

Bioencapsulation Innovations

January 2012

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EDITORIAL

Communication technologies have improved considerably over the past two decades. The first BRG communication was a short newsletter, printed using a small ink printer, copied in a shop, manually assembled and placed in an envelope. This task was carried out with my family two evenings every month.

As the number of members increased, we stopped publishing the newsletter and created a very basic website. Based only on html, it was very limited: some text, a few images, that's all.

people in minutes.

In continuing our progress, we would like to have a more professional design and a more attractive website. The objective was not only to improve the aesthetic appearance but rather to provide more information (access to most conference contributions) and allow members to interact with each other.

Even before the website is officially public, it is already a success. Most

A NEW WEB SITE FOR THE THIRD BRG DECADE

The development of programming languages like php and databases like mysql allowed us to significantly improve the appearance and functionality of the website. In particular, we have made extensive use of the possibility to register, pay or submit contributions in order to simplify the management of the conferences. In addition to making the participant's life easier, it allowed us to concentrate more on the quality of the conferences rather than on the administrative details.

Furthermore, email and new publishing software allowed us to relaunch a newsletter and send it to thousands of

of the information that you receive in this newsletter is based on member contributions to the newsletters.

We hope that you will contribute to this exchange by advertising open positions in your company or laboratory, new books, thesis defenses... any information related to microencapsulation is welcome.

Best regards

Denis Poncelet, President

PS: while visiting the website, we would ask you to register in the new database. This will allow us to upgrade our address book. us to upgrade our addressbook.

CALL FOR MEMBERSHIP PAYMENT

From the beginning, the bioencapsulation Research Group membership was based on a voluntary annual fees. The technologies for collecting small amounts of money were complex and expensive due to bank transfer costs. The possibility to pay membership through an automatic credit card with a low bank charge (2%) makes it cheaper and a lot easier to handle.

During the XIX International conference on Bioencapsulation last october, we decided to keep membership on a donation basis but called upon your solidarity.

We have several thousand members, a small contribution from each one will give us a large potential to offer grants but also to organize a training school .














WE COUNT ON YOUR SOLIDARITY

Even though BRG is a non-profit association, as we offer many grants to students and researchers from emerging countries, our need for financial support becomes more and more crucial to reach our objectives.

We may then address you a personal mail encouraging you support our associative activities.

CALENDAR

To advertise just click on <http://bioencapsulation.net> and select «Add news»

