

Proceedings

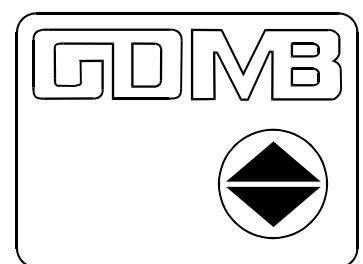
European Metallurgical Conference
Emc 2003

September 16 to 19
Hannover, Germany

Volume 1

Copper and Nickel / Extractive Metallurgy

Light Metals / Extractive Metallurgy



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- Norwegian Metallurgical Society, Norway
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- SF2M Société Française de Métallurgie et de Matériaux, France
- SHS Slovak Metallurgical Society, Slovakia
- SITPH Polish Association of Metallurgical Engineers and Technicians, Poland
- TMS The Minerals, Metals & Materials Society, USA



Preface

This EMC 2003 of Hannover, Germany, from 16 to 19 September 2003, offers again an opportunity to the metallurgists of Europe and from over all the world to exchange their views and aggravate personal connections. We have a fair chance to listen what technical and trends may govern our future challenge of our industry. With this conference continue a row of metallurgical conferences in Europe as an emerging tradition every second or third year. Knowing that Europe's share of primary metal production will diminish we are confident that new knowledge on intelligent recycling processes, energy saving technologies, assessment of again modified political framework and changes in the market conditions will contribute to a prosperous development of our NF Metal Industry.

The congress programme contains 4 parallel sessions, in which approx. 100 papers in 10 subject categories are presented. They are headed by eight plenary addresses, and by poster session with additional contributions.

The proceedings of this European Metallurgical Conference are submitted in 3 volumes. Most of the papers and posters were submitted timely so that the proceedings could be finalized prior to the conference. Only very few could not be finalized because of incorporation of very recent recognition's. They shall be distributed in connection of presentation of the papers. The papers are again of a high standard. Some of them may be regarded as a good reference in the future.

These papers include reports on developments in industrial practice, like the application of new technologies and operating results and furthermore recent research findings from universities and research centres. The proceedings, compiled from approx. 26 countries around our world, provide a fairly good mirror of our Non Ferrous Metallurgy and of its affiliated areas.

Edition of the EMC proceedings was again challenging. All manuscripts were first reviewed in draft form. These "final versions" had to be reformatted to assure a uniform look for the proceedings and satisfying the individual requirements of each author. The editors had to take the freedom of layout changes, where necessary. The difficulties of presenting complex scientific work in a foreign language were sometimes evident. Even after various stages of correction, it cannot be guaranteed that the volumes are error-free or that all author's wishes could be completely satisfied.

I like to thank all involved in the preparation of the proceedings: first of course the authors, than the members of the scientific committee, the desk editors, as well as the chairpersons for their continuous effort to achieve a satisfying result.

Finally, I would like to acknowledge the contributions made towards a successful congress by: the Organising Committee and the congress secretariat, the team of the Hannover Congress Centre and – not to forget – the numerous co-sponsoring Organisations in Europe and worldwide.

Many thanks to all of you !

Dietrich Werner, Chairman of the Scientific Committee



Structure of the Proceedings

- Volume 1:
 - Copper and Nickel / Extractive Metallurgy
 - Light Metals / Extractive Metallurgy

- Volume 2:
 - Zinc and Lead / Extractive Metallurgy
 - Education and Training
 - Metal Processing
 - Safety - Protection of Labour

- Volume 3:
 - Environmental Technology - Recycling
 - Economical and Political Aspects
 - Process Control, Analytics and Modelling
 - Raw Materials
 - Poster



Table of Contents – Volume 1

Copper and Nickel / Extractive Metallurgy

Developing of the Hydrometallurgical Treatment of Copper Electrolysis Sludges	3
Dr. Andrey V. Tarasov, Dr. Nikolay I. Antipov	
ISASMELT – A Quiet Revolution	11
Philip Arthur, James Edwards	
Innovative Submerged Arc Furnace Technology for Non-Ferrous Metal Industries	27
Jürgen Kunze, Rolf Degel	
The Behaviour of Cobalt and Nickel During Jarosite Precipitation	45
Dr. J. E. Dutrizac	
MET KIN [®] – A Gas Purging System for Metallurgical Smelting Furnaces	69
Dr. mont. Andreas Filzwieser, Dr.-Ing. Johann Kleicker, Dr. Kevin Caulfield	
Current Density Distribution in a Cu Refining Electrolysis due to Geometrical Conditions	83
Dipl.-Ing. Iris Filzwieser, O.Univ.Prof.Dipl.-Ing.Dr. mont. Peter Paschen	
Oxygen Pressure Measurements and Reaction Mechanism in Copper-making Stage of a PS Converter	97
Dr.Eng. Nobumasa Kemori, Dr.Eng. Harumasa Kurokawa	



