

IGS NEWS



NEWSLETTER OF THE INTERNATIONAL GEOSYNTHETICS SOCIETY

Dedicated to the scientific and engineering development of geotextiles, geomembranes, related products, and associated technologies

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Announcing the Candidates for the IGS President, Vice-President, and Council Members: Term 2002 to 2006

A call for candidates for the IGS President, Vice-President, and Council appeared in the July and November 2001 issues of *IGS News* and was posted on the IGS web site, <http://igs.rmc.ca>.

IGS President and Vice-President

There is one candidate for IGS president, Ing. Daniele Cazzuffi, and one candidate for IGS Vice-President, Prof. Fumio Tatsuoka. The IGS President and Vice-President will be elected at the Ordinary Assembly to be held at the *Seventh International Conference on Geosynthetics* in Nice, France, 22 to 27 September 2002.

According to the bylaws of the IGS, Prof. R.J. Bathurst will become an Officer of the IGS in his capacity as Immediate Past-President of the IGS following the Ordinary General Assembly. The Secretary and Treasurer, who are the other two officers of

the IGS, will be elected by the new IGS Council from amongst its Members at a meeting of the IGS Council that will be held in Nice, France, after the Ordinary General Assembly. The election of the IGS President, Vice-President, Secretary, Treasurer, and the eight new Council Members and the appointment of the Immediate Past-President will be for a four-year period.

IGS Council Members

A total of 11 candidates have declared their intention to run for one of the eight available IGS Council positions. Five of these candidates are standing for re-election (S. Corbet, P. Delmas, E. Palmeira, P. Stevenson, and W. Voskamp). The remaining six candidates standing for election are as follows: E. Alio, G. Bräu, J.N. Mandal, M. Maugeri, H. Miki, and A. Zhao.

The IGS bylaws stipulate that a Council Member may only serve two

consecutive four-year terms and, thus, the following individuals were not eligible to run as candidates in this Council election: J. Collin, J.P. Gourc, G. Heerten, P. Rimoldi, and F. Tatsuoka.

Election of candidates will be held by postal ballot in May 2002 for a four-year term, starting in July 2002. Biographies of the candidates are below and will also appear with the election ballot package that IGS Members will receive in the next two months.

IGS Members are asked to carefully read the biographical information and consider the merits of the individual candidates with respect to geographical location and background. It is important that the IGS Council be comprised of motivated individuals who reflect the geographical breadth of the Society and the wide range of disciplines and experience associated with the Society.

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IGS President Candidate

Daniele Cazzuffi



After receiving a degree in Civil Engineering (Politecnico di Milano, 1979), Mr. Cazzuffi joined the Research Centre on Hydraulics and Structures of ENEL in Milano, Italy, in 1981. He has been involved in research and design programs, regarding the use of geosynthetics in many applications, particularly in geotechnical, hydraulic, and environmental engineering. He has been a Visiting Professor in Geotechnics

at Florence and Trento Universities, Italy. He is also author/co-author of more than 100 technical papers and an active member of many different national and international technical committees, such as the International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE) (TC9: Earth Reinforcement and Geosynthetics) and the American Society for Testing and Materials (ASTM) (D35: Geosynthetics). He is Chair of WG 3 (Mechanical Tests on Geosynthetics) both in CEN (European Committee on Standardisation) and ISO (International Standards Organisation). He was Chair of the Organising Committee of *EuroGeo 2*. Mr. Cazzuffi has been an IGS Council Member since 1990 and IGS Vice-President since 1998. He has also been the Associate Editor of *IGS News* for Europe, Chair of the IGS Education Committee, and Chair of the IGS Standards Committee.

IGS Vice-President Candidate

Fumio Tatsuoka



Dr. Fumio Tatsuoka is a Professor of Geotechnical Engineering at the University of Tokyo, Japan. He obtained his undergraduate degree (1968) and Doctorate of Engineering (1973) from the University of Tokyo. He has been an IGS Council Member for the last two terms. As Chair of the IGS Japan Chapter, he is now preparing to host the *Eighth International Geosynthetics Conference* that will be held in Tokyo, Japan in 2006. He was awarded the 1994 IGS

Award and the 1996-1997 Mercer Lecture. He was also a two-time recipient of the American Society for Testing and Materials Hogentogler Award. His research interests include geosynthetic engineering, strength and deformation characteristics of soils and soft rocks, and bearing capacity of footings on sand and anchors in sand. He is currently the Vice-President of the Asia division of the ISSMGE, Vice-President of the Japanese Geotechnical Society, and an Editorial Board Member of several journals, e.g., *Geotechnical Testing Journal*, *Geotextiles and Geomembranes*, *Geosynthetics International*, and *Ground Improvement*.

IGS Council Member Candidates

Ernesto Alio

Dr. Ernesto Alio received his Civil Engineering degree from Universidad Central de Venezuela in 1961. In 1964, he received his



Master's Degree in hydraulic engineering from the Université de Grenoble, France. He has been a geosynthetics professor since 1998 at the Universidad Nueva Esparta (Caracas). In the past 20 years, he has been the Geosynthetics Technical Advisor for Trical de Venezuela. From 1988 to 2002 he worked in the Venezuelan oil industry designing highways, municipal solid waste landfills, and ponds. He was the Engineering Director for the engineering consulting firm Inelectra SA for 15

years (1970 to 1985). He has also worked on various large hydroelectric, thermoelectric, and irrigation dam projects over the past 20 years.

