PROCEEDINGS OF THE 10TH INTERNATIONAL CONGRESS ON THE CHEMISTRY OF CEMENT
Gothenburg, Sweden, June 2-6, 1997

VOLUME 3

ADDITIVES
ADMIIXTURES
CHARACTERISATION TECHNIQUES

Edited by
Dr. Harald Justnes
SINTEF Civil and Environmental Engineering, Cement and Concrete
Trondheim, Norway
List of contents for Volume 3

II PORTLAND, BLENDED AND SPECIAL CEMENTS

II.F Effect of blends or additions of combustion ash, slag, silica fume or rice husk ash

S. Pavlenko, M. Shmelkov: "Cementless Binder and Silica Brick Based on it", 3ii080, 5 pp

M.V. Kougija, L.S. Fraiman: "Hollow Microspheres of Ash and Binding, Compositions based on them", 3ii081, 4 pp

R. Härdtl: "The Pozzolanic Reaction of Fly Ash in Combination with Different Types of Cement", 3ii082, 8 pp

A. Katz: "Fly Ash Blended Cement Activated by a Strong Base", 3ii083, 4 pp

S. Jalali: "Modelling the Overall Rate of Reaction in Lime-Fly Ash Systems", 3ii084, 4 pp

D.M. Krizan, C.E.S. Tango, V.A. Quarcioni, Y. Kihara: "A Study on Time Behaviour of Fly-Ash Blended Cement Products", 3ii085, 8 pp

I. Papayianni: "Cooperation of Cement-Fly Ash System in High Paste Roller Compacted Concrete (RCC)", 3ii086, 4 pp

S. Dietz, K. Miskiewicz, M. Schmidt: "Properties of Cement Containing German Lignite Fly Ashes", 3ii087, 10 pp


M. Gawlicki, A. Łagosz, J. Malolepszy: "Utilization of Fly Ashes Containing Calcium Sulfite in Cement Production", 3ii089, 4 pp

S.L. Sarkar, J.R. Prusinski: "Microstructural Characteristics of By-products of Petroleum Coke Blended Coal Combustion", 3ii090, 4 pp


S.N. Ghosh, D.M. Joshi, S. Chanda, H. Vaishnav: "Studies on Activation of Slag Cement", 3ii092, 4 pp

S. Manjit: "Effect of Blended Gypsum on the Properties of Portland Cement and Portland Slag Cement", 3ii093, 4 pp

W. Brylicki: "Modification of Alkali Activated Slag Pastes by Use of Mineral Admixtures", 3ii095, 4 pp


W. Roszczynialski: "Influence of Silico-Manganic Slag Additives on Cement Hydration and Properties", 3ii097, 4 pp


C. Shi: "Early Hydration and Microstructure Development of Alkali-Activated Slag Cement Pastes", 3ii099, 8 pp

W. Jiang, M.R. Silsbee, D.M. Roy: "Alkali Activation Reaction Mechanism and its Influences on Microstructure of Slag Cement", 3ii100, 9 pp


A.F. Battagin, G. Camarini, M.A. Cincotto: "A Study of Early Hydration of Slag Cement Pastes Subjected to Thermal Curing", 3ii102, 4 pp


H. R. Kota, V. Ronin, E. Forssberg: "High Performance Energetically Modified Portland Blast-Furnace Slag Cements", 3ii104, 9 pp

B. Meng, P. Schiessl: "The Reaction of Silica Fume at Early Ages", 3ii105, 8 pp

S. Chandra, H. Bergqvist: "Interaction of Silica Colloid with Portland Cement", 3ii106, 6 pp


G. C. Isaia: "Synergic Action of Fly Ash in Ternary Mixtures with Microsilica and Rice Husk Ash", 3ii110, 8 pp
Y. Xi, B.E. Scheetz: "Compressive Strength and Pore Structure of Slag-Silica Fume Cement Cured at 38-175°C", 3i111, 4 pp


J.N. Liu, M.R. Silsbee, D.M. Roy: "Strength and Hydration of an Activated Alumino-Silicate Material", 3i114, 6 pp


V. Lilkov, O.E. Petrov: "Hydration of Cement Mixed with ‘Pozzolit’ Mineral Additive", 3i116, 7 pp

R.F. Runova, V.S. Melentyeva, J.I. Ustimenko: "Peculiarities of Ukrainian Pozzolana Cements", 3i117, 4 pp

Y. Takuma, Y. Tsuchida, S. Uchida: "Characteristics and Hydration of Cement Produced from Ash from Incinerated Urban Garbage", 3i118, 8 pp


