Resin in Mati, Davao Oriental, Philippines

Arsenio B. Ella, Carolyn Marie C. Garcia and Irma I. Palanginan

Forest Products Research and Development Institute (FPRDI), Department of Science and Technology (DOST), College, Laguna, Philippines

4.13 Timber Structures - Benefits to a Sustainable Construction

Silvia Fernandes

Carmo Estruturas em Madeira, Oliveira de Frades, Portugal

4.14 Incorporation of Sugar Cane Bagasse and Bamboo Leaves Waste in the Production of Composite Plates for Construction Applications

Rosane Aparecida Gomes Battistelle[1], Humberto Varum[2] and Francisco Antonio Rocco Lahr[3]

[1] Department of Civil Engineering, UNESP, Campus of Bauru, Bauru, SP, Brazil. [2] Department of Civil Engineering, University of Aveiro, Campus Universitario de Santiago, Aveiro, Portugal. [3] Department of Structural Engineering, São Carlos Engineering School, São Paulo University, ão Carlos, SP, Brazil

5. Chemicals and Chemical Modification of Wood

5.1. Manufacture and Purification of Hemicellulose-Derived Products from *Pinus pinaster* Wood

M. J. González Muñoz[1,2] and J. C. Parajó,[1,2]

[1] Chemical Engineering Department, Polytechnical Building, University of Vigo (Campus Ourense) Ourense, Spain. [2] CITI - Tecnopole San Ciprián de Viñas, Ourense, Spain

5.2 The Chemical Modification of Wood–Fibres Recovered from Containers and Palettes and their Use in the Production of MDF Boards

Nicewicz Danuta, Mamiński Mariusz and Boruszewski Piotr

Department of Wood-Based Panels, Faculty of Wood Technology, Warsaw University of Life Sciences– SGGW, Warsaw, Poland

5.3 Durability and Stability Improvement of *Pinus pinaster* Wood by Furfurylation

Bruno Esteves[1], Lina Nunes[2] and Helena Pereira[3]

[1]Centro de Estudos em Educação, Tecnologias e Saúde. Departamento de Engenharia de Madeiras. Escola Superior de Tecnologia de Viseu, Instituto Politécnico de Viseu. [2]Núcleo de Estruturas de Madeira. Laboratório Nacional de Engenharia Civil. [3]Centro de Estudos Florestais, Instituto Superior de Agronomia, Universidade Técnica de Lisboa

5.4 Modified Wood Entering New Markets – Findings in Wales and Portugal and How they May Affect other New Markets

Dennis Jones[1], Julia Carmo[2] and Edo Kegel[3]

[1]Woodknowledge Wales, BRE Wales, Engineering Centre for Manufacturing and Materials (ECM2), Neath Port Talbot, UK. [2]Carmo, Lisbon, Portugal.

[3] Marketing Dept, Plato International BV, Arnhem, Netherlands

6. Heat Treatment

6.1. Research into the Optimal Treatment Conditions for Birch, Aspen and Grey Alder Wood Modification

Vladimirs Biziks[1], Juris Grinins[1], Bruno Andersons[1], Ingeborga Andersone[1], Jelena Chirkova[1], Ilze Irbe[1] and Errj Sansonetti[2]

[1]Latvian State Institute of Wood Chemistry, Riga, Latvia. [2]Universitá Degli Studi di Perugia, Perugia, Italy

6.2. Comparison of the Mechanical Properties of Three Heat-Treated North American Species

Duygu Kocaefe, Yasar Kocaefe , Sandor Poncsak and Serge Thierry Lekounougou, Ramdane Younsi, Noura Oumarou

Department of Applied Sciences, University of Quebec at Chicoutimi, Chicoutimi, Québec, Canada

6.3. Investigation of the Chemical Composition of Waste Water after Hydrothermal Treatment of Wood

J. Grinins, V. Biziks, B. Andersons, I. Andersone and J. Chirkova

Latvian State Institute of Wood Chemistry, Riga Latvia