Copper Electrowinning in the absence of acid mist	113
Ing. Sabdiel Mella, Ing. Rodrigo Villarroel, Ing. Alejandro Lillo	
Influencing the resource requirement in Copper primary production by technique variation	131
Dipl.-Ing. Tobias Müller, Prof. Dr.-Ing. Bernd Friedrich, Dr.-Ing. Petra Zapp	
Revamp of the Copper Smelter at Pirdop/Bulgaria	145
William A. Enrico, Demis Panayotidis, Dr. Jean-Paul Nepper, Martin Köneke	
Treatment of Nickel Ores in Rotary Kilns and Cyclone Reactors	157
Dipl.-Ing. Norbert Patzelt, Dr.-Ing. Thomas Schmitz, Dr.-Ing. Guido Grund	
Plant Information System at the Atlantic Copper Smelter & Refinery	177
Patricio Barrios, Adelino Alonso, Charles Rich	
Kinetics of High Pressure Leaching of the Serbian Nickel Lateritic Ore	189
Dr.-Ing Srećko Stopić, Prof. Dr.-Ing. Bernd Friedrich, Dr.-Ing. Nikola Anastasijević	
Behavior of Simultaneous Elimination of Sb and As from Molten Copper by the Use of Sodium Carbonate Slag	205
Mitsuru Tanahashi (Research Associate, Dr. Eng.), Hiroshi Hashimoto (Graduate Student), Chikabumi Yamauchi (Emeritus Prof. Dr. Eng.), Kunihiro Takeda (Prof. Dr. Eng.)	
Recovery of valuable Metals of Anode Slimes from the Secondary Copper Industry	221
Martin Thuy, Dipl.-Ing. Jürgen Antrekowitsch, Dipl.-Ing. Dr.mont. Helmut Antrekowitsch, Dipl. Dr.mont. Josef Pesl	



Light Metals / Extractive Metallurgy

Aluminium

- Measuring – Modelling: Understanding the Al scrap melting processes inside a rotary furnace 243
U. Boin, M.A. Reuter, V. Salet, H. Orbon, Th. Probst
- The Influence of Oxide Film Defects on the Mechanical Strength of Al Castings 255
X. Dai, X. Yang, J. Campbell, J. Wood
- Kinetics of thermal decoating of aluminium scrap 275
PhD student Anne Kvithyld, Professor Thorvald Abel Engh
- Use of state-of-the-art sensors to reduce energy consumption at the TRIMET aluminium smelter 289
Dipl.-Ing. Martin Iffert, Dr.-Ing. Torsten Rieck, Peter White BSc
- The use phase in the aluminium mass flow – An approach for integration 307
Dipl.-Geogr. Traute Köther, Prof. Dr. Bernd Friedrich
- Theoretical determination of electrochemical properties of boehmite-water interface, as a tool for understanding the mechanism of boehmite precipitation 321
Dipl. Eng. C. Skoufadis, Lect. D. Panias, Prof. I. Paspaliaris
- Long Term Supply of Aluminium to the European Automotive Industry 339
Dr.-Ing. Petra Zapp, Dr. rer. pol. Wilhelm Kuckshinrichs, Dr.-Ing. Georg Rombach



Magnesium

Distillation processes for magnesium winning and recycling	355
Dr.-Ing. André Ditze, Dipl.-Ing. Christiane Scharf	
The Use of Magnesium for Hot Metal Desulfurization	371
Wolfgang Gitterle	
Magnesium versus Aluminum – opposites or complements?	377
Dr.-Ing. Catrin Kammer	
Recycling of Mg-sludge: an Investigation to realise a Closed Loop	395
Recycling of Magnesium	
Dipl.-Ing. Alf Niederle, Prof. Dr.-Ing. Bernd Friedrich	
Recycling of WE 43 magnesium alloy: Influence of different composed salt melts on the distribution of rare earth elements between metal and salt	411
Dipl.-Ing. Christiane Scharf, Dr.-Ing. André Ditze	
Twin-roll Strip Casting of Semi-solid Magnesium Alloys	423
H. Watari, K. Davey, T. Haga, S. Izawa , T. Iwashita, M. Nakayama	
Improvement of Formability of Magnesium Sheet Alloys at Room Temperature	437
H. Watari, T. Haga, H.Ona , K. Yuguchi , H. Takita	



