

NATIONAL SEMINAR ON ADVANCES AND DEVELOPMENTS OF PLASTICS IN MEDICAL SECTOR

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Organized By



INDIAN PLASTICS INSTITUTE
PUNE CHAPTER

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**MEDICAL PLASTICS
DATA SERVICE**
A Techno-Economic News Magazine For Medical Plastics,
Diagnostics And Pharmaceutical Industry

Research and Academic Institutions. IPI Pune Chapter is one of the active chapters and has hosted many seminars and conferences.

The co-host of the Conference is "Medical Plastics Data Service", a company providing information resources for Medical Technology and Markets through Publications, Internet Portals, Exhibitions, Conferences and Market Research since last 23 years.

About INDIAN PLASTICS INSTITUTE – IPI AND MEDICAL PLASTICS DATA SERVICE The Indian Plastics Institute has been a leading Institute for education and technology training for the plastics industry in India for over 3 decades. The Institute has 15 active Chapters at major centers in India. It has on roll over 2750 professional members from the industry and

Invited Speakers Profile & Abstracts :

Dr. Ajay Passalgikar, Senior Principal Scientist, DSM Biomedical in Exton, Pennsylvania, USA

Introduction :

Dr. Ajay Padsalgikar, USA, a Well-Known Personality in this versatile field has agreed to be the Keynote Speaker. He is working as a Senior Principal Scientist at the Innovation Center of DSM Biomedical in Exton, Pennsylvania, USA. He has more than 30 published scientific papers and 10 patents. In 2017, he wrote a book titled "Plastics in Medical devices for Cardiovascular Applications" that was published by Elsevier.

Abstract

Health care is expanding worldwide with the industry showing double digit growths in emerging economies. The use of polymers within this sector is increasing with the growth of the industry as well as with new approaches in medical treatment. This talk will focus on the suitability of plastics for medical applications, the manufacturing processes for medical device production, emerging applications and opportunities for the Indian industry.

Dr. Suneel Bandi, PhD, Technology Leader Medical High Performance Polymers, Americas

Introduction :

Sunil Bandi Holds a Doctoral Degree in Macromolecular Science and Engineering from Case Western Reserve University, with a broad polymer industrial experience.

Presently Global Technology Leader - Medical (implant and non-implant) for EVONIK's High performance polymers group. Prior to joining Evonik, Lead product development at Solvay and has Management consulting experience in the domain of technology based market and strategy assessment at Newrycorp. Lead startup Aeroclay Inc. a novel platform technology for lightweight applications.

Dr. Suneel Bandi is well connected to global network of medical customers, and actively support technical programming.

High Performance Polymers for Medical Device Applications

Abstract:

EVONIK is a technology leader for high-performance polyamides, EVONIK's current portfolio of specialty polyamides include PA12, PEBA (flexible polyamide), bio-based polyamides, and transparent polyamides for the medical devices. From catheters and balloons to diagnostic equipment and surgical instrumentation, VESTAMID® Care and TROGAMID® Care are well established. EVONIK offers flexibility in the design and manufacturing through

our new Bonding VESTAMID® Care and TROGAMID® Care grade polymers. EVONIK's VESTAKEEP® Care PEEK materials are used in temporary contact and instrument applications, while VESTAKEEP® PEEK i-Grades are used for permanent implant applications. From spine and sports medicine, to drug delivery devices and heart valve applications, new compounds of VESTAKEEP® PEEK are designed to meet the specific application needs and performance demands of medical-device industry.

Mr. Umang Shah, National Sales & Marketing Manager - Masterbatch & Compounds for Medical & Pharma Segment, CLARIANT Chemicals India Ltd, Mumbai

Introduction :

CLARIANT is one of the world's leading Specialty Chemicals company. Mr. Umang Shah is a National Sales & Marketing Manager for Masterbatch & Compounds for Medical & Pharma Segment (HPS) since Dec, 2015 and based at head quarter in Navi Mumbai. He is helping Indian manufacturers to develop various Medical devices & Pharma packaging applications meeting the regulatory requirements for the domestic & export markets.

Mr. Umang Shah is a Polymer Technologist, MBA – Marketing with over 25 years of experience in reputed MNCs. Earlier, he worked with SABIC Innovative Plastics & GE Plastics for more than 22 years. He has rich Techno- Commercial experience and handled various key responsibilities as a

- Key Accounts Manager – Sales & Marketing.
- Application Development Specialist.
- Technical Services Manager at Mumbai.

He has worked on various segments like Automotive, Electrical, Appliances, Medical and Industrial projects. Successfully developed several Metal to Plastics, Themoset / Glass to Thermo-plastics applications.

