



Meeting of Refractory Experts Freiberg e.V.
– MORE-Freiberg e.V.



HIGH DUTY REFRACTORIES

SMART REFRACTORIES

FOUNDRY REFRACTORIES

FLEXIBAL REFRACTORIES

FUNCTIONAL REFRACTORIES

NNS - REFRACTORIES

SENSOR REFRACTORIES

CONVENTIONAL - REFRACTORIES

CASTABLE CARBON REFRACTORIES

COMPOSITE REINFORCED REFRACTORIES

**Refractories
in Freiberg**





Prof. Dr.-Ing. habil. Ch.G. Aneziris

Chairman of the Managing Board

Prof. Dr.-Ing. Th. A. Bier

Deputy Chairman of the Managing Board

Rektor Prof. Dr.-Ing. G. Unland

Member of the Managing Board



Company members

Intocast AG
Lafarge Aluminates GmbH,
Zschimmer & Schwarz GmbH,
EKW GmbH,
REFKO Feuerfest GmbH,
PURMETALL GmbH & Co. KG
ALMATIS GmbH,
KI Keramik-Institut GmbH,
RATH GmbH,
WEERULIN GmbH,
VOESTALPINE Stahl GmbH,
Villeroy & Boch S. a' r. l.,
Fraunhofer IKTS Dresden,
LAPP Insulator GmbH & Co. KG,
Calsitherm Silikatbaustoffe GmbH,
S&B Industrial Minerals GmbH – OTAVI Division,
MAMMUT – Wetro Schmelztiegelwerk GmbH,
DEGUSSA Construction Polymers GmbH

Companies of private members

Possehl Erzkontor Lübeck,
Magnezit Group,
Foseco GmbH,
Refratechnik Cement GmbH,
Chemische Fabriken Budenheim KG,
Dresdner Bank,
CeramTec AG,
Bakelite AG,
Siemens AG Power Generation,
Plibrico GmbH,
Ingenieurbüro B.-N. Welter,
Mineralien und Erz- und Aufbereitungsgesellschaft GmbH,
Lafarge Refractories GmbH,
DIFK GmbH



Activities and Supporting 05/06

Projects at MORE:

- FOSECO Intern. Filter Approaches
- VIESSMANN Thermal Insulating Materials
- Professorship Tilch Mould Materials for Casting
- Drache Carbon bonded Refractories



Participation in conferences with refractory related subjects:

- Unitecr, Orlando 05
- International Colloquium on Refractories, Aachen 05
- Conference on Refractory Castables, Prague 05
- EUROMAT, Prague 05
- DKG, Selb 05

17 TEURO in 2004 => 90 TEURO in 2005

Activities and Supporting 05/06

Co – Organisation:

- International Refractory Colloquium Aachen 06
- ECERS 07 Berlin
- UNITECR 07 Dresden



Students Excursion by MORE:

Z&S, RHI, Thyssen, EKO

Refractory Education at IKGB at TU Bergakademie Freiberg

- FIRE
- Master Course, “High Temperature Applications-Refractory Materials”

Scholarships: 3 PhD Students, 3 Professors, 1 Student

Refractory Manual: 05, 06 and 07

Refractory Projects at the Institute for Ceramic, Glass and Construction Materials

550 TEURO in 2005

High Temperature Wettability / Corrosion

- High temperature wettability of refractory micro-structured surfaces
German Research Foundation AN 322/8-1 05-07
- Electro Wetting, *German Research Foundation 3N322/4-1 03-06*
- Anti-Clogging supported by Electro-Wetting, *Pro-Inno II 05-07*
- Alkali-Corrosion, *Stiftung Industrieforschung 05-07*



Carbon bonded Refractories

- MgO-C in special alkali - environments, *Alexander Tutsek Foundation 04*
- MgO-C refractories, *Refratechnik, Thyssen, Krosaki, Otavi 04-07*
- Microstructure evolution of carbon bonded materials due to Nanoparticles , *German Research Foundation, AN 322/7-1 05-07*
- Coated grains, *EKW 05-06,*
- Fine grain approaches, *Rütgers 03-06, Hexion 03-06*
- Environmental friendly binders , *AiF 03-05*
- Slide gates, *Rath 05,*
- Casting of Nozzles, *FOSECO Steel 05-06*

Filter technology

- Foamless filter manufacturing, *FOSECO Int., FOSECO GmbH 02-06*
- Electro-supported filter mechanisms , *Stiftung Industrieforschung 03-06*



FIRE EDUCATION PROGRAMS IN REFRACTORY SCIENCE AND ENGINEERING





FIRE EDUCATION PROGRAMS IN REFRACTORY SCIENCE AND ENGINEERING



1. Montanuniversität Leoben – Austria
www.unileoben.ac.at/institute/ghi.htm
Department Mineral Resources and Petroleum Engineering
Chair for Ceramics
Peter-Tunner-Strasse 5, A-8700 Leoben, AUSTRIA
Professor: Harald Harmuth - ha@unileoben.ac.at