Steve Corbet

Steve Corbet works for the international consultancy group Maunsell Ltd., part of the AeCom Group, where he is a Technical Director in charge of the Geotechnical Group. He has been actively associated with the IGS since 1989, first as a member of the UK IGS Chapter Committee in various roles including Secretary and Chair before being elected to the IGS Council in 1998. While serving on the UK IGS Chapter



Committee, he organised a seminar "Geotextiles in Filtration and Drainage". Currently, Mr. Corbet is Chair of the IGS Technical Committee, which has just started working on two new IGS publications. In addition to his work in geosynthetics as a member of the UK delegation to CEN TC189 and as the Chair of the British Standards Institute technical committee, B524/6 Reinforced Soil (BS8006), he is responsible for a wide range of other geotechnical work carried out by Maunsell Ltd. in the UK, Europe, parts of the Far East, and the USA. He would like to continue as an IGS Council Member to complete the work the Technical Committee has just started and to contribute his experience to the IGS Council as a Geotechnical Consulting engineer designing geosynthetics into a wide range of projects.

Philippe Delmas

Dr. Philippe Delmas studied Civil Engineering at the Ecole Centrale des Arts et Manufactures (Paris) and obtained his



Ph.D. at the University of Grenoble in 1979 on the subject of geotextiles. He spent 12 years as a research leader on geosynthetics and slope stability projects at the Laboratoire Central des Ponts et Chaussées, where he also had the opportunity to teach Civil Engineering and supervise several Ph.D. students. He joined Bidim Geosynthetics in 1991 and is presently Vice-President of the Polyfelt Group in charge of Geotechnics, Research, and Development. His experience covers all applications of geosynthetics and soil improvement methods in roads, railways, and environmental applications (published more than 80 communications in technical journals and symposiums). Since 1983, he has worked actively at national, European, and international levels for the standardisation of geosynthetics, e.g., Chair of the French Standardisation Committee, Convenor of the CEN TC189 WG1 "requirements" (since 1991), and ISO, respectively. He was also an active member in OECD TC5 (Geotextiles in Roads, 1987 to 1989), ISSMFE TC8 (Geotechnics of Landfill Recommendations, 1991 to 1995), and ISSMFE TC9 (Geosynthetics, 1989 to present), Chair of the IGS French Chapter (1994, 1996 to 1998), and Chair of the French bi-annual Congress on Geosynthetics (1993, 1995, and 1997).

Gerard Bräu

Mr. Bräu studied Civil Engineering at the Technical University of Munich



(TUM), Germany, with a speciality in soil mechanics and foundation engineering and analysis of structures. Since 1984, he has worked as the Chair for Soil Mechanics and

Foundations at TUM. He is in charge of research, design, and practical applications dealing with earthworks, ground engineering, quality control, and statistical and continuous compaction control. His main research topics are soil-geosynthetic interaction, installation damage, full-scale field tests and laboratory simulations, and education and special lectures on geosynthetics applications. He is active in national and international societies and standardisation organisations (IGS, German Society for Geotechnics (DGGT), CEN, Deutsches Institut für Normung (DIN), Road and Transportation Research Association (FGSV)) and has published more than 20 papers. Since June 2001, he has chaired the German working group "Calculation and Design Methods for Earth Reinforcement with Geosynthetics". He is a member of "Geosynthetics in Geotechnique" (DGGT) and the German IGS Chapter (Technical Secretary since its formation in 1988). He was appointed the General Secretary for the *EuroGeo 3* Conference in Munich, Germany, 2004.

J.N. Mandal

Dr. J.N. Mandal is a Professor of Civil Engineering at the Indian Institute of Technology, Powai Bombay, India. He is the founder of the



IGS India Chapter and has served as an Editorial Board Member for *Geotextiles and Geomembranes* and *Building Materials*. Prof. Mandal has published more than 300 papers in international/national journals and conferences. He organised the *First Indian Geotextiles Conference* under the auspices of the IGS and the ISSMGE. He is the author of four books on geosynthetics and the Editor of the *Indian Geotechnical Journal*. Since 1984, he has developed courses on geosynthetics, geosynthetics videos, and a geosynthetics testing laboratory. He is the chief consultant/advisor for various prestigious geosynthetics and geotechnique projects around the world.

Michele Maugeri

Prof. Maugeri is currently a full Professor of Geotechnical Engineering at the University of Catania, Catania, Italy,



where he is also the Director of Ph.D. Studies in Geotechnical Engineering. He is Vice-President of the Italian IGS Chapter, President of the Financial Board of the National Association of Earthquake Engineering, Member of UNI GL5 (Geotextiles and Geotextile-Related Products), and an Editorial Board Member for the *Italian Geotechnical Journal*. He is the Italian delegate for ISSMGE TC 4 (Earthquake Geotechnical Engineering) and the Italian delegate for Task Group No. 6 (TG 6, Earthquake Geotechnical Engineering and Microzonation of the European Association for Earthquake Engineering). He is the scientific coordinator of a project for the mitigation of seismic risk in the city of Catania. Since 1970, Prof. Maugeri has authored/coauthored more than 200 papers and has chaired many sessions at international conferences, e.g., Maastricht (1996) and Bologna (2000).

Hiroshi Miki

Dr. Miki is the Director of the Material and Geotechnical Engineering Research Group, Public Works Research



Institute (PWRI) in Japan. He is also a Professor at a cooperative graduate school, Tsukuba University (since 2002). He has been a member of PWRI for 24 years, after having received his Master's Degree from the University of Tokyo in 1978. In 1987, he studied various geosynthetics topics at the Geosynthetics Research Institute (USA) with Dr. Robert Koerner. In 1996, he received his Doctor of Engineering from the University of Tokyo under the guidance of Prof. Fumio Tatsuoka. He is a winner of the 1998 IGS Award for

his work on “evaluation of the reinforcing mechanism of geosynthetic-reinforced embankments”, which is the topic of his doctorate thesis and was published as “Report of Public Works Research Institute Vol. 197, 1997”. He specialises in the following: (1) a wide range of ground improvement technologies; (2) risk management for roadside slopes and river dikes; (3) ground water and soil pollution management; and (4) recycling of by-products. He is also responsible for developing technical standards and evaluating new materials and technologies related to earthworks in public works.