Table of Contents – Volume 2

Zinc and Lead / Extractive Metallurgy

Dezincing of steel scrap	449
A solution for the zinc-iron problem in steel industry ?	
Dipl.-Ing. Jürgen Antrekowitsch, Dipl.-Ing. Dr.mont. Helmut Antrekowitsch	
Technology of EAF Dusts Treatment in Rotary Furnaces	465
Dr.-Ing. Józef Czernecki, Dipl.-Ing. Edward Stós, Prof. Dipl.-Ing. Jan Botor	
Optimization of the Waelz process at the B.U.S Zinkrecycling Freiberg GmbH	481
Dipl.-Ing. Eberhard Saage, Dipl.-Ing. Uwe Hasche	
Effective Treatment of Zinc Bearing Dusts & Residues – Solution Ausmelt Technology	491
Dr. Joseph Sofra, Andrew Heinz	
Preneutralization at the Nordenham zinc plant	507
Dipl.-Ing. Jean-Baptiste Bertin, Dr. Günter Halle	
Primary Zinc Production by Direct Pressure Leaching / EZINEX E.W.: A Conceptual Study	523
M. Olper and M. Maccagni	
Recovery of Lead and Zinc from QSL- and IS-Slag using Hollow Electrode Carbon Insertion Process	533
Dipl.-Ing. Erik Hecker, Prof. Dr.-Ing. Bernd Friedrich	
The Secondary Lead Shaft Furnace – its metallurgy	551
Prof. em. Dr.-Ing. Joachim Krüger	



Use of Lead Alloy Anodes in Electrowinning of Metals	561
Prof. Dr.-Ing. Michael Stelter, Dr.-Ing. Hartmut Bombach, Dipl.-Ing. Pavel Saltykov	
Technology for Processing of Lead Bearing Materials from Copper Metallurgy at KGHM PM	573
Dr.-Ing. Ryszard Prajsnar, Prof. Dipl.-Ing. Zbigniew Śmieszek, Dr.-Ing. Józef Czernecki, Dipl.-Ing. Marian Warmuz, Dipl.-Ing. Leszek Garycki, Dipl.-Ing. Maciej Łaganowski	
Equilibria in Pb-As-Sb-O-melts	589
Dr. A. Arnold, Prof. Dr.-Ing. B.Friedrich	
To Recycle Wastes with Precious Metals Content in a Secondary Lead Smelter? Why not?	611
Dipl.-Ing. Zdeněk Kunický	

Education and Training

University Education in Nonferrous Metallurgy in Europe	617
O.Univ.Prof. Dipl.-Ing. Dr.mont. Peter Paschen	
Towards a Worldwide Network of Education in Mineral Engineering	627
Hans de Ruiter	
Education of metallurgists at the Helsinki University of Technology	643
Olof Forsén, Jari Aromaa	
Polish Education System for Engineers of Non-Ferrous Metallurgy	655
Prof. Dr.-Ing. Michael Stelter, Dipl.-Ing. Krzysztof Jablonski	
AluMATTER, an Initiative of the European Aluminium Industry	661
Dr.-Ir. Christian Leroy	



Metal Processing

- New approaches to solve the problems of surface defects in continuous casting 675
Dipl.-Ing. Dr.mont. Hubert Sommerhofer
- Powerful annealing lines for the final annealing of tubes of copper and its alloys 691
Dr. G. Voswinckel, Willi Johnen
- Advanced Continuous Strip Annealing Lines for Heavy Metal Rolling Mills 703
Manfred Kolle
- The Investigation of Mechanical Behaviour of Cu-based Shape Memory Alloys 713
Dr.-Ing. Vanja Asanovic, Dr.-Ing. Kemal Delijic
- Copper Concentrate Drying With Steam 727
Dipl.-Ing Raimo Puurunen, Dipl.-Ing Olli Tiitu
- Environmental protection in pyro-metallurgical off-gas lines by ultra-modern boiler upgrades 741
Dipl.-Ing. Wolfgang Abeck
- Gas treatment in the secondary metallurgy of non ferrous metals 750
Dipl.-Ing. Dr.mont. Helmut Antrekowitsch
- SOLIDS INJECTION – Recent Projects and New Applications 765
Dr. mont. Olli Antola, Patrick Guillaume
- Stray Current in Electrolysis Plants – Internal Loop 777
N. Anastasijevic, M. Koeneke, D. Lohrberg, J.-P. Nepper