	<p>9th International Conference on Biological Barriers February 29 - March 9, 2012, Saarbrücken, Germany http://www.uni-saarland.de/info/wirtschaft/kwt/messekongresse/biological-barriers-2012.html</p>		<p>TTC workshop : Functional Film-coating - practical session Mai 10-12, 2012 - Weimar, Germany http://www.ttc-binzen.de/cm/index.php?id=399</p>
	<p>«Pelliculage - Les fondamentaux et les nouveautés» February 7, 2012 - Chatenay-Malabry, France http://www.apgi.org/</p>		<p>Polymeric 2012 May 31-June 1, 2012 - Rennes, France http://www.cbb-developpement.com/</p>
	<p>JSC2012 - Journées supercritiques March, 15-16 2012 - Albi, France http://rapsodee.mines-albi.fr/JSC2012/</p>		<p>4th Symposium of Skin and Formulation June 4-5, 2012 - Lyon, France http://www.apgi.org/Skin4.htm</p>
	<p>1st International Conference on Food Digestion March 19-21, 2012, Cesena, Italy https://colloque.inra.fr/cost_infogest_fooddigestion2012</p>		<p>Fluid Bed Technology: Fluidisation, Granulation/Coating and Drying May 23-25, 2012 - Copenhagen, Denmark http://powderinfonews.com/wp-content/uploads/2011/09/Fluid-Bed-Technology-20121.pdf</p>
	<p>8th World Meeting on Pharmaceutical Biopharmacy March 19-22, 2012 - Istanbul, Turkey http://www.worldmeeting.org</p>		<p>TTC workshop : Fluid bed: Maintenance & Troubleshooting July 3-5, 2012 - Binzen, Germany http://www.ttc-binzen.de/cm/index.php?id=379</p>
	<p>XV Industrial Symposium & VI Trade Fair on Encapsulation March 20-22, 2012 - Archamps/geneva, France http://bioencapsulation.net/2012_Archamps</p>		<p>9th Internat. Symposium on Polyelectrolytes - ISP 2012 July 9-12, 2012 - Lausanne, Switzerland. http://isp2012.unige.ch/</p>
	<p>TTC workshop : Fluid bed processing March 20-22, 2012 - Binzen, Germany http://www.ttc-binzen.de/cm/index.php?id=312</p>		<p>2012 CRS Annual Meeting & Exposition July 15-18, 2012, Quebec City, Canada http://www.controlledreleasesociety.org/meetings/annual/Pages</p>
	<p>TTC workshop : Granulation & Tabletting April 24-26, 2012 - Binzen, Germany http://www.ttc-binzen.de/cm/index.php?id=368</p>		<p>XX International Conference on Bioencapsulation Sept. 21-24, 2012, Orillia, Ont. Canada http://bioencapsulation.net/2012_Orillia</p>
	<p>South American Workshop on Microencapsulation April 30 - May 2, 2012 - Limeira, Brazil http://bioencapsulation.net/2012_Limeira</p>		<p>4th Industrial Workshop on Microencapsulation September 26 - 27, 2012 http://www.bioactivesworld.com/microencapsulation.html</p>
	<p>BIONANOTOX 2012 «Biomaterials and Bionanomaterials May, 6-13, 2012 - Heraklion, Greece http://www.bionanotox.org</p>		<p>TTC workshop : Matrix and layered pellet dosage forms November 6-8, 2012 - Binzen, Germany http://www.ttc-binzen.de/cm/index.php?id=410</p>
	<p>9th International Conference on Protein Stabilisation May 2-4, 2012, Lisbon, Portugal http://prostab2012.ist.utl.pt</p>		<p>TTC workshop : Matrix and layered pellet dosage forms November 6-8, 2012 - Binzen, Germany http://www.ttc-binzen.de/cm/index.php?id=410</p>

UPCOMING EVENTS

15TH INDUSTRIAL SYMPOSIUM & 6TH TRADE FAIR ON MICROENCAPSULATION

Archamps/Geneva, France - March 20-22, 2012

Why this symposium ?

Over the last 20 years, BRG has organised more than 50 successful events on microencapsulation. BRG acquired unique expertise in organising industrial events based on one of the largest address books in the domain. This event will bring together leaders in microencapsulation & nanoencapsulation from a variety of industries. We expect up to 150 industry members to come from all over the world and we plan to schedule more than 600 individual meetings.

Organization



- Conference Program : 14 lectures from leading experts in microencapsulation.



- Technology Trade Fair : based on your pre-selection among the list of participants, get up to 20 one-to-one 40 minute appointments.



- Exhibition : a broad state-of-the-art showcase presenting R & D, Equipment, Material & Chemicals.

EARLY BIRD REGISTRATION UNTIL FEBRUARY 15, 2012



MARCH 20, 2012

Session 1: Overview

- Encapsulation: Overview on Technologies and Applications - Ronald Neufeld, Queen's Univ. Canada
- Opportunities and challenges in encapsulation for Home & Personal Care Products - Katherine Thompson, Unilever, UK
- One-to-one meetings + exhibition

Session 2: Technologies

- Spray drying technologies and applications - Stephan Drusch, Technical University of Berlin, Germany
- Fluid Bed Coating: Theory and Practice - Charles Frey, Coating Place, USA
- Commercial Scale Microencapsulation : from lab bench to commercial manufacture - Brian Frost and Hugues Forget, Encapsys Microencapsulation, USA
- One-to-one meetings + exhibition

