

**TRAINING AGREEMENT and QUALITY COMMITMENT
LLP-ERASMUS PROGRAMME**

I. DETAILS OF THE STUDENT

Name of the student: KATARZYNA SCHAEFER

Subject area: Protective Coatings (Anti-Corrosion Protection)
year of PhD programme

Academic year: Third

Degree: MSc in Chemical Technology

Sending institution: Politechnika Gdańska (Gdańsk University of Technology, PL_GDANSK02)

II. DETAILS OF THE PROPOSED TRAINING PROGRAMME ABROAD

Host organisation: (University of Duzce) Düzce Üniversitesi

Kaynaşlı Meslek Yüksekokulu

81900/Kaynaşlı-Düzce



Planned dates of start and end of the placement period:

5th March – 30th June 2011

- Knowledge, skills and competence to be acquired:

The purpose of my staying in Duzce is to complete the research as a part of PhD studies performed at Gdańsk University of Technology. I will be working on an applied research project for four months. The suggested name of the project is: "Effect of green inhibitors on different type of alloys (brass, steel or aluminium) upon exposure to different environments".

The main aim of my stay will be to investigate corrosion behaviour of iron (St3), different type of Aluminium and brass alloys upon exposure to different weathering conditions. These various substrates are frequently used in the furniture industry and are often soaked in thermoplastic based glues such as Polivinilasetat (PVAC), Epoxy resin and thermoset based glues (Urea-formaldehyde (UF), Phenol formaldehyde (PF)). The electrochemical measurements that will be performed will allow us to decide which glue will be appropriate for which particular metal or alloy. These type of plastic-based glues are commonly applied in construction technologies so the need for evaluation of their effects on corrosion process is of general interest. The effect of some green inhibitors in different environments will also be examined. Projects conducted at University of Duzce have involved studies on Quebracho (*Schinopsis balansae*) extract so far. Extracts of different endemic plants of the Duzce region will also be investigated as green inhibitors.

Additionally the applicant will attend lectures providing knowledge on corrosion of materials employed as cutting tools that they might come into contact with under some circumstances. Other lectures will cover basic aspects of the electrochemical process of corrosion and ways of its prevention.

- Detailed programme of the training period:

Scientific work will involve the following activities:

March

- Literature research for "Corrosion of materials used as cutting tools of wood"
- Literature research for "Green inhibitors",
- Lecture course about "The electrochemical process of corrosion" [every week two hours],
- Laboratory Security Education,
- Orientation,
- Sample preparations,
- Extracts preparation

April

- Experimental approach,
- Experiments with "Tafel polarization, Linear Polarization and Electrochemical Impedance Spectroscopy",

May

- Evaluation of experiment results,
- Lecture course about "Corrosion control and prevention" [every week two hours],

June

- Arrangements of all experimental results for article,
- Writing article,

- Tasks of the trainee

During the first month of training conducted at University of Duzce, the applicant will become familiar with basic knowledge on green inhibitors and corrosion of materials used as cutting tools of wood. In order to achieve that, a detailed literature research will be conducted. At the initial stage of work the samples, including different substrates such as brass, copper, aluminium and chosen extracts will be prepared. Laboratory tasks during second month will include preparation of the experimental set-up. Several electrochemical techniques for example Tafel polarization, Linear polarization and Electrochemical Impedance Spectroscopy will be performed in order to investigate electrochemical behaviour of different substrates (brass, aluminium, copper) as a result of exposure in different environments. Finally the obtained experimental results will be evaluated and a scientific paper will be written. If the work is considered sufficiently interesting it will be submitted to EuroCorr 2012 taking place in Turkey.

- Monitoring and evaluation plan:

The outcome of the work that will be conducted at University of Duzce will be monitored by Assist. Prof.Dr. Hüsni GERENGİ (Kaynaşlı Vocational College Erasmus Coordinator) and Assist. Prof.Dr. Ayhan ŞAMANDAR (Director of Kaynaşlı Vocational College). After the project is finished and all the following tasks are completed it will be evaluated by Prof. Dr hab. inż. Kazimierz Darowicki.

III. COMMITMENT OF THE THREE PARTIES

By signing this document the student, the sending institution and the host organisation confirm that they will abide by the principles of the Quality Commitment for Erasmus student placements set out in the document below.

The student

Student's signature
name and surname *Katarzyna Schaefer*

Date: *28.01.2011*

The sending institution

We confirm that this proposed training programme agreement is approved. On satisfactory completion of the training programme the institution will award 15 ECTS credits or will record the training period in the Diploma Supplement.

Coordinator's signature
[Signature]

Faculty level
Asst. Prof. Wojciech Chrzanowski, Ph.D., D.Sc.

Institutional level

Date: *2011.01.31*

The host organisation

The student will receive a financial support for his/her placement Yes No

The student will receive a contribution in kind for his/her placement Yes No

We confirm that this proposed training programme is approved. On completion of the training programme the organisation will issue a Certificate to the student.

Coordinator's signature

Name and surname *Yrd. Doç. Dr. Ayhan ŞAMANDAR*
Müdür

Date: *01.02.2011*