F. Van Rickstal, D. Van Gemert, P. Parmentier, K. Vanbelle: "Addition of Ultra Fine Ground Sand for the Production of High Strength Autoclaved Mortars", 3i120, 8 pp

T. Nishikawa, S. Ito: "Fracture Mechanics and Microstructure of Blended Cement Paste", 3i121, 7 pp

X. Zhang, K. Wu, J. Han: "Research on a New Type of Composite Cement". 3i122, 4 pp

G. Morales: "Utilization of Sewage Sludge as a Raw Material for Production of Pozzolanic Material", 3i123, 5 pp

III UTILISATION OF ADMIXTURES; WATER REDUCERS, AIR ENTRAINERS, ACCELERATORS, RETARDERS AND POLYMERS

III.A Mechanisms; admixture chemical ↔ cement interaction


M.T. Blanco-Varela, A. Palomo, F. Puertas, T. Vazquez, J.R. Baragaño: "Effect of Superplasticizers on the Hydration of a Mineralized White Cement", 3iii004, 6 pp

M. Ichikawa, M. Kanaya, S. Sano: "Effect of Triisopropanolamine on Hydration and Strength Development of Cements with Different Character", 3iii005, 8 pp

P. Wang, J. Wu: "Influence of Sucrose on the Setting of Portland Cement", 3iii006, 4 pp

A. Rettel, D. Damidot, D. Müller, W. Gessner: "A NMR Study of Gels Formed during the Hydration of Calcium Aluminate Cements in the Presence of Citrate or Gluconate", 3iii007, 8 pp


N. Tsuyuki, H. Choi, K. Seki, M. Hatano: "The Hydration Behaviour of Converter Slag Admixed with Polymer Cement", 3iii009, 4 pp

G.K.D. Pushpalal, N. Maeda, T. Kawano, T. Kobayashi, M. Hasegawa: "The Efficacy of Calcium Aluminates in Producing High Flexural Strength Polymer Composite", 3iii010, 8 pp

M. Drabik, L. Galikova, F. Hanic, R.C.T. Slade: "MDF-related Systems based on Sulfobetulitic Clinker / Hydroxypropylmethyl Cellulose / Polyphosphate Glass Compositions", 3iii011, 8 pp

H. Justnes, E.C. Nygaard: "The Mechanism of Calcium Nitrate as Set Accelerator for Cement", 3iii012, 8 pp

S.A. Farrington, D. Constantiner: "Effects of Cement/Admixture Interactions on the Early Stiffening Tendencies of Portland Cement Paste", 3iii013, 8 pp

J.S. Lota, P.L. Pratt, J. Bensted: "Effect of Sodium Aluminate on Class G Oil Well Cement Hydration at Low and Ambient Temperatures", 3iii014, 8 pp
III.B Influence of admixtures on microstructure development

A.M. Grabiec, R. Krzywoblocka-Laurów: "Influence of Melamine Superplasticizer on some Characteristics of Concrete", 3iii019, 6 pp

S.C. Maiti: "Performance of High-Range Water Reducers in Cement Concrete Mixes in Hot Weather Conditions", 3iii020, 4 pp


S. Hirose, T. Higaki, K. Asaga, M. Daimon: "Study on Hydration and the Properties of Hardening Accelerators Based on Calcium-Aluminate Glass", 3iii022, 8 pp

J. Szczerba, S. Peukert, M. Zdaniewicz: "Organosilicone Compound Effect on the Cement Matrix", 3iii023, 8 pp

J. LaRosa-Thompson, P. Gill, B.E. Scheetz, M.R. Silsbee: "Sodium Silicate Applications for Cement and Concrete", 3iii024, 8 pp

III.C Combined admixtures and their mixing techniques

M.A. Sanitsky: "Mechanism of Alkali-containing Complex Chemical Admixtures and Portland Cements Interaction", 3iii025, 8 pp

L. Zhang, M. Su: "Control Properties of Sulpho- and Ferro-aluminate Cement Concrete with Special Admixtures", 3iii026, 7 pp

T. Coverdale, J. Champa, L. Eckert: "Total Consistency Control for Wet Shotcrete - A Slump Killing System for Improved Performance", 3iii027, 7 pp

Ž. Sekulić, M. Stefanović, B. Živanović: "Mechanical Activation of Ordinary Portland Cement and Cement with Additives", 3iii028, 5 pp
III.D Influence of type, dose, addition time and mixing time

J. Kornonen, V. Penttala: "Influence of Admixture Type and Concrete Temperature on Strength and Heat of Hydration of Concrete", 3iii029, 8 pp

