

**THE INTERNATIONAL RESEARCH GROUP ON WOOD PROTECTION**

**The 43<sup>rd</sup> Annual Meeting of IRG**

**Programme**

**IRG Secretariat  
Box 5609  
SE-114 86 Stockholm  
Sweden  
[www.irg-wp.org](http://www.irg-wp.org)**

# MONDAY 7 MAY

**Mahkota 2 room**

**08.30-09.30**

## **Plenary session**

**President: Jack Norton    Vice-President: Jeff Lloyd    Secretary-General: Jöran Jermer**

### **Plenary**

1. Opening of the meeting
2. Approval of the agenda (IRG/WP 12-60320)
3. Membership issues
  - Moment of silence for passed away members
  - Ratification of the election of new members since last year's Plenary
4. Announcement of Ron Cockcroft Award recipients
5. Approval of the Annual Report 2011 and Auditors' report (IRG/WP 12-60319)
6. Granting discharge for the Executive Council and Secretary-General from the administration and accountancy for 2011
7. IRG Strategic Statement and Framework – Progress report

## **Opening Ceremony of the 43<sup>rd</sup> Annual Meeting**

### **Opening addresses by**

Dr Jalaluddin Harun, IRG43 Chairman & Director General MTIB  
Dr Andrew Wong, IRG43 Co-Chairman & Coordinator, IUFRO Forest Products Divison  
Mr Jack Norton, President, International Research Group on Wood Protection  
Honourable Tan Sri Bernard Giluk Dompok, Minister for Plantation Industries and Commodities

# MONDAY 7 MAY

**Mahkota 2 room**

**10.00-10.45**

## **Keynote Session**

**Chairman: Jeff Lloyd**

IRG/WP 12-10786

**Perspective in urban termite biology and management in Southeast Asia**

Chow Yang Lee

**11.00-12.30**

## **Scientific Main Session**

**Chairman: Jeff Lloyd      Co-chairs: Lina Nunes, Gry Alfredsen, Radu Craciun, S Nami Kartal**

### **Information on IRG 43 programme planning**

Chair & co-chairs

IRG/WP 12-10776

**Connecting fungal genomic variations to wood chemical composition: A way to understand the adaptation of wood decaying fungi**

E Gelhaye, Y Mathieu, E Meux, A Thuillier, M Mélanie

IRG/WP 12-20490

**Effects of microclimate, wood temperature and surface colour on fungal disfigurement on wooden claddings**

L Ross Gobakken, G I Vestøl

IRG/WP 12-30589

**Smart hydrogels from low molecular weight amphiphilic compounds: toward a solution to decrease leachability and increase efficacy of boron preservatives?**

F Obounou Akong, P Gérardin, C Gérardin-Charbonnier

IRG/WP 12-40594

**A survey of factors affecting decay resistance of wood modified with acetic anhydride**

G Alfredsen, P O Flæte, H Militz

# MONDAY 7 MAY

## Mahkota 2 room

**13.30-15.00**

### WP 1.8 Cultural artefact protection

Chair: To be announced

IRG/WP 12-50290

#### **Wood protection in the Sierra Nevada National Park, Venezuela**

O Erazo, O Encinas, Y Molina

IRG/WP 12-10767

#### **In-situ experimental treatment and consolidation of degraded timber elements from a XIX century building**

D F Henriques, J de Brito, L Nunes

IRG/WP 12-10770

#### **The Significance of Natural Durability of Croatian Mediterranean Wood Species for their Traditional and Present Protection Methods and Use**

R Despot, M Hasan

IRG/WP 12-10785

#### **Micromorphological and chemical characteristics of waterlogged archaeological bamboos excavated from the Yellow Sea**

Mi Young Cha, Yoon Soo Kim

IRG/WP 12-20493

#### **Durability of wooden shop-name signage coated with Urushi lacquer and gold leaf attached to the facade of building in Japan**

K Yamamoto, M Kiguchi

## Mahkota 1 room

### WP 2.1 Prediction of service life

Chair: Christian Brischke

IRG/WP 12-20486

#### **Use of the durable species Coast Redwood as a reference system for field testing of Wood Protection systems**

A Zahora, A Preston, L Jin

IRG/WP 12-20487

#### **Evaluation of fungal infestation and decay in a simulated use class 3 situation (block test) after some years of exposure**