Ennio Palmeira

Ennio M. Palmeira is an Associate Professor at the University of Brasilia, Brazil. He received his B.Sc. and M.Sc. in Civil Engineering, in



1977 and 1981, respectively, from the Federal University of Rio de Janeiro. He has a Ph.D. degree in Civil Engineering from the University of Oxford (United Kingdom, 1987) and has been working with geosynthetics for the last 23 years. Prof. Palmeira lead the group in charge of forming the Brazilian IGS Chapter and is its first President. His geosynthetics research interests include soil reinforcement and applications of these products in a wide range of geotechnical and environmental engineering problems, having over 100 publications on these subjects. In 1996, the IGS awarded him an IGS Award. Since 1998, he has been a co-opted IGS Council Member and President of the South American Activities Committee of the IGS, which has been working to strengthen the geosynthetics discipline

in South America and to form new chapters in South America

Peter Stevenson

Peter Stevenson has been involved with or a member of the IGS since the initial formation meeting in Las Vegas,



USA, and a member of the North American Geosynthetics Society (NAGS) since its formation. He has served as an officer of the IGS since 1984. He is a member of various affiliated organisations serving on ASTM, CEN, and ISO committees, as well as marketing groups such as the Industrial Fabrics Association International (IFAI). He recently (May 2001) founded a small geosynthetic manufacturing business. Through IGS and business activities, Mr. Stevenson has many contacts and colleagues around the world, which will serve to assist him in continuing to work for the success of the IGS.

Wim Voskamp

Wim Voskamp obtained his Civil Engineering Degree from Delft University, The Netherlands, in 1973. He works for Colbond Geosynthetics (formerly Akzo Nobel Geosynthetics) and, since 1980, he has been involved in the development and application of geosynthetics, especially in soil reinforcement. Presently, he is in charge of all research and development and technical depart-



ments of Colbond Geosynthetics worldwide. He has been a member of the scientific and advisory committees of many International Geosynthetics Conferences. He has also been a member of national and international normalisation and standardisation committees. He has published more than 40 papers in the field of geosynthetics and owns three patents. For many years he has been an officer of the Dutch IGS Chapter. From 1990 to 1994, he was the IGS Secretary and, since 1994, he has been the IGS Treasurer.

Aigen Zhao

Dr. Aigen Zhao is Vice-President of Engineering with Tenax Corporation (USA), and Executive Vice-President of



Advanced Geotech Systems, LLC (USA). He has a BsCE from Zhejiang University (China), and MsCE and Ph.D. degrees in geotechnical engineering from Johns Hopkins University (USA). He is a licensed professional engineer with over 15 years of experience in geotechnical and geosynthetic engineering. His expertise includes landfill design, soil reinforcement, and geosynthetic engineering. He has authored or co-authored over 50 papers published in academic journals and international conferences. He is a member of the American Society of Civil Engineers (ASCE), ASTM, IGS, International Erosion Control Association (IECA), Transportation Research Board (TRB) Committee on Geosynthetics (A2K07), and serves on the international technical advisory committee of the *Geotechnical Fabrics Report* published by the IFAI.

7th International Conference on Geosynthetics Nice, France, 22 to 27 September 2002

The *7th International Conference on Geosynthetics (7th ICG)* will be held in Nice (French Riviera) 22 to 27 September

2002. The Conference is being organised by the Comité Français des Géosynthétiques (CFG), under the auspices of the IGS.

Who Should Attend?

The *7th ICG* will appeal to all individuals who work in any geosynthetics field, such as project managers, design-

ers, contractors, manufacturers, inspectors, researchers, and teachers.

Conference Theme and Topics

The Conference will be an ideal occasion to obtain an overall view of the multiple applications of geosynthetics in all fields of use. All aspects concerning the use of geosynthetics will be addressed, drawing on experience gained from case histories, as well as research and development into new products and uses, i.e., conceptual design, dimensional design, specifications, construction provisions, building of structures, inspection, long-term behaviour, assessment of product impact(s) on the environment, standardisation, certification, etc.

Scientific and Technical Program

Five special lectures and more than 200 papers will be presented either orally, during parallel sessions and numerous workshops, or in the form of posters.

Technical Exhibition

More than one hundred exhibitors (industry, design offices, laboratories,

testing houses, and installers) will present the latest technological innovations and associated geosynthetic services to the Conference delegates and visitors. The technical exhibition is open to all interested companies and organisations; an information and registration file is available upon request from the General Secretariat.



Social Program

Nice, France has all the resources required to ensure the success of this event: an international airport with direct flights to more than 100 cities on five continents; a modern Conference Centre; the Nice Acropolis, located in the heart of the old town; as well as numer-

ous hotels of all categories in the immediate vicinity of the Conference Centre.

The inaugural reception and the gala dinner will provide Conference delegates and accompanying persons the opportunity to meet others in a warm and friendly atmosphere. Other events will include, the traditional football (soccer) match and excursions to the city of Nice and the surrounding area.

Official Language

The official languages of the Conference will be English and French. Simultaneous translation services will be available during the sessions.