Olivine-based refractories for the copper industry	783
E. Kosc, E. Paransky, S. Palco, M. Rigaud	
<i>Rapidfire</i> TM -OHC Heating System for Non Ferrous Industries	799
Dipl.-Ing. Thomas Niehoff, Larry Farmer, Roger Dudill	
Ruthenium Applications and Refining	809
Dr. Christian Mock, Dr. Matthias Grehl, Dr. Horst Meyer	
Overview on Metal Powder Production Processes	821
Dr. Gunther Schulz	
Copper Powders for P/M Applications	837
Dr. Bernhard Mais	

Safety – Protection of Labour

Safety Aspects for Engineering and Operation of Metallurgical Thermoprocessing Equipment	849
Dr.-Ing. Franz Beneke, Dipl.-Ing. Winfried Resch	
Health and Safety in the European NF-Metal Industry	857
Dr.-Ing. Heinrich-Wilhelm Gerling	
Management of Incidents in Medium Size Companies of Non-ferrous Industries	871
Dipl.-Ing. Uwe Schreiner	
The Integration of Management Systems	881
A contribution to process optimisation in companies	
Dr. Ing. Rudolf Hummitzsch, Dr. Ing. Hans Jacobi	



Table of Contents – Volume 3

Environmental Technology – Recycling

Application of High Density Sludge (HDS) Recycling in the Treatment of Acid Mine Drainage	903
G. C. Badulis, Hiroshi Sasaki	
Oxidation of Arsenite by Bacteria Isolated from Mine Drainage	913
Hiroshi Nakazawa, Yasuo Kudo	
De-Metallization of Copper-Containing Industrial Wastewaters via Different Electrolysis Systems	921
Gökhan Orhan, Sebahattin Gürmen, Cüneyt Arslan	
Recovery of low concentrated heavy metal ions using sulfate-reducing bioreactor	935
Dr. Hiroshi Hayashi, Nobukazu Shougase, Machiko Kawai, Dr. Hiroshi Sasaki	
Adsorption and Desorption of Cadmium by Free and Immobilized Fungal Biomass	949
M. Iqbal, R.G.J. Edyvean	
Improvements in Metal Sorting Technology Regarding Single Particle Sorting	969
Stefan Mutz, Thomas Pretz, Eric van Looy	
Recycling of radioactively contaminated scrap from the nuclear cycle and from natural sources	981
U. Quade, W. Müller	



Recycling of AMCs and Aluminium Foams	993
Dipl.-Ing. Katherina Jessen, Prof. Dr.-Ing. Bernd Friedrich Dr.-Ing. Georg Rombach	
Processing of Electronic Scrap	1009
Dipl.-Ing. Simone Waltritsch, Christian Hagleitner	
Results and experience with a biological wastewater treatment plant in copper refining	1025
Ing. Gerard Schouten, Dr.ir. Jacco Huisman, ir. Henk Dijkman, Prof.drs. ir. Cees J.N. Buisman	
Copper recovery from spent ammoniacal etching solutions	1035
Dipl.-Eng. Ioanna Giannopoulou, Lect. Dr. Dimitrios Panias, Prof. Dr. Ioannis Paspaliaris	
Biotechnological processing of slag and tailings	1047
Jacco Huisman, Gerard Schouten, Henk Dijkman Cees J.N. Buisman, Rick Lawrence	
Development of a new metallurgical process for closed-loop recycling of discarded Nickel-Metalhydride-Batteries	1059
Dipl.-Ing. Tobias Müller, Prof. Dr.-Ing. Bernd Friedrich	
Development of Recycling Process for the Se-As Scrap	1075
Dr. Eng. Hiroyuki Sano, Mr. Hiromitsu Watanabe, Mr. Kyosuke Ito, Prof. Dr. Eng. Toshiharu Fujisawa	
Recycling Fine Nickel-base Superalloy Scraps	1085
Dr. Vladyslav M. Sokolov, Dr. Nelli I. Matyushenko, Dr. Yuvenaliy Ya Skok	
Slag Systems in Copper Recycling from Cu-Mg Scraps	1097
Dr.-Ing. Sebahattin Gürmen, Prof. Dr. Ismail Duman, Dipl.-Ing. Tobias Müller, Prof. Dr.-Ing. Bernd Friedrich	