A Gellerich, K Röhl, S Adamopoulos, H Militz

IRG/WP 12-20499

#### **Performance of Wood Protection Systems at Multiple Field Test Sites Using the Ground Proximity Test Method**

A Zahora, A Preston, L Jin

IRG/WP 12-20500

#### **Testing service life for use class 3: accelerated L-joint performance of commodities**

J Van Acker, J Van den Bulcke, I De Windt, L De Vetter

IRG/WP 12-20481

#### **The Technical Criteria on Biological Evaluation of Wood Preservatives for Use Category C4.1 in Southern China**

Xingxia Ma, Mingliang Jiang

# MONDAY 7 MAY

## Mahkota 2 room

**15.30-17.30**

### WP 3.2 New wood protecting chemicals

Chair: Holger Militz

IRG/WP 12-30587

#### **Tannin resin-boron associations: Leaching and biological resistance**

G Tondi, S Wieland, N Lemenager, A Petutschnigg, A Pizzi, M-F Thevenon

IRG/WP 12-30590

#### **Evaluation of Five Novel Organotin (IV) Complexes as Wood Preservatives**

M M Rahman, I Jusoh, M A Affan, A Husaini

IRG/WP 12-30591

#### **Antifungal activities of acetone-soluble *Eusideroxylon zwageri* and *Potoxylon melagangai* crude extracts against white rot**

I Jusoh, A Tida Henry, Z Assim, F Badruddin Ahmad, S Ujang

IRG/WP 12-30592

#### **Thiacloprid as a glueline termiticide for veneer based wood products**

K Day, A Siraa, P Lobb

IRG/WP 12-30598

#### **Performance of wood treated with linseed and tung oil against wood decay fungi and wetting**

M Humar, B Lesar

## Mahkota 1 room

### WP 4.5 Coatings, hydrophobic treatments and surface aspects

Chair: Laurence Podgorski

IRG/WP 12-40580

#### **Water uptake of wood surfaces with and without coating: influence of weathering**

L Podgorski, S Collignan, J D Lanvin

IRG/WP 12-40588

#### **Comparison of exterior performance of two coating systems based polyurethane applied *Pinus sylvestris* L. and *Picea orientalis* L. wood**

Ö Özgenç, Ü Cafer Yıldız

IRG/WP 12-20480

#### **Using an accelerated laboratory method to evaluate *Aureobasidium pullulans* colonization on painted surfaces and underlying wood substrate**