MARCH 21, 2012

Session 3: Materials

- Microencapsulation by chemical methods - Dennis Vriezema, Encapsion, Netherlands
- Silicon sol gel encapsulation - Leon Marteaux, Dow Corning, Belgium

- One-to-one meetings + exhibition

Session 4: Innovations

- Colloidal Polyelectrolyte Complexes for the Delivery of Pharmaceuticals - Thierry Delair, Lyon University, France
- Cosmetics and microencapsulation - Sven Gohla, La prairie, Switzerland
- Performance of industrial enzyme formulations through the years, with respect to wear resistance - Gabriele Meester, DSM, Netherlands
- One-to-one meetings + exhibition

MARCH 22, 2012

Session 5: Applications

- Food and feed ingredient encapsulation - Jean-Antoine Meiners, MCC, Switzerland
- Flavour encapsulation - Jenny Weissbrodt, Symrise, Germany
- One-to-one meetings + exhibition

MORE INFORMATION

http://bioencapsulation.net/2012_Archamps



Journal of Microencapsulation Volume 29, Number 1 (2012)

<http://informahealthcare.com/toc/mnc/29/1?ai=9j8&ui=cwt3&af=H>

- **In vitro antitumour activity of stearic acid-g-chitosan oligosaccharide polymeric micelles loading podophyllotoxin** - Xuan Huang, Xiong Huang, Xiao-Hong Jiang, Fu-Qiang Hu, Yong-Zhong Du, Qi-Feng Zhu, and Cheng-Sheng Jin - Journal of Microencapsulation 2012, Vol. 29, No. 1, 2012: 1-8.
- **Surface-modified loaded human red blood cells for targeting and delivery of drugs** - Nadine Sternberg, Radostina Georgieva, Karolin Duft, and Hans Bäumlner - Journal of Microencapsulation 2012, Vol. 29, No. 1, 2012: 9-20.
- **Preparation of coenzyme Q10 liposomes using supercritical anti-solvent technique** - Fei Xia, Heyang Jin, Yaping Zhao, and Xinqiu Guo - Journal of Microencapsulation 2012, Vol. 29, No. 1, 2012: 21-29.
- **The necessity for the coating of perfluorodecalin-filled poly(lactide-co-glycolide) microcapsules in the presence of physiological cholate concentrations: Tetronic-908 as an exemplary polymeric surfactant** - M. Kirsch, T. Bramey, I. N. Waack, F. Petrat, C. Mayer, and H. de Groot - Journal of Microencapsulation 2012, Vol. 29, No. 1, 2012: 30-38.
- **The use of response surface methodology in the evaluation of captopril microparticles manufactured using an oil in oil solvent evaporation technique** - Sandile Maswazi Khamanga and Roderick B. Walker - Journal of Microencapsulation 2012, Vol. 29, No. 1, 2012: 39-53.
- **Nanomedical system for nucleic acid drugs created with the biodegradable nanoparticle platform** - Hiromitsu Yamamoto, Kohei Tahara, and Yoshiaki Kawashima - Journal of Microencapsulation 2012, Vol. 29, No. 1, 2012: 54-62.
- **A novel impinging aerosols method for production of propranolol hydrochloride-loaded alginate gel microspheres for oral delivery** - Dewi Melani Hariyadi, Thor Bostrom, Bhesh Bhandari, and Allan G. A. Coombes - Journal of Microencapsulation 2012, Vol. 29, No. 1, 2012: 63-71.
- **A novel hydrogel plug of Sterculia urens for pulsatile delivery: in vitro and in vivo evaluation** - Jitendra R. Amrutkar and Surendra G. Gattani - Journal of Microencapsulation 2012, Vol. 29, No. 1, 2012: 72-82.
- **PEGylated estradiol benzoate liposomes as a potential local vascular delivery system for treatment of restenosis** - Azadeh Haeri, Saeed Sadeghian, Shahram Rabbani, Maryam Sotoudeh Anvari, Mohammad Erfan, and Simin Dadashzadeh - Journal of Microencapsulation 2012, Vol. 29, No. 1, 2012: 83-94.
- **Development of surface-functionalised nanoparticles for FGF2 receptor-based solid tumour targeting** - Amit Jain, Arvind Gulbake, Ashish Jain, Satish Shilpi, Pooja Hurkat, Aviral Jain, and Sanjay K. Jain - Journal of Microencapsulation 2012, Vol. 29, No. 1, 2012: 95-102.



