



COST E53

## Training School



Methods for measuring of moisture



content and assessment of timber quality

Venue: BFH, Hamburg

17<sup>th</sup> – 19<sup>th</sup> October 2006

**Participants: up to 15 young scientists and industrial quality control experts  
and up to 7 teachers/trainers**

**Background:** Moisture content (MC) is a key factor in industrial quality assessment of wood and wood products. All modern wood products must be dried to specific MCs which depend on the end use requirements. Sawn timber may distort during drying and will certainly change dimension under end use conditions if not dried to the right MC. Reliable methods for MC measurements therefore are of utmost importance. MC also has strong impact on other physical properties which are determined by means of modern systems for assessing wood quality. Enhanced knowledge on reliability of MC measuring systems and how to use them will help to improve quality control strategies and overall wood product quality.

**Objectives and content:** The Training School will address state of the art in the field of industrial moisture content measuring systems for wood and wood products. After short presentations of the different measuring principles and its physical fundamentals the participants will be given the chance to gain experience while using modern measuring MC systems on lots of industrially kiln dried sawn timber. Modern measuring instruments will be applied for determination of moisture content and other physical features of European soft wood (spruce or pine). Procedures for calibration of instruments and for verification of measured results will be applied and discussed. The practical exercises will include a training session on how to assess quality of sawn timber by visual inspection and application of NDT methods (ultrasonic, vibration, etc.). Sampling procedures and acceptance testing will be carried out according to ENV 12169.

**Aim of the Training School:** to raise awareness of moisture related problems and effects in industrial quality control and under end use conditions.

**Target group:** Quality inspectors, technical staff, engineers, young scientists

**Cost:** Participation fee is 250 Euro. Included in fee are lectures and practical session, provision of measuring instruments and test material, excursion, coffee breaks, lunch and social event/barbeque.

On request a limited number of participants can receive a fixed contribution (600 €) from European Science Foundation to cover part of travelling expenses and participation fee.

**Proposer and organiser:** Dr. Johannes Welling, Institute of Wood Physics, BFH

## Program

Arrival of participants on 16<sup>th</sup> Oct. (Monday) or earlier (Sunday) in case participants want to attend the EDG Seminar on 16<sup>th</sup> Oct.2006 (<http://timberdry.net/?News>)

### 1<sup>st</sup> day (Tuesday, 17th October 2006)

- 08:00 – 09:00 Registration
- 09:00 – 09:15 Welcome; introduction (Kliger, Welling)
- 09:15 – 09:40 Fundamentals of moisture content measurement, (Ressel, Uni HH/D)
- 09:40 – 10:00 Moisture content/distortion problems in structural timber (Kliger/Chalmers)
- 10:00 – 10:30 Moisture content measurement in industrial practice  
Part I: Hand-held moisture meters (Berger, Fa. Gann/D)  
Part II: In-line moisture meters (Rozema, Fa. Brookhuis/NL)
- 10:30 – 11:00 Coffee break
- 11:00 – 11:30 Sampling strategies in industrial quality control according to ENV 12169 and other standards (Tronstad/Sandland, NTI/N)
- 11:30 – 12:00 Introduction to the practical part of the Training School (Welling. BFH/D; Esping, SP/SE)
- 12:00 – 12:30 a) Introduction of training school participants and trainers,  
b) Formation of small working groups (max. 3 groups with 5 people)
- 12:30 – 14:00 Lunch break
- 14:00 – 15:00 Visit to the laboratory; inspection of test material and the measuring instruments; discussion of next days programme
- 15:00 – 15:30 Introduction to task I (Measuring and quality assessment with hand-held resistance-type moisture meters (Trainer: Tronstad/Sandland/Berger)
- 15:30 – 16:00 Introduction to task II (measuring and quality assessment with capacitance moisture meters) (Trainer Esping/Rozema)
- 16:00 – 16:30 Introduction to task III (Timber grading and machine testing) (Trainer Rozema/Welling)
- 16:30 – 17:00 Procedures for evaluation and comparison of results (Welling/Ressel)
- 19:00 – 22:00 Social event

## **2<sup>nd</sup> day (Wednesday, 18<sup>th</sup> October 2006)**

08:00 – 10:00 Practical Session I

10:30 – 12:30 Practical Session II

13:30 – 14:30 Practical Session III

Sessions run parallel in the laboratories of Institute of Wood Physics. Each group will sequentially work on each of the three tasks I, II and III. Time available for each task is approx. 2 hours.

10:00 – 10:30 Coffee break

12:30 – 13:30 Lunch break

14:30 -15:00 Coffee break

15:00 – 17:00 Each group evaluates results of task I, II and III

17:00 – 18:00 Presentation of results in plenary

19:00 - ???? Training School barbeque in the arboretum park of BFH  
or  
Excursion to Hamburg City Centre

## **3<sup>rd</sup> day (Thursday, 19<sup>th</sup> October 2006)**

08:30 – 09:00 Quality assessment and decision making processes (acceptance, rejection, claim, etc.) in industrial quality control (Welling/Tronstad)

09:00 – 10:00 Feed back to trainers, discussion about R&D and training needs in industrial practice, suggestions for improvement, etc.

10:00 – 10:30 Coffee break

10:30 – 16:00 Excursion to a large softwood saw mill

16:00 End of Training School

Departure of participants and trainers to their home countries.

Participants will be given the chance to attend the EDG Drying seminar which will be held on 16<sup>th</sup> October at BFH (the day before to training school starts). Please do not forget to register early enough. Participation to the EDG seminar is limited to 100 attendees.

**List of Trainers / Teachers:**

<b>Name</b>	<b>Company/Institute</b>
Welling, Johannes	BFH/D
Ressel, Jörg-Bernhard	Uni Hamburg/D
Kliger, Robert	Chalmers University/SE
Sandland, Knut Magnar	NTI/N
Rozema, Pieter	Brookhuis Electronics/NL
Berger, Ulrich	Gann/D
Esping, Björn	SP/Trätek/SE

# COST E53 Training School

## Methods for measuring of moisture content and assessment of timber quality

Number of participants is limited to 15. We intend to have participants from all over Europe. Therefore the number of participants from a country will also be limited. Not more than 3 people from the same country will be accepted. The organizers will select the participants and inform those who have not been selected as soon as possible.

The number of participants, that may receive a fixed contribution of max. 600 € from European Science Foundation, is also limited and depends on the financial resources available. If you want to apply for a financial contribution, please tick box below.

### Request for registration

Family name:	
First name	
Title:	
Company/Institution:	
Address (street)	
Address (ZIP)	
Address (town)	
Address (country)	
Tel:	
Fax:	
email:	

I apply for a fixed contribution to be paid by European Science Foundation.

I herewith agree to pay the participation fee of 250 € in case my request for registration is accepted by the organizers.

Date:

Signature:

Please send back to: Dr. Johannes Welling, BFH, Hamburg

Fax +49/(0)40/42891-2925

email: [welling@holz.uni-hamburg.de](mailto:welling@holz.uni-hamburg.de)

If you have questions, please do not hesitate to call by phone (+49/(0)40/73962-634)