C Schauwecker, L Burns, A Preston

IRG/WP 12-30586

#### **Mould resistance of bamboo timber treated with tebuconazole-loaded micells**

Sun Fangli, Chen Anliang, Bao Binfu, Zhou Yueying, Zhang Shaoyong, Zhang Xu

IRG/WP 12-30595

#### **Supercritical impregnation of wood with siloxane**

A Kjellow, F Imsgard, J Fernandes, O Henriksen, E Klaassen, R Wagner, J Delis

IRG/WP 12-30597

#### **Stabilization of IPBC in wood through the use of organosilicon compounds**

B Mazela, W Perdoch

<b>TUESDAY 8 MAY</b>	
<b>Mahkota 2 room</b>	<b>Mahkota 1 room</b>
<b>08.30-10.30</b>	
<b>WP 1.5/2.5 Termites and other insects</b>	<b>WP 4.2/4.6 Chemical and thermal wood modification</b>
Chairs: Magdalena Kutnik and Don Ewart	Chairs: Erik Larnøy and Christian Welzbacher
<p>IRG/WP 12-20482  <b>Managing termite risks – An Australian perspective and a cautionary tale</b>  D Ewart</p> <p>IRG/WP 12-10774  <b>The importance of proper taxonomic identification, a case study with <i>Reticulitermes</i> spp. from USA</b>  Su Yee Lim, B T Forschler</p> <p>IRG/WP 12-10775  <b>Decay factors in termite in-ground monitoring stations</b>  S Duarte, A M Taylor, Jae-Woo Kim, J D Lloyd, M Duarte, L Nunes</p> <p>IRG/WP 12-10782  <b>Genetic diversity and morphometric study of thirteen populations of <i>Microcerotermes diversus</i> (Silvestri) (Isoptera: Termitidae) in southern Iran</b>  E Akbarian Firouzabadi, B Habibpour, H Galehdari, P Shishehbor</p> <p>IRG/WP 12-10783  <b>Transfer of Thiamethoxam from Exposed to Non-Exposed Workers of <i>Microcerotermes diversus</i> Silvestri (Isoptera: Termitidae)</b>  Z Fathollahi, B Habibpour</p> <p>IRG/WP 12-10763  <b>Preference of <i>Reticulitermes flavipes</i> (Kollar) for Southern Pine Blue-Stained Sapwood from Beetle-Killed Trees</b>  N S Little, J J Riggins, A J Londo, T P Schultz, D D Nicholas</p> <p>IRG/WP 12-10766  <b>Preliminary laboratory and field evaluation on the performance of Rubbermite as a graded physical barrier against subterranean termite species in Australia</b>  B M Ahmed (Shiday), J R J French</p>	<p>IRG/WP 12-40589  <b>The effects of acetylation level on the growth of <i>Postia placenta</i> over 36 weeks</b>  A Pilgård, G Alfredsen, C G Fossdal, C J Long II</p> <p>IRG/WP 12-40598  <b>Correlation of %Acetyl and Fiber Saturation in Acetylated Southern Pine Boards</b>  J Dickerson, E Cwirko, J Allen</p> <p>IRG/WP 12-40602  <b>Durability of furfurylated wood – Results from laboratory and field tests in the <i>Ecobinders</i> project</b>  M Westin</p> <p>IRG/WP 12-40581  <b>Study on the Effect of Combined Nanosilver-Hygrothermal Treatment on Wood Properties</b>  G Rassam, H Reza Taghiyari, A Karimi, B Jamnani, M Ebrahimi</p> <p>IRG/WP 12-40587  <b>Utilization of thermodesorption coupled to GC-MS to characterize volatiles formation kinetics during wood thermodegradation</b>  K Candelier, S Dumarçay, A Pétrissans, M Pétrissans, P Kamdem, P Gérardin</p> <p>IRG/WP 12-40604  <b>Chemical Analysis of Hydrothermally Treated Beech Wood in Buffered Mediums</b>  A Talaei, A Karimi</p> <p>IRG/WP 12-40586  <b>Influence of heat treatment intensity on the structural integrity of 14 timber species</b>  C R Welzbacher, C Brischke, G Maier</p>

# TUESDAY 8 MAY

## Mahkota 2 room

**11.00-12.30**

### WP 4.1 Topical issues

Chair: To be announced

IRG/WP 12-40595

#### **Effects of nano-wollastonite impregnation on fire resistance and dimensional stability of Poplar wood**

A Karimi, A Haghighi Poshtir, H Reza Taghiyari, Y Hamzeh, A Akbar Enayati

IRG/WP 12-40606

#### **The effect of nanozycosil on the water absorption and dimensional stability of Beech wood**

M Ghorbani, F Bavaneghi

IRG/WP 12-40578

#### **Effects of Nano-Zycosil on Liquid and Gas Permeability of MDF**

H Reza Taghiyari, K Heidarhaee, P Noori, A Karimi

IRG/WP 12-40576

#### **Effects of Nano-Wollastonite on Ignition Time Reduction in MDF**

H Reza Taghiyari, H Rangavar, P Noori, A Karimi

IRG/WP 12-40607

#### **Nano structural properties of La<sub>2</sub>O<sub>3</sub>-Beech Wood Flour With XRD technique**

M Ghorbani Kokandeh, I Bahamni, A Bahari

## Mahkota 1 room

### WP 4.2/4.6 Chemical and thermal wood modification, cont'd

Chairs: Erik Larnøy and Christian Welzbacher

IRG/WP 12-40593

#### **Relationships between heat treatment intensity and some conferred properties of different European softwood and hardwood species**

M Chaouch, S Dumarçay, A Pétrissans, M Pétrissans, P Gérardin

IRG/WP 12-40597

#### **Mechanical Properties of Hydrothermally Treated Beech Wood in Buffered Mediums**

A Talaei, A Karimi, K Yaghoobi A Talaei

IRG/WP 12-40599

#### **The Effects of Industrial-Scale Heat Treatment and Impregnation with Boron Compounds on Water Uptake and Tangential Swelling of Some Wood Species**