LinkedIn is a professional network allowing you to communicate with thousands of people around the world. Its main interest is the possibility of developing groups around a specific topic.

As regards microencapsulation, we could point out two groups:

- **Controlled Release Society** group with almost 2,500 members.
- **Microencapsulation** group with 333 members.

Several other groups are not directly related to microencapsulation but may be of interest, such as the European Federation of Food Science and Technology or the Fragrance & Flavour Industry.

Like other social networks, LinkedIn allows you to edit your profile and link with other members. Groups allow you to make different requests, announcements. Below are some topics that were proposed for the microencapsulation group :

- Ingeniatrics launches the revolutionary nebulizer NE-4 for improved production, output and quality to the drying process.
- Future of Particle Technology in Agriculture
- Melt Processible Microcapsule
- Fracture Strength of Microcapsules-- Instrument?

MORE INFORMATION

<http://www.linkedin.com>

UPCOMING EVENTS

SOUTH AMERICAN SYMPOSIUM ON MICROENCAPSULATION

Limeira, Brazil - April 30 - May 2, 2012

Organized in collaboration with



APRIL 30, 2012

Session 1: Methods

- Microencapsulation Introduction & Applications - Denis Poncelet, Oniris, France
- Particle engineering using spray drying - Maria Inès Ré, EMAC, France
- Nanobiotechnology : strategies for medical , environmental and agricultural encapsulation - Nelson Duran, UNICAMP, Brazil
- Coacervation and hydrogel encapsulation - Carlos Grosso, UNICAMP, Brazil

Session 2: Case studies

- Encapsulation technologies for herbal products- Wanderlei P. Oliveira, USP, Brazil
- Liposomes - Maria H. Santana, UNICAMP, Brazil
- Electrospinning process: A versatile method for the encapsulation technology - Maria Helena Ambrosio Zanin, IPT, Brazil
- 3 open lectures

MAY 1, 2012

Session 3: Industrials

- Encapsulation Challenges and Future - James Oxley, SwRI, Texas
- Engineering aspects of microencapsulation - Denis Poncelet, Oniris, France
- Microencapsulation: applications for the cosmetic industry - Jenny Ling, Natura, Brazil
- Microfluidic devices applications to Microencapsulation - Mário Gôncora, IPT, Brazil
- Microencapsulation of Functional and Nutraceutical ingredients: challenges and achievements - Eduardo Cárita, Mikron, Brazil

**Session 4: Demonstrations**

- Hydrogel beads and microcapsule, Denis Poncelet, Oniris, France
- Coacervation, Carlos Grosso, UNICAMP, Brazil
- Polymerisation, Nelson Duran, UNICAMP, Brazil
- Spray drying, Izabela Alvim, UNICAMP, Brazil
- Spray coating, Ana Siliva Pratas, UNICAMP, Brazil May 1st, 2012

MAY 2, 2012

Session 5: Applications

- History, challenges and perspectives of cell microencapsulation - Paul de Vos, UMCG Groningen, Netherlands
- Applications of encapsulation for food ingredients - Gary Reinecus, University of Minnesota, USA
- Aquaculture: micro diets for fish larvae - Maria Cella Portella, UNESP, Brazil
- Cosmetic: particles for skin applications - Silvia Guterres, DF/UFRGS, Brazil
- Environment: Ecosystem protection by effluent bioremediation - Oswaldo L. Alves, IQ/UNICAMP, Brazil