W. Jiang, D.M. Roy: "Interaction Mechanism of Chemical Admixtures and their Influences on Microstructure", 3iii030, 8 pp

G. Rosenthal, L. Brower: "Effect of Chemical Admixtures on CH Crystal Growth", 3iii031, 5 pp

H. Pöllmann, St. Stöber: "Hydration Characteristics and New Hydrates using Organic Additives (Carboxylates & Sulfonates)", 3iii032, 8 pp

Y. Ohama, K. Demura, H. Iwasaki: "Evaluation of Chemical Inhibitors for Alkali-Aggregate Reaction by Accelerated Tests", 3iii033, 8 pp
V Developments in Characterisation Techniques

V.A Nuclear Magnetic Resonance (NMR)

A.R. Brough, C.M. Dobson, I.G. Richardson, G.W. Groves: "$^{29}\text{Si}$ Enrichment and Selective Enrichment for Study of the Hydration of Model Cements and Blended Cements", 3v001, 6 pp

L. Bonafous, P. Colombet, C. Bessada, D. Massiot, J.-P. Coutures: "High-Temperature $^{19}\text{F}$ NMR Observation of Fluorine Activity in Clinker Processing", 3v002, 6 pp


T. Lyashenko, V. Voznesensky, S. Boyko, D. Shtakelberg: "Experimental-Statistical Modeling and Analysis of the Chain "Composition-NMR signal-Properties" of Cement Composite", 3v004, 8 pp

B. Touzo, D. Massiot, D. Trumeau, A. Douy, J.P. Coutures: "Cooling of Liquid Calcium Aluminates Monitored by $^{27}\text{Al}$ NMR Time Resolved Experiment", 3v005, 4 pp


V.B X-ray diffraction (XRD)

J. Neubauer, H. Pöllmann, H.W. Meyer: "Quantitative X-ray Analysis of Clinker and OPC by Rietveld Refinement", 3v007, 12 pp

G. Goswami, B.N. Mohapatra, P.K. Panigrahy, J.D. Panda: "Application of X-ray Diffractometry in Communion of Gypsum", 3v008, 4 pp

V.C Other techniques

J. Strigč, J. Krištin, S. Sahu, M. T. Palou, J. Majling: "An Approach to Refine the Bogue's Phase Composition of Sulfoaluminate Belite Cement", 3v009, 7 pp

F. Tamás, M. Pátkai-Horváth, É. Kristóf-Makó, J. Tritthart: "Qualitative Identification of Clinkers and Cements - Some Results and Possibilities", 3v010, 7 pp

J.H. Potgieter: "Fingerprinting S.A Cements by Chemical Analysis", 3v011, 6 pp

H. Sedaira, K.A. Idriss, M.M. Seleim. M.S. Abdel-Aziz; "Use of Quinizarin as a Spectrophotometric Reagent for MgO Content Analysis of Portland Cement and Cement Clinker", 3v012, 9 pp

P. Cassat, J.F. Muller, A. Vichot, P. Colombet: "Direct Detection of Grinding Aids in a Cement Matrix", 3v014, 4 pp

A. Ohno, T. Yamamoto: "Qualitative and Quantitative Analysis of Organic Compounds in Cement and Hardened Cement", 3v015, 4 pp

A. V. Usherov-Marshak: "Calorimetric Analysis in Chemistry of Cement", 3v016, 8 pp

S. Matala: "Thermoporosimetry in the Pore Analysis of Concrete", 3v017, 9 pp

S. Möhmel, W. Gessner, B. Ködderitzsch: "A Comparison of Two Different Methods for Stopping the Hydration of Mono Calcium Aluminate at 20°C", 3v018, 7 pp


P. Arjunan, M.R. Silsbee, D.M. Roy: "Quantitative Determination of the Crystalline and Amorphous Phases in Low Calcium Fly Ashes", 3v020, 4 pp

C. L. Hwang, I. Y. Jann: "Non-destructive Evaluation of Rich Fly Ash HPC", 3v021, 4 pp


Z.B. Entin, L.S. Nefyodova: "Parameters Relevant for Standardization of Sand and Mortar", 3v024, 4 pp

O. Baumanis, J. Kļaviņš, A. Miezis: "Comparison of Physical and Mechanical Properties of Portland Cement according to LVS EN 197-1 and ГОСТ 10178-85", 3v025, 4 pp

V. Alunno Rossetti, F. Curcio: "A Contribution to the Knowledge of the Properties of Portland-Limestone Cement Concretes, with respect to the Requirements of European and Italian Design Code", 3v026, 6 pp