2.  Pôle Européen de la Céramique – France
www.ensci.fr and www.univ-orleans.fr/polytech
Ester Technopole, B.P. 6911, 87069 Limoges, FRANCE
Professor : Christian Gault – c.gault@ensci.fr

3. Universidade Federal de São Carlos – Brazil
www.gemm.usfcar.br and www.dema.usfcar.br
Departamento de Engenharia de Materiais
Rod. Washington Luiz km 235, Caixa Postal 676, 13565-905
São Carlos, SP, BRAZIL
Professor: Victor Carlos Pandolfelli
vicpando@power.ufscar.br





FIRE EDUCATION PROGRAMS IN REFRACTORY SCIENCE AND ENGINEERING



Pôle Européen de la Céramique – France
www.ensci.fr and www.univ-orleans.fr/polytech
Ester Technopole, B.P. 6911, 87069 Limoges, FRANCE
Professor : Jacques Poirier – Jacques.poirier@univ-orleans.fr



4.



University of Missouri-Rolla – United States
www.umar.edu
Department of Ceramic Engineering,
222 McNutt, Hall 1870 Miner.
Circle Rolla, MO 65409-0330 USA
Professor: Jeffrey Smith - jsmith@umar.edu
SECRETARIAT

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**IKGB,
TU Freiberg, May 2006**

6.

5.

Université de Montréal, Ecole Polytechnique – Canada
www.polymtl.ca
École Polytechnique, Campus Université de Montréal,
Montréal, Qc, H3C 3A7, Canada
Professor: Michel Rigaud – michel.rigaud@polymtl.ca





FIRE EDUCATION PROGRAMS IN REFRACTORY SCIENCE AND ENGINEERING



Admission to an *Ad Hoc* Program

Admission to an Ad Hoc program may be considered at any time. It must be submitted with the support of one supervisor designated from one of the FIRE academic institutions or one of the FIRE members, to the Secretariat, with an outline of the course work needed and/or the training in research to be achieved.

FIRE Diplomas

Students who will have duly completed their program of studies, and who will have satisfied the requirements set out under FIRE regulations, will receive a FIRE certificate to sanction their achievements. Convocation to receive such Certificates will take place every two years, at one of the UNITECR's meeting1





Fire Master's Certificate

A Fire Master's certificate will be granted to Students who will have completed the FIRE Honor Master program, once they have completed all the requirements set by their base institution to obtain a Master's degree.

The FIRE Honor Master Program requires, in terms of coursework, that at least two courses equivalent to a total of 6 credits, are to be credited from another FIRE institution.

For the research work, the thesis submitted by the candidates must demonstrate a familiarity with previous work done in the field, at different FIRE Campuses – Guidelines and deadlines are those set by the student's base institution.





Fire Master's Certificate



The essential of this honor program is that the candidates have to study for at least one session at another FIRE institution. The program of study of all candidates has to be evaluated by at least two FIRE faculty members from two different campuses.





Fire Doctoral's Certificate

A Fire Doctoral certificate will be granted to students who will have completed the FIRE Honor Ph.D. Program, once they have completed all the requirements set by their base institution to obtain a Ph.D. degree.



The FIRE Honor Ph.D. Program requires in terms of coursework that at least two courses equivalent to a total of 6 credits, in total are to be credited from another FIRE institution.

For the research work, two sessions (6 to 12 months) must be spent in a foreign institution recognized by FIRE.

Students who have obtained a Master's degree at an approved institution elsewhere, and are pursuing a Ph.D. program, in one of FIRE institution, are eligible.





Fire Doctoral's Certificate



The thesis for the Ph.D. degree must satisfy the requirements set by the base institution and must reflect the contribution which was made while in a different country.

The list of examiners must include at least 1 FIRE faculty member from a different FIRE institution.





Applications for FIRE Fellowships are to be sent to the Secretariat, at any time.



Each candidate has

- i) to describe his program of study,
- ii) to provide a transcript of his academic record which establish his competency on refractory related subjects
- iii) to set out his projected needs for funds, to cover the extra costs budgeted
- iv) to provide a recommendation letter from his supervisor,
- v) and provide a short curriculum vitae, with a picture of himself, valid for a passport.

Announcements of the Fellowships are to be made some six weeks after applications are being received.





Journal of Advanced Engineering Materials: High Temperature Applications

Laboratory for students: Bosch Stiftung

Sponsoring Unitecr 07: Students Assistance

Local Exhibition at the Institute: Support by the Companies

Student Award: Diploma or Master thesis

1st FIRE – Meeting, October 06: Supporting PhD -Students