Contact Information

7th ICG - Nice 2002
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E-mail: ips-conseil@wanadoo.fr
<http://www.7icg-nice2002.com>

IGS Student Awards Program

Final Deadline 31 July 2002

Revisions to the forthcoming Graduate Student Paper competition for the 7th ICG to be held in Nice, France, in September 2002 have been made. The IGS Council in concert with the organisers of the 7th ICG at a meeting held on 13 November 2001 in Fukuoka, Japan decided to change the nomination deadline and mandatory requirements for each paper.

IGS Student Awards Program

The IGS Student Awards will continue its successful inauguration with the second Award period of 2001 to 2002. The Awards will be assigned in the year 2002, and all successful candidates will attend the 7th ICG (Nice, France, 22 to 27 September 2002). The IGS Student Award was established to disseminate knowledge and to improve communication and understanding of geotextiles,

geomembranes, related products, and associated technologies among young geotechnical and geoenvironmental student engineers around the world. An IGS Student Award will consist of a cheque of US\$1,000 for each winner. This award amount must be used to cover conference participation costs (i.e., travel, accommodation, etc.). An IGS Student Award will be assigned to only one student per Chapter; the selected student should be a M.Sc. or Ph.D. student. Students must be no older than 35 in the year the award is granted. To ensure student representatives from each chapter participate in the program to the fullest extent possible the chapters must accomplish the following:

- Each Chapter must hold a contest or conduct a nomination process to

select the student candidate to represent them.

- Each Chapter must advise the IGS of their student nomination by **31 July 2002**. The IGS will transfer funds to the student in advance of the Conference.

The organisers of the 7th ICG will:

- Provide a copy of the proceedings to the student.
- Provide admission to the sessions for the student.
- Conference organisers are not required to provide the students with admission to social events.

reported by Richard J. Bathurst (IGS President), Daniele Cazzuffi (IGS Vice-President), Jean-Pierre Gourc (IGS Council Member), and André Rollin

Spanish IGS Chapter Report (2001), IGS España

Our second year of activity as the Spanish IGS Chapter has been very productive. Since 1 January 2001, the number of Individual Members has increased to 38 and the Corporative Members to five.

Early in 2001, the following activities were organised and took place:

- An "Introduction to Geosynthetics" course for third year of Civil Engineering students at Alfonso X Sabio University was offered. The course was divided into three different subjects areas: (i) introduction to different geosynthetic materials and functions, (ii) reinforcement applications, and (iii) environmental applications.
- A one-day course on "Landfill Capping with Geosynthetics" was held at the Geotechnical Laboratory of CEDEX and attended by 80 professionals and over 30 Master's students. The course was opened by Mr. Ger-

man Glaria, General Director of the Ministry of Environment for Environmental Quality and Mr. Vicente Cuelar as President of the Spanish IGS Chapter and Director of the Geotechnical Laboratory CEDEX, which belongs to the Ministry of Public Works. The European Directive EC 31/1999 was introduced and detailed information on how geosynthetics can be used in landfill capping was discussed. A number of practical examples were given whereby installers and end-users spoke of their own experiences with these products. The course ended with a very interesting round table, where speakers and the public exchanged opinions on different aspects and experiences with this application of geosynthetics.

- The number of Board Members was increased from four to nine. Each Board Member is given a responsi-

bility, whether it is materials, education, etc.

The latter half of 2001 has been fully dedicated to organise the *II Spanish Geosynthetic Symposium* to be held in Madrid on 16 to 18 April 2002. It has already been five years since the last national geosynthetics symposium. It was thought to be good timing to have a symposium in April 2002 because it will help promote the *7th IGC* in September 2002 and, generally, will help promote the IGS in Spain. This Symposium will be organised together with the ATC Association and the Ministries of Public Works and Environment.

The IGS Spanish Chapter now has its own web page, which everyone is welcome and encouraged to visit: <http://www.igs-espana.com>.

*reported by Julio Garcia-Mina
Secretary of the Spanish IGS Chapter*

Geosynthetics and the European CE Mark

By the end of 2001, it became possible for almost 40 construction products to be CE Marked, one of these product categories being geotextiles. Initially, the CE marking for geotextiles is voluntary, but, after 1 October 2002, CE marking will be mandatory. The timing for the CE Marking of geomembranes will be one year later, i.e., voluntarily from October 2002 and on and mandatory from October 2003 and on.

To understand the CE Mark and its implications, it is necessary to be aware of the European Construction Products Directive (CPD). The aim of the CPD is to remove technical barriers to trade within the European Economic Area. The CPD strives to do this by:

- Harmonising technical specifications.
- Agreeing on a system to attest the conformity of products to the appropriate specifications.
- Establishing a framework of certification bodies to control the attestation procedure.

- Overseeing CE Marking of products.

Explanatory note

The technical specifications are harmonised European product standards produced by the committee CEN TC 189. The purpose of the technical specification is to cover all the performance characteristics required by regulations in any European Member State. This enables manufacturers to be sure that the test methods and declared results will be the same in all Member States.

All harmonised product standards have an informative annex called ZA, this often addresses characteristics that are not regulated in all Member States but have commercial implications. The first part of the annex ZA addresses requirements for a particular application and these in turn may reference test standards. The ZA annex is seen as a checklist for the CE marking.

However, this is not to say that the values required by Member State regulators will be the same; the values

may and most likely will vary from State to State.

Not all standards produced by CEN TC 189 are harmonised standards and a great number are useful, but voluntary standards are sometimes referred to as non-harmonised standards.