Session 6: Applications

- Medicine: Microencapsulation of pancreatic islets- Thiago Mares Guia, USP, Brazil
- Nutrition: Microencapsulated probiotics - challenges applications- Carmem Favaro, USP, Brazil
- Nutrition: Probiotics in dairy products - Mirna Gigante, UNICAMP, Brazil
- 3 open lectures

MORE INFORMATION

http://bioencapsulation.net/2012_Limeira

THESIS



Quality of coated particles: Physical-mechanical characterization of polymeric film coatings

Giacomo Perfetti

Supervisor: Gabrie Meesters (DSM), promotor Prof. Andreas Schmidt-Ott (TU Delft)

Date of thesis presentation : Delft, Netherlands on 26th March 2012

All coated particle producers, when applying the coating layer(s) would like to know precisely what is the best coating system to use in order to answer customer's requests.

It is, therefore, of very high relevance for many industries, to have a clear understanding of what are the parameters I need to trigger in order to generate the requested quality. Such understanding was the target of this work.

The specific equipments designed at Delft University of Technology enabled us to measure the resistance to attrition and the resistance to abrasion of both reference coating agents and commercially pre-mixed coating systems. The resistance to attrition was directly related to the intrinsic properties of the coating material, to the process parameters used to apply the coating layer (fluid bed coating in this case) and to the conditions in which the particles are stored.

The viscoelastic properties of the coating layers were measured by using nano indentation. Very good correlation between the viscoelasticity term, $\tan \delta$, and the resistance to attrition was found.

Cast and sprayed films were produced as representation of the coating film. The morphology and the structure of coating layers were mimicked much better by sprayed films which could be obtained by novel equipment designed during this work.

To assess the quality of the coating layer and determine how efficient the coating process was, X-Ray micro tomography in combination with image analysis was used. This gave us a very robust set of data which could be used to correlate the quality of the coating layer to the parameters chosen during coating process and those two with the final performance of the coated particles in respect of resistance to attrition/abrasion.

Finally commercially available pre-mixed coating systems were used as case study. By comparing them with the reference coating agents we could proof and quantify how important are the additives, plasticisers in primis, in increasing the coating quality and, therefore, the resistance to mechanical stresses.

NEXT BRG CONFERENCE

XX INTERNATIONAL CONFERENCE ON BIOENCAPSULATION

**Orillia, Ontario, Canada
September 21-24, 2012**



Our 20th annual international conference will take place in one of the most beautiful tourist area of Canada, the natural peninsula on Lake Couchiching. It is only 90 minutes from Toronto, Ontario, and offers a rare combination of extraordinary natural surroundings while being close to urban amenities.

The Bioencapsulation Research Group was founded in Canada and returning there for the 20th annual international conference should prove even more successful than last year.

Benefit from three days to talk with other bioencapsulation experts from all over the world in a professional but friendly atmosphere, a lifetime away from the stress of daily life... Join us ... and let's celebrate together the BRG 20th annual international conference, in the course of a 2 and ½ days residential conference, which we hope, will remain an unforgettable event for all.



MORE INFORMATION

http://bioencapsulation.net/2012_Orillia

OPEN POSITIONS



Research Engineer

Capsulae is a start-up company located in Nantes, France. It provides R&D in microencapsulation for the industry. Capsulae offers its services to many domains including food, feed, personal and home care, agriculture and the environment.

We are looking for a research engineer with a material science background for a 8 month project, with a strong possibility of gaining a permanent position. Under the supervision of the R&D director, he/she will participate in the development of innovative technologies from lab scale to industrial scale.

There is also a vacancy for an engineer internship with the possibility of extension after the diploma.

For more information or an application form, please contact picot@capsulae.com



R&D Project Manager

Start-up company in the cosmetics field, is seeking a Project Manager for its R&D department. Responsible for the development of innovative health-care devices in collaboration with the cosmetics development manager, they will lead the design, prototyping, testing and optimising of devices and packaging and will organise preproduction and industrialization. We are looking for a process engineer with experience in emulsification and dispersion devices at laboratory and industrial scale.