A Can, S Yildiz, Ü C Yildiz

IRG/WP 12-40601

#### **Corrosion of fasteners in heat-treated wood – progress report after nine years' exposure outdoors**

J Jermer, B-L Andersson

IRG/WP 12-40605

#### **Improvement of the biological performance and dimensional stability of two tropical woods by thermal modification**

M M González-Peña

# TUESDAY 8 MAY

## Mahkota 2 room

**13.30-15.00**

### WP 3.5 Sustainability and the environment

Chair: Ed Suttie

IRG/WP 12-50287

#### **Guideline for Environmental Product Declaration for Thermally Modified Timber**

L Clauder

IRG/WP 12-50285

#### **Biodegradation of treated wood waste by native fungal communities of tropical soil in French Guiana**

A Zaremski, L Gastonguay, C Zaremski, F Chaffannel, J Beauchêne, G LeFloch

IRG/WP 12-50288

#### **Liquefaction - a functional way to manage CCB containing post-consumed wood?**

M Petrič, F Budija, D Hrastnik, M Humar, B Lesar

IRG/WP 12-50289

#### **Fixation and leaching characteristics of Malaysian tropical hardwoods treated with CCA-C**

S Salim, S Shahomlail, Z Ashaari, Yong-Seok Choi, Gyu-Hyeok Kim

## Mahkota 1 room

### WP 1.1 Physiology of decay

### WP 2.2 Microbial test methodology

Chairs: Annica Pilgård and Eric Gelhaye

IRG/WP 12-10777

#### **Wood decay enzymatic ability of *Fusarium circinatum***

M T Troya, F Llinares, Y Serrano, M Conde

IRG/WP 12-10778

#### **Inhibition of basidiospore germination by copper from MCQ, ACQ and CCA Leachates**

R Stirling, J Drummond, P I Morris

IRG/WP 12-10781

#### **Variation in two *Postia placenta* strains, MAD-698-R and FPRL 280 – mass loss, DNA content and gene expression**

N Thaler, G Alfredsen, C G Fossdal

IRG/WP 12-20492

#### **Comparative studies on the moisture performance and durability of wooden facades**

T Bornemann, C Brischke, J-M Lück

IRG/WP 12-20495

#### **Moisture performance based wood durability testing**

L Meyer, C Brischke, A Pilgård



# TUESDAY 8 MAY

**Mahkota 2 room**

**15.30-17.30**

**WP 3.3/3.4 Performance – lab tests and field tests**

Chairs: Teresa de Troya and Thomas Mark Venaas

IRG/WP 12-20484

**Determination of izod impact strength on wood: a suitable method to detect fungal decay in protective effectiveness-screenings of wood preservatives**

H Delenk, M Zauer, A Wagenführ

IRG/WP 12-30583

**Effect of an antioxidant on the efficacy of organic wood preservatives in an accelerated soil contact decay test**

D D Nicholas, J Shi, T P Schultz, L Sites

IRG/WP 12-30596

**Mobilized copper(II) concentrations in earlywood and latewood of micronized copper treated red pine**

Wei Xue, P Kennepohl, J N R Ruddick

IRG/WP 12-30584

**Effect of Biodiesel on the Efficacy of Pentachlorophenol Treated Wood**

S Keshani Langroodi, H Borazjani, D Nicholas, L Prewitt, S V Diehl

IRG/WP 12-20496

**In-ground variability of decay intensity within a test field**

C Brischke, S Olberding, L Meyer, T Bornemann, C R Welzbacher

IRG/WP 12-30588

**Mold Control for Treated Lumber in Block-Stack Storage Conditions**

L Jin, P Walcheski, A Preston

IRG/WP 12-30585

**Survival of *Bursaphelenchus xylophilus* exposed to permethrins**

S C Arcos, M T Troya, L Robertson, F Llinares, M Conde, A Navas

# WEDNESDAY 9 MAY

**Mahkota 2 room**

**08.30-10.30**

**Special session Advanced imaging techniques**

Chair: Phil Evans and Gry Alfredsen

IRG/WP 12-20494

**Accessibility of Wood Cell Walls to Well-defined Platinum Nanoparticles**

H Matsunaga, Y Kataoka, M Kiguchi, P D Evans

IRG/WP 12-20485

**Novel microscopic approaches to visualise chitosan within impregnated wood**

A Singh, T Singh

IRG/WP 12-20491

**Plywood under the scanner: linking moisture dynamics and 3D structure**

J Van den Bulcke, I De Windt, N Defoirdt, J Van Acker

IRG/WP 12-20489

**Use of Variable Pressure Scanning Electron Microscopy for in situ Observation of Degradation of Wood Surfaces during Artificial Weathering**