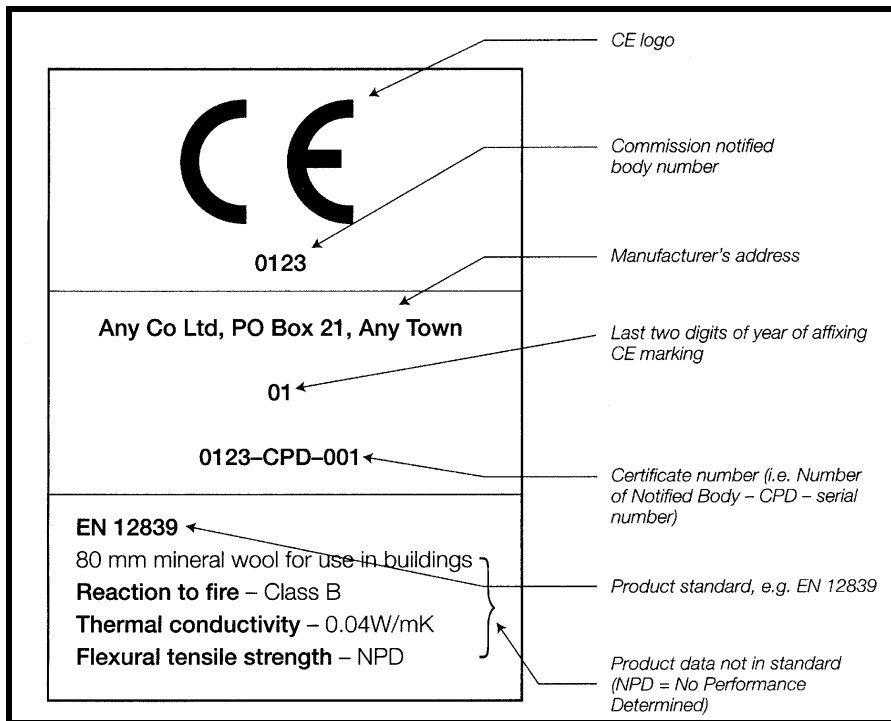
It should be noted that there is another route to the CE Mark and that is via a Technical Approval (ETAs). This is used when standards have not or cannot be produced, although to date no geotextile products have been submitted to the European Organisation for Technical Approvals (EOTA).

The level of third party involvement in assessing the conformity of products to the relevant specification is called a harmonised Attestation System. Figure 1 describes the levels and associated tasks of attestation under the CPD. Geotextiles have been assigned a level of 2+ that requires manufacturers or importers to self certify the values and properties with third-party verification of factory production control (FPC).

Figure 1. Sample of a harmonised Attestation System.

Description of attestation		Product conformity certification with audit testing	Product conformity certification without audit testing	Factory production control (FPC) certification with continuous surveillance	Factory production control (FPC) certification without surveillance	Initial type testing	Manufacturer's task only
Commission numbering system		1+	1	2+	2	3	4
Tasks for the manufacturer	Factory production control						
	Further testing of samples taken at factory according to prescribed test plan						
	Initial type testing						
Tasks for the notified body	Initial type testing						
	Certification of FPC						
	Surveillance of FPC						
	Audit testing of samples						

Figure 2. Typical CE marking label.



In Figure 1, the term “notified body” refers to certification bodies, sometimes called inspection bodies, approved bodies, or Article 18 bodies, which relates to the relevant section of the CPD. Each Member State approves the Notified Body(s) after which they listed with the Commission and other Member States.

Once the harmonised technical specification is available (those for CEN TC 189 were published in October 2000), the manufacturer or the manufacturer’s importer may approach a notified body for the product and factory production control to be assessed.

A type example of the CE mark is shown in Figure 2.

This note to IGS Members is a general initial orientation to the CE Marking of geotextiles and it is planned to include further notes on the details of testing and requirements for the CE Mark in future issues of *IGS News*.

*reported by Bernard Myles
IGS Council Member*

Soft Ground Improvement and Geosynthetic Applications November 2001, Asian Institute of Technology, Thailand

The Asian Center for Soil Improvement and Geosynthetics (ACSIG) in the Geotechnical Engineering Division of the School of Civil Engineering the Asian Institute of Technology (AIT), in cooperation with King Mongkut's University of Technology Thonburi (KMUTT), successfully held the symposium, *Soft Ground Improvement and Geosynthetic Applications* on 22 to 23 November 2001. The Conference was held in the Conference Auditorium on the AIT Campus, Klong Luang, Pathumthani, Thailand. The event serves to transfer and disseminate relevant technologies as well as promote the use and application of ground improvement and geosynthetics to practicing engineers, academics, planners, contractors, and

consultants. Several prominent individuals and experts have responded to the invitation as Resource Speakers including Prof. Victor Choa of Singapore, Ing. Chris Lawson of Malaysia, Dr. Nathaniel Fox of USA, Ing. Nico Cortlever of the Netherlands, and Prof. Kasuya Yasuhara of Japan. Prof. Kasem Petchgate, Dean of Faculty of Engineering, represented KMUTT. An Exhibition was held in conjunction with the Symposium at the AIT Conference Center. The Exhibition was open to all suppliers, manufacturers, users, consultants, and contractors involved in the practice, and/or research of ground improvement and geosynthetics. Dr. Srisook Chandrangsu, Permanent Secretary of the Ministry of Transport and Communication of the Royal Thai Gov-

ernment graciously accepted as Guest Speaker and opened the Symposium and the Exhibition. The overwhelming success of the Symposium and Exhibition has firmly established the cooperation between academia and industry in the area of ground improvement and geosynthetics. Innovative techniques and products have been successfully demonstrated and promoted during the two-day event. Furthermore, short courses on mechanically stabilised earth (MSE) and ground improvement using prefabricated vertical drains (PVD) were also successfully held on the 20 and 21 November 2001, respectively.

reported by D.T. Bergado

International Symposium on Clay Geosynthetic Barriers IS Nuremberg 2002, Bulletin 2: Program

16 to 17 April 2002, Nuremberg, Germany

Introduction

The *International Symposium on Clay Geosynthetic Barriers, IS Nuremberg 2002*, will be held in Nuremberg, Germany, 16 to 17 April 2002. The Symposium will be held under the auspices of the IGS, the German Chapter of the IGS and the German Society for Geotechnical Engineering (DGGT).