Economical and Political Aspects

- Self-Commitments of Energy Producing Industry
as a Limit for Emission Trading 1111
Prof. Dr. jur. Walter Frenz
- Impact of federally implied electricity tariff surcharges
for the German NonFerrous-metal industry 1121
Michael Engelhardt
- Legal Issues of Emissions Trading from the Perspective
of the Steel Industry in Germany 1131
Angelika Schäfer
- Non-ferrous metals in a competition with plastic
(demonstrated on automotive parts) 1133
Dipl.-Ing. (FH) Hans Väth

Process Control, Analytics and Modelling

- Gas Flow Investigations in a Model of the Imperial Smelting Blast Furnace 1145
Prof. Dr.-Ing. Michael Stelter, Dipl.-Ing. Vsevolod Roumiantsev
- Heat Transfer Predictions Using Advanced Two-Equation Turbulence Models 1157
Dr.-Ing. F. R. Menter, Dr.-Ing. T. Esch
- Finite Element Flow Modeling in a Carbothermic Reactor 1171
Dimitrios I. Gerogiorgis, B. Erik Ydstie
- Minimization of Erosion in Channels by the Use of Economic CFD 1187
Dr. rer. nat. Ulrich Muschelknautz



Data reconciliation and the control of an Imperial Smelting Furnace	1203
M.A. Reuter, A. Van Schaik, S.C. Grund, B. Schwab	
Systems Modelling of Furnaces Using Industrial Data and Fundamental Submodels to Predict the Matte Chemistry Dynamics in an Ausmelt [®] Converter	1217
G.A. Georgalli, J.J. Eksteen, M.A. Reuter, K. T. Hara	
Fundamental Research on Deep Bed Filtration of Metals	1239
Dipl.-Ing. Bettina Hübschen, Prof. Dr.-Ing. Joachim Krüger, Prof. Dr.-Ing. W. Schneider	
Modelling of Boron Carbide Manufacturing Process	1255
M.P. L. Rao, G. S. Gupta, A.K. Suri	
Assessing the Degree of Banding by Automatic Image Analysis	1267
Dipl. Eng. Fábio Pires, Dipl. Eng. Jôneo Nascimento, MSc. Eng. Ibrahim Abud, DSc. Eng. Iêda Caminha	
Accurate Adaptation and Verification of Constitutive Model for Hot Rod Rolling	1277
Prof. Dr. Eng. T. El-Bitar, Dr. Eng. A. Ismail, MSc. Eng. I. Rashid	

Raw Materials

Trends and Developments in the non-ferrous metal mining industry	1293
Univ.-Prof. Dr.-Ing. Christian Buhrow	
Preparation of non-ferrous metal ore containing sludges with EVACTHERM [®] drying technology	1309
Dr.-Ing. Stefan Gerl	



Non-sulphide Base Metal Resources in Europe – a Geological Overview 1321

Dr. Duncan Large

Bacterial Leaching of Low Grade Iranian Copper Ores 1333

Prof. Dr.-Ing. Mohammad Ranjbar, Dr.-Ing. Mahin Schaffie

Poster

Mechanical Properties of Twin Roll Cast AA8079 Sheets During Cold Rolling 1344

Prof. Dr. Kemal Delijic, Prof. Dr Mitar Misovic

A new Cu - Fe alloy of high iron content (10 – 30 wt% Fe) 1346

T. Karwan, J. Król, S. Księżarek

Aluminum-Lithium alloy development for thixoforming 1348

Prof. Dr.-Ing. Bernd Friedrich, Dipl.-Ing. Roger Sauermann

Magnesium thin strip casting 1350

Prof. Dr.-Ing. Bernd Friedrich, Dipl.-Ing. Roger Sauermann

Solar Carbothermic Production of Zn and Power Generation
a ZnO-Zn-Cyclic Process 1352

Dr.rer.nat. Christian Wieckert

Sustainable Copper from Sulfides- Steam-O₂ Roasting
vs. Solar Thermal Extraction 1354

L. Winkel, C. Guesdon, Dr. M. Sturzenegger