F Hatae, Y Kataoka, M Kiguchi, H Matsunaga, J Matsumura

IRG/WP 12-20488

**Use of X-Ray Micro-Computed Tomography to Visualize Copper in Preservative Treated Wood**

P D Evans, A Limaye, H Averdunk, M Turner, T J Senden, M A Knackstedt

IRG/WP 12-10773

**Bordered Pit Imaging**

D Mascheck, B Goodell, H Militz, M Lessard, J Jellison

# THURSDAY 10 MAY

## Mahkota 2 room

**08.30-10.30**

### Special session: Advances in durability

Chairs: Grant Kirker and Andrew Wong

IRG/WP 12-10765  
**Eastern redcedar included sapwood: Resistance to mold and termites under laboratory conditions**  
 C Köse, A M Taylor

IRG/WP 12-10762  
**Extractives in Norwegian-Grown and North American-Grown Western Red cedar and Their Relation to Durability**  
 R Stirling, P O Flæte, G Alfredsen, P I Morris

IRG/WP 12-10764  
**Above Ground Field Evaluation and GC-MS Analysis of Naturally Durable Wood Species**  
 G T Kirker, A B Blodgett, S T Lebow, C A Clausen

IRG/WP 12-10769  
**Laboratory and Field evaluation on Natural Resistance and Feeding Preference of Different Wood Species to Subterranean Termites (*Isoptera: Rhinotermitidae, Termitidae*) in Pakistan**  
 S A Malik, F Manzoor, B M Ahmed (Shiday)

IRG/WP 12-10772  
**Laboratory evaluation of the natural durability and treatability of *Cryptomeria japonica* grown in La Reunion Island**  
 M Kutnik, J Vuillemin, I Paulmier, I Le Bayon, S Legay, E Raphalen, M Jequel, N Farnier, T Glandut

## Mahkota 1 room

### WP 4.3 Wood composites and WPC

Chair: Mark Manning

IRG/WP 12-40577  
**Biological performance of wood- and bamboo-polypropylene composites: Effects of particle content, particle size and Zn borate**  
 S N Kartal, S Aysal, E Terzi, T Yoshimura, K Tsunoda (†)

IRG/WP 12-40579  
**The effect of press time on springback and water absorption of acetylated particleboard**  
 F Bavaneghi, M Ghorbani, A Kargarfard

IRG/WP 12-40590  
**Effects of Wood Preservative on Mechanical Properties of Glulam Manufactured from Lower Density Malaysian Tropical Timber**  
 L Francis, Z Ahmad

IRG/WP 12-30594  
**Termite resistance of copper-based preservative supplemented aspen strandboards**  
 J J Morrell, C Vidrine, A Preston, L Jin

IRG/WP 12-40600  
**Bending Properties of FRT OSB**  
 J M Hill, H M Barnes, S Q Shi

IRG/WP 12-30593  
**Glueline fungicides in veneer based engineered wood products - results from laboratory work for the H1.2 hazard class in New Zealand**  
 A Siraa, K Day, P Lobb

IRG/WP 12-10768  
**Preliminary laboratory bioassay to evaluate engineered Fibre-boards against subterranean termites *C acinaciformis* (*Isoptera: Rhinotermitidae*)**  
 B M Ahmed (Shiday), H Militz, B Ozarska, I Ali, L Kloeser