Program

Monday, 15 April 2002

- 14:00 Sightseeing in Nuremberg
- 19:00 Welcome Reception

Tuesday, 16 April 2002

- 09:00 Opening
 - Helmut Zanzinger (Germany)
 - Robert M. Koerner (USA)
 - Rudolf Floss (Germany)
 - Richard Bathurst (Canada)
- 09:30 Applications/Case Histories, (Session 1), Chair: Rudolf Floss
 - Geosynthetic Clay Liner Performance in Geotechnical Applications (G. Heerten, Germany)

- Clay Geosynthetic Barriers: Use and Abuse in South Africa (P. Davies, K. Legge, South Africa)
- Application of the Geomembrane Supported GCL as an Alternative to Conventional Geomembrane-Compacted Clay Composite Liners Utilised in Waste Containment (R.B. Erickson, USA)
- Installation of Clay Geosynthetic Barriers Under Water – Three Years of Experience (P. Fleischer, M. Heibaum, Germany)
- Investigation on the Use of Geosynthetic Clay Liners (GCLs) as Sealing Element in Railway Substructures (C. Göbel, K. Lieberenz, S. Großmann, Germany)
- Application of a Newly Developed Double Lining System (P. Reither, T. Eichenauer, Austria)
- Use of Geosynthetic Clay Liners for Protection of HDPE Geomembranes from Puncture by Protrusions in Insitu Low Permeability Soil or Compacted Clay Liners (D. Narejo, R. Erickson, R. Zunker, USA)
- Performance of a Needle Punched Geosynthetic Clay Liner in Groundwater Protection on Roads in Cold Climate (M. Sjöholm, Finland)
- 12:30 Lunch
- 14:00 Durability/Lifetime (Session 2)
Chair: Daniele Cazzuffi
 - GCL Durability Issues with Respect to the Associated Geotextiles, Fibre Reinforcement and/or Geomembranes (R.M. Koerner, Y.G. Hsuan, USA)
 - Thermal Oxidation of a Polypropylene Geotextile Used in a Geosynthetic Clay Liner (R.W. Thomas, USA)
 - Internal Strength Examination and Analysis of Geosynthetic Clay Barriers through Long-Term Creep Shear Testing (R.H. Swan, Jr., Z. Yuan, T.G. Stam, USA)
 - Long Term Shear Testing of Geosynthetic Clay Liners and other Geosynthetics (M. Thies, W. Müller, S. Seeger, Germany)
 - The Correlation and Applicability of Needle-punched Geosynthetic

- Clay Liner Internal Shear Strength through Bonding Peel Strength Testing (T.G. Stam, R.E. Mackey, K.P. von Maubeuge, USA/Germany)
- Long Term Internal Shear Testing on Clay Geosynthetic Barriers (H. Zanzinger, N. Alexiew, Germany)
- Comparison of Different Shear Tests for GCLs and the Use of these Data in Design (T. Eichenauer, P. Reither, Austria)
- **16:00 Laboratory Testing (Session 3) Chair: Ian Peggs**
 - Bentonite as Sealing Material in Geosynthetic Clay Liners - Influence of the Electrolytic Concentration, the Ion Exchange and Ion Exchange with Simultaneous Partial Desiccation on Permeability (T.A. Egloffstein, Germany)
 - Chemical, Mineralogical and Physical Characterisation of Bentonite for Geosynthetic Clay Barriers (W.J. Miles, USA)
 - Investigation of Bentonite Requirements for Geosynthetic Clay Barriers (K.P. von Maubeuge, Germany)
 - Geosynthetic Clay Liners: How Different Solutions Interact with Hydraulic and Colloidal Properties of Bentonite of GCL (C.D. Porta, G. Tresso, Italy)
 - Gas Migration through a Needle Punched Geosynthetic Clay Liner (A. Bouazza, F. Rahman, T. Vangpaisal, Australia)
 - GCL Designs Incorporating Contaminant Transport (C.B. Lake, R.K. Rowe, Canada)
 - Use of GCLs to Control Migration of Hydrocarbons in Severe Environmental Conditions (R.J. Bathurst, R.K. Rowe, M. Li, Canada)
 - Development of a GCL: Specifications and Lab Performance (B. de Souza Bueno, O.M. Vilar, S.L. Palma, V. Pimentel, Brasil)
 - Internal Erosion of GCLs Placed Directly Over Fine Gravel (R.K. Rowe, C. Orsini, Canada)
 - Geomembrane Leakage Arising from Broken Needles within GCL's (G.R. Koerner, R.M. Koerner, USA)
 - Modelling of the Permeation through a Landfill Cap System Including a Geosynthetic Clay Liner with the Modified Help Model (N. Markwardt, Germany)
- Testing and Performance of an Integrally-Formed, Polypropylene-Laminate Geosynthetic Clay Barrier Composite (S.N. Lucas, T.G. Stam, USA)
- **19:00 Dinner**
- **09:00 – 17:00 Companion Program**
 - Nuremberg's History
- **Wednesday, 17 April 2002**
 - **09:00 Performance and Desiccation (Session 4) Chair: Kerry Rowe**
 - Hydraulic Performance of Geosynthetic Clay Liners Some French Laboratory Test Methods (G. Didier, France)
 - Experimental Investigation of the Influence of the Pre-Hydration of GCLs on the Leakage Rates through Composite Liners (M. Barroso, N. Touze-Foltz, O. Darlot, Portugal/France)
 - Leak Location Surveys on GCL-Only Liners (I.D. Peggs, USA)
 - Performance of Geosynthetic Clay Liners in Lysimeters (W. Blümel, H. Ehrenberg, Germany)
 - Desiccation Behavior of Geosynthetic Clay Liners (G.L.S. Babu, H. Sporer, H. Zanzinger, E. Gartung, India/Germany)
 - Long-Term Field Test of a Clay Geosynthetic Barrier in a Landfill Cover System (U. Henken-Mellies, H. Zanzinger, E. Gartung, Germany)
 - Desiccation Behaviour of Composite Landfill Lining Systems under Thermal Gradients (J. Southen, R.K. Rowe, Canada)
 - Field Studies and Excavations of Geosynthetic Clay Barriers in Landfill Covers (S. Melchior, Germany)
 - Laboratory Tests on Desiccation of Geosynthetic Clay Liners (H. Sporer, E. Gartung, Germany)
 - Examinations on the Self Healing Behaviour of Ca-Bentonite GCLs (H. Sporer, E. Gartung, Germany)
 - Calcium Bentonite GCL under Varying Moisture Conditions: In-Situ and Laboratory Test Results (M. Siegmund, K.J. Witt, N. Alexiew, Germany)
 - Study of the Hydraulic Behaviour of Clay Geosynthetic Barriers Subjected to the Leachate Infiltration (L. Gaidi, I. Alimi-Ichola, France)
- **12:30 Lunch**
- **14:00 Regulations (Session 5) Chair: Abdelmalek Bouazza**
 - Guidelines for Environmental Slope Protection at Infrastructures (H. Rathmayer, Finland)
 - Summary of Geosynthetic Clay Barrier Standards Developed by the American Society of Testing and Materials (R.E. Mackey, USA)
 - German Recommendations on Geosynthetic Clay Liners (GCL) in Geotechnics and Hydraulic Engineering Applications (D. Heyer, F. Saathoff, H. Zanzinger, Germany)
 - The Use of Clay Geosynthetic Barriers within the UK Regulatory Framework (R. Marshall, UK)
 - Application Related Requirements for Geosynthetic Clay Liners (I. Szabó, Hungary)
- **16:00 Summary and Closure (Session 6), Chair: Hans Rathmayer**
 - Conclusions by Chairs: R. Floss, D. Cazzuffi, I. Peggs, K. Rowe, A. Bouazza
- **19:00 Farewell**
- **09:00 – 17:00 Companion Program**
 - Nuremberg Culture
- **Thursday, 18 April 2002**
 - **09:00 Excursion to a test field at a landfill site**
 - U. Henken-Mellies, H. Sporer, H. Zanzinger
 - **12:30 Lunch at Rothenburg/Tauber**