Location : Rouen, Cosmetics Valley in France

For more information, please contact

patrick.cottais@soletic.com



10 Doctoral fellowships ...

will be offered in 2012 by the EMJD NanoFar consortium "European Doctorate in Nanomedicine and Pharmaceutical Innovation".

NanoFar is an Erasmus Mundus Joint Doctorate programme recently selected by EACEA involving the universities of Angers and Nantes (France), Liège and Louvain (Belgium), Nottingham (United Kingdom) and Santiago de Compostela (Spain). NanoFar aims to train the best students in the field of nanomedicine to a doctoral level.

All information is available on the NanoFar website and selection process is open until 4th february

<http://www.erasmusmundus-nanofar.eu/>



R&D Research fellows EU funded Academia/Industry Partnership

Together with five excellent European partners we offer young researchers a research perspective at world-class scientific level in multidisciplinary and international teams to achieve a breakthrough in the development of sustainable detergents. Thanks to the European funded Programme on Academia- Industry Partnership Pathway (CAP-IT, IAPP 251298) we are currently seeking 2 research fellows each for a period of 12 months. The research is carried out at Procter & Gamble Brussels Innovation Centre (BE). The researchers should have a PhD degree, as follows :

- in Chemical Engineering or Industrial engineering - available to start March 2012
- in Chemistry or Pharma - available to start effective April 2012.

For more information or an application form, please contact

fernandezprietosf@pg.com



Four positions opened in R&D

Givaudan is the global leader in the fragrance and flavour industry, offering its products to global, regional and local companies specialising in food, beverage, consumer goods and fragrances.

In our Research and Technology Department, the Delivery System Platform, based in our European Center of Fragrance Creation, provides expertise in micro-encapsulation systems used in different consumer goods such as detergents, softeners and cosmetics, for example.

We are currently looking for a:

- Micro-encapsulation Research Scientist (Ref : CE12)
- Product Development Scientist (Ref : IDP/A)
- Product Development Scientist (Ref : IDP/B)
- Technology Scientist

For detailed information, please have a look on:

<http://www.givaudan.com/Careers/Job+Search>

or contact

argenteuil.recrutemen@givaudan.com



Several positions

Brace GmbH is a leading German company in the production of microcapsules (by dripping) and the development of machines for these technologies. It is looking for :

- Lab manager for development and production (http://www.brace.de/PagEd-index-topic_id-1-page_id-68.phtml)
- Project engineer for units (http://www.brace.de/PagEd-index-topic_id-1-page_id-135.phtml.)
- Other open positions may be found on <http://www.brace.de/PagEd-index-topictoview-1.phtml>

NETWORKING & COMMUNICATION

- **Bioencapsulation Research Group** is a non-profit association promoting networking and research in the encapsulation technology of bioactives. It organizes academic conferences and industrial symposiums, publishes newsletters and manages a website. More information : <http://bioencapsulation.net>

KEEP CONTACT BY REGISTERING ...

- **Registration with** bioencapsulation.net is based on a voluntary annual fee. If you wish to simply receive the newsletter and be advised about future events, register online at: <http://bioencapsulation.net>
- **Be an active member.** For a greater level of service, pay the registration fee:

Class	Annual fees
Industry members ¹	100 €
Researchers ²	60 €
Students ³	30 €

- ¹ contact us for corporate registration
- ² public and non-profit organizations, contact us for group registration
- ³ recently registered for a master or PhD program, less than 30 years old.

Registration fees may be paid by credit card, bank transfer or cheque (from a French bank). For more information or an invoice, see the registration page on <http://bioencapsulation.net>

- Full access to conference proceedings (> 1700)
- Access to the forum and internal mailing
- Possibility to contribute to the newsletter
- Reduction for the conference registration
- Priority for awarding of conference grants

Thanks to **Agence I** (<http://www.agence-i.eu/>) for designing the newsletter and **Geraldine Brodkorb** (gbrodkorb@eircom.net) for English corrections, and the editorial board for their help.

EDITORIAL BOARD

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