<b>THURSDAY 10 MAY</b>	
<b>Mahkota 2 room</b>	<b>Mahkota 1 room</b>
<b>11.00-12.30</b>	
<b>Special session: Advances in durability, cont'd</b>	<b>WP 4.4 Treating processes &amp; treatability of timber</b>
Chairs: Grant Kirker and Andrew Wong	Chair: Hiroshi Matsunaga
<p>IRG/WP 12-10771  <b>Long term durability of the heartwood of seven common softwood species in above ground conditions</b>  E Tang Engelund, M Klamer, T Mark Venås, B Lindegaard</p> <p>IRG/WP 12-20483  <b>A survey on Bio-Resistance of Oak and Elm in Caspian Sea Water</b>  S M Kazemi</p> <p>IRG/WP 12-10784  <b>Coconut lumber for wood decks (<i>Cocos nucifera</i> L.): decay resistance against Basidiomycetes fungi</b>  B Jourez, C Verheyen, J Van Acker</p> <p>IRG/WP12-20498  <b>Durability of timber products – Part 1: Inventory and evaluation of above ground data on natural durability of timbers</b>  C Brischke, L Meyer, G Alfredsen, M Humar, L Francis, P O Flæte, P Larsson-Brelid</p> <p>IRG/WP 12-10780  <b>Influence of soil moisture, Sarawak soil types and decay types on decay susceptibility of rubberwood and kelempayan</b>  A H H Wong, P K F Chong, J Sabang</p>	<p>IRG/WP 12-40584  <b>Analyses of premature failure of utility poles</b>  S Bollmus, N Rangno, H Militz, A Gellerich</p> <p>IRG/WP 12-40603  <b>KERUING and APITONG: A Timely Review of the Perfect Choice Wood Species for Crossarms and Brace Arms, Including Data on Copper Naphthenate Treatments</b>  A H H Wong, M H Freeman</p> <p>IRG/WP 12-40608  <b>Tar-oil uptake vs time in immersion treatment of short pine posts: A simple technique applicable to rural communities of Papua New Guinea</b>  B K Gusamo, R Tulo</p>

# THURSDAY 10 MAY

## Mahkota 2 room

**13.30 -15.00**

### Scientific Plenary Session

**Chairman:** Jeff Lloyd      **Co-chairs:** Lina Nunes, Gry Alfredsen, Radu Craciun, S Nami Kartal

IRG/WP 12-20497

#### **Durability of timber products – Part 2: Proposal for an IRGWP - Durability Database**

C Brischke, L Meyer, G Alfredsen, M Humar, L Francis

#### **Deterioration zones, durability and service life prediction**

Discussion led by C Brischke & J Morrell

**15.30-16.15**

### Plenary session, cont'd from Monday 7 May

**President:** Jack Norton

**Vice-President:** Jeff Lloyd

**Secretary-General:** Jöran Jermer

8. Approval of membership fees for 2013
9. Approval of the budgets for 2012 (forecast May 2012) and 2013 (IRG/WP 12-60323 and IRG/WP 12-60324)
10. Election of new officers
  - Executive Council
  - Scientific Programme Committee, section 3
  - Information on EC appointments to other committees
11. Appointment of auditors
12. Future venues
  - IRG 44: 16-20 June 2013 Stockholm, Sweden
  - IRG 45: 11-15 May 2014 St George, Utah, USA
  - IUFRO all div 5: 8-13 July Estoril, Portugal
13. Any other business
14. Closure of the meeting

# Tabled papers

## Section 3 Wood protecting chemicals

IRG/WP 12-30581

Performance of boron diffused wood products used indoors for 144 months in Bangladesh

A K Lahiry, T Lahiry

IRG/WP 12-30582

Performance superiority of CCA-C treated wooden jetty poles and piles used for 30 years in Bangladesh against marine borers

A K Lahiry

IRG/WP 12-30600

Copper naphthenate treatment for poles – a review and update

J A Brient, M H Freeman

## Section 4 Processes and properties

IRG/WP 12-40574

Effects of oil types and treatment temperature on the properties of wood subjected to thermal modification in oil medium

L Awoyemi, M M Apetogbor, A A Oteng-Amoako

IRG/WP 12-40582

The assessment of biological and mechanical properties of wood treated with ionic liquids – N,N-dimethylamine and 1-decylimidazole derivatives

W Przybylska

IRG/WP 12-40583

WOOD: its importance in our life

I Usta

IRG/WP 12-40585

The resistance of thermo and thermo-oil modified black poplar wood (*Populus nigra* L.) to Basidiomycetes fungi

A Fojutowski, A Kropacz, A Noskowiak

IRG/WP 12-40592

Microwave Modification of Bamboo Culm to Improve Permeability

K Sugiyanto, P Vinden, G Torgovnikov, S Przewloka

IRG/WP 12-40596

Post-Manufacture Biocide Treatment of Engineered Wood I-Joists

A S Ross, R W Clawson

## Section 5 Sustainability and environment

IRG/WP 12-50284

Environmental safeness of 60% and 72% concentrated CCA-C solution and paste for wood treatment

A K Lahiry