Proceedings

The proceedings of the Symposium will be published. All accepted papers will be included in the proceedings, which will be available at the Symposium.

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Erratum - Bonar Technical Fabrics Corporate Profile



In the March 2001 issue of *IGS News*, a Corporate Profile for Bonar Technical Fabrics was published. One of the photos (see photo to left) was mistakenly used to represent Bonar geosynthetics products at a construction site, but is in fact a photo taken in Vestby, Norway. The photo is the property of Huesker

Synthetic GmbH & Co. KG and it does not contain any Bonar products, only Huesker products.

Representatives of Bonar Fabrics deeply regret this error and apologise for any inconvenience this may have caused.

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Geosynthetics International has established itself as a premier peer-reviewed journal on geosynthetics. The Journal publishes technical papers, technical notes, discussions, and book reviews on all topics relating to geosynthetic materials (including natural fiber products), research, behaviour, performance analysis, testing, design, construction methods, case histories, and field experience.

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The following are welcome contributions: refereed technical papers covering research, design, construction, applications, and case studies; technical notes, book reviews, reports of conferences, and meetings; and letters to the Editor. All technical papers are open to written discussion. No limit to length is set and short notes are acceptable.

Review articles may also be published at intervals, but the subject and contents of these should be discussed first with the Editor.

The Editorial Board Members and reviewers have worked very hard over the past year to provide detailed, constructive reviews in a very timely manner. The average review period is less than three months. Papers come from a wide range of countries with approximately one third of the papers coming from the Americas, Europe, and the rest of the world. The rejection rate is 59%. The Journal's Editor and Board Members are extremely appreciative of the authors' hard work in addressing the reviewers' comments and the quick

return of revised papers.

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Kingston, Ontario, K7L 3N6
Canada
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Authors should submit four copies of their paper, which will subsequently be reviewed by at least two individuals. No original figures should initially be included.

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Taiyo Kogyo Corporation was established in August 1946 in Osaka, Japan. In 1998, it made \$309 million U.S. in sales and employs approximately 903 people.

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Established in 1965, Hui Kwang Chemical Co., Ltd. (HKC) has produced polymer, specialty chemical and agrichemical products, and expanded their marketing network worldwide. HKC sees quality as a priority issue and was granted ISO 9002 certification demonstrating its effort and commitment to provide quality products to their customers.

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to conduct research to produce advanced products. HKC provides professional services worldwide to enable sustainable economic and human development with minimum negative impact on the environment. The company's concern for the environment is no less than its concern for the quality. The employees at HKC have dedicated themselves to conserving the environment to the maximum possible extent. The environmental programs in place at HKC reflect the company's sensitivity to the importance of protecting precious natural resources. By its strong environmental policies, HKC continues to demonstrate its recognition of the environmental consequences of its actions.

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*Hui-Kwang Chemical Co., Ltd.
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**12th Danube-European Conference on
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Contact: Prof. Dr. Eng. W. Wittke
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Fax: 0241/88987 33
E-mail: wbi@wbionline.de

**Eighth International Road Fair
Roadware 2002**
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28-30 May 2002
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Capri 2002
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<http://www.capri2002.com>

**International Workshop on
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Monte Verita, Switzerland
30 June-5 July 2002
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Fax: 41/21 693 41 53
E-mail: environmental.geomechanics@epfl.ch

**International Conference on Physical
Modelling in Geotechnics**
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10-12 July 2002
Contact: Ms. Abigail Steel, Secretariat
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Fax: 1/709 737 4706
E-mail: icpmsg@c-core.ca
<http://www.c-core.ca/icpmsg/>

**Water Resources and Environment
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Dresden, Germany
22-26 July 2002
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Conference Secretariat ICWRER 2002
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E-mail: icwrer2002@mailbox.tu-dresden.de

**4th International Congress on
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c/o Dr. M.C. Barbosa, COPPE-UFRJ
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E-mail: 4iceg@pec.coppe.ufrj.br

**NUMGE 2002, Fifth European
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4-6 September 2002
Contact: Mme. Nathalie Soude
Tel: 33/1 44 58 27 29
Fax: 33/1 44 58 27 06
E-mail: soude@mail.enpc.fr

**12th European Conference on
Earthquake Engineering**
London, United Kingdom
9-13 September 2002
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22-27 September 2002
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<http://www.7icg-nice2002.com>

**First International Conference on Scour
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College Station, Texas, USA
17-20 November 2002
Contact: Professor Jean-Louis Briand
Tel: 1/979 845 3795
Fax: 1/979 845 6554
E-mail: briaud@tamu.edu
<http://tti.tamu.edu/conferences/scour>

**12th Annual International TANDEC
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Knoxville, Tennessee, USA
19-21 November 2002
Contact: Dr. Dong Zhang, Chair

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Geosynthetics 2002 - China
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Grouting and Ground Treatment 2003
New Orleans, Louisiana, USA
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Contact: Michael Byle
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**Fast Slope Movements - Prediction and
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11-13 May 2003
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E-mail: agiroma@iol.it

**12th Asian Regional Conference on Soil
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Contact: Dr. C.F. Leung
Tel: 65/8742281
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E-mail: 12ARC@nus.edu.sg
<http://www.eng.nus.edu.sg/civil/conf/12ARC>

**13th European Conference on Soil
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Prague, The Czech Republic
25-28 August 2003
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Tel: 42/2 24354540
Fax: 42/2 3114206
E-mail: vaniceki@fsv.cvut.cz
<http://www.ecsmge2003.cz>

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The International Geosynthetics Society



OBJECTIVES OF THE IGS

The International Geosynthetics Society was formed with the following objectives:

- to collect, evaluate, and disseminate knowledge on all matters relevant to geotextiles, geomembranes, related products, and associated technologies;
- to improve communication and understanding regarding geotextiles, geomembranes, related products, and associated technologies, as well as their applications;
- to promote advancement of the state of the art of geotextiles, geomembranes, related products, and associated technologies; and
- to encourage, through its Members, the harmonization of test methods, and equipment and criteria for geotextiles, geomembranes, related products, and associated technologies.

WHY BECOME A MEMBER OF THE IGS?

First, to contribute to the development of our profession.

By becoming an IGS Member you can:

- help support the aims of the IGS, especially the development of geotextiles, geomembranes, related products, and associated technologies;
- contribute to the advancement of the art and science of geotextiles, geomembranes, related products, and associated technologies; and
- participate in a forum for designers, manufacturers, and users, where new ideas can be exchanged and contacts improved.

Second, to enjoy the benefits.

The following benefits are now available to all IGS Members:

- a directory of Members, the IGS Directory, published every year, with addresses, telephone, e-mail, and fax numbers;
- the newsletter, *IGS News*, published three times a year;
- a reduced purchase price on all documents published by the IGS;
- a reduced registration fee and preferential treatment at all conferences organized under the auspices of the IGS;
- a reduced subscription fee for IGS-endorsed journals; and
- the possibility of being granted an IGS award.

IGS MEMBERSHIP APPLICATION

Membership of the International Geosynthetics Society (IGS) is open to individuals or corporations "... engaged in, or associated with, the research, development, teaching, design, manufacture or use of geotextiles, geomembranes, and related products or systems and their applications, or otherwise interested in such matters.". The annual fee for membership is US\$45 for individuals and US\$1000 for Corporate Members. Individuals of, or not of, corporations who voluntarily contribute a minimum of US\$200 annually to the IGS, in excess of their membership dues, will be mentioned in the IGS Directory in a separate list as benefactors.

Write your address below as you wish it to appear in the next *IGS Directory*

Title (circle one): Mr. Ms. Dr. Prof. Other Position

First name:

Last name:

Company name:

Address:

City: Province/State:

Postal code: Country:

Telephone:

Fax:

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Membership fee schedule: Individual US\$45.00 Corporate US\$1,000.00 Benefactor's contribution (at least US\$200.00)

Send this completed form to:

IGS Secretariat

P.O. Box 347

Easley, SC 29641-0347

USA

Telephone: 1/864 855 0504

Fax: 1/864 859 1698

E-mail: igssec@aol.com

Eligibility (i.e., your connection to geotextiles, geomembranes, related products, and associated technologies):

Mode of payment:

Check enclosed drawn on a US bank

Draft sent to: Bank of America
Easley, South Carolina USA
ABA Routing No. 053904483
Account No. 733005326

Signature:

Date:

Credit card (circle one): Mastercard Visa American Express

Account number:

Expiration date:

Name on card:

Authorized signature:

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