Also, worked at Engineering Plastics compounding plant at GE Plastics (now SABIC), Vadodara, Application Development Centre at Gurgaon, GE's Global R&D Centre at Bangalore on various innovative and Patent projects.

Mr. Umang Shah is Immediate past Chairman of Indian Plastics Institute (IPI) – Mumbai Chapter. With this, He is helping Plastics industry and students to organize, seminars, conferences for the latest updates.

Polymer Compounds & Masterbatch from CLARIANT - Helping You Deliver Safe Treatments Globally

Abstract

1. Clariant at a glance.
2. Healthcare Products & Process for

new developments. 3. What is Important/ Interesting for Customers ? 4. PROTECTION of healthcare products:- end to end solutions from API to patient. 5. Focus on Regulatory changes: USP 661.1, ICH Q3D 6. Why CLARIANT ?

Mr. Aditya Kumar, Managing Director, Marco Polo

Use of additive manufacturing technologies for development of medical devices

Amol Chaudhari, Director, Research and Development, SynThera Biomedical Pvt. Ltd.

Introduction :

Education : p.H.D. in Biomedical Science

Professional Career :

1. SynThera Biomedical Pvt. Ltd., Pune, India - Director, Research and Development
 2. Savitribai Phule Pune University, Pune, India - Postdoctoral Fellow
 3. University of California, Davis, USA - Postdoctoral Fellow
- Honors / Awards :

1. Dr. D. S. Kothari Postdoctoral Fellowship (Postdoctoral Position at Savitribai Phule Pune University)
2. Katholieke Universiteit Research Fund (PhD Research at Katholieke Universiteit Leuven)

Publications :

1. Research Papers, Reports: 20
2. Others: 1 PhD Thesis, 6 Conference Presentations

Glass Foam as Bone Graft Material

Abstract :

There is a clinical demand for artificial bone graft materials which has interconnected pores and resorbable structure that stimulate bone regeneration. Bone graft materials of bio-active glasses are very efficient in bone regeneration due to the virtue of bone-stimulating resorption. If porosity can be included in such glasses, then their functionality can be further enhanced due to their possible use as integrated scaffold. One of the commonly used glass manufacturing processes is in-situ polymerization with added glass powder wherein gas-forming (or foaming) agents are used to form bubbles in the solid mass which resembles foam. Glass particles are incorporated in the bulk of such foam. Thus formed foam is then heated to a temperature at which the glass particles fuse together and the foam structure is retained made only of glass. There are many parameters that are required for obtaining suitable foam. In the presentations following points will be discussed:

- Specific applications of glass foam in biomedical field
- Controlling the bioactivity of such glass foams
- Different foaming agents and their effect on the bioactivity of foam

Dr. Sachin Jain, Founder Director, SKYi Composites Pvt. Ltd.

Introduction :

Dr. Sachin Jain is a founder Director of SKYi Composites Pvt Ltd and SKYI Innovation LLP. Sachin studied Polymer Engineering from University of Pune, India, and Masters from University of Akron, OH, USA. He worked on a sponsored project at NASA on nano-composites and bio-degradable polymers. Subsequently, he worked at Dainippon Ink and chemicals Inc. Japan on nano-structured blends of UV-curable polymers for flexible displays and artificial heart transplants. He then continued his studies at Eindhoven University of Technology, Eindhoven The Netherlands. His PhD thesis challenged long perceived theory of Einstein on

filled polymers. His research was cited as "HOT paper" in 2005 in Scientific journal "SOFT MATTER" and awarded with the Golden Thesis Award for his PhD thesis.

He started his professional career at BASF-SE, Ludwigshafen, Germany as a Research Scientist, and later became Director of Research and technology at DSM. In 2015, he founded SKYi as a part of a larger objective of being a global leader providing sustainable solutions in the field of polymer technology. Sachin has accrued more than 27 international patents and has published more than 14 papers; some of his papers have been cited as "HOT" papers by scientific journals. He has also been invited to deliver over 40 high-level academic lectures and presentations around the world. He can be reached at sachin.jain@skyi.com

Bio-absorbable composites for supporting medical implants

Abstract :

The paper presents biodegradable composites which be process as conventional glass fiber reinforced polymers, where polymer matrix is chosen from commercially available environmental friendly bioplastics such as PLA, PBS etc. The reinforcing glass fiber degrades in controlled environment.

Bio-absorbable composites using long fiber reinforcement technology gives high strength and stiffness to material which can replace conventionally used metal supports specially used for orthopedic surgeries. Earlier attempts to use absorbable composites lacked the strength and life for such applications and importantly also the cost. Advances in the medical grade glass fibers combined with SKYi's proprietary long fiber composites manufacturing technology is expected to provide successful alternative. The challenge remains on availability and cost of medical grade glass fibers.

Most importantly, these bio-degradable composites can be processed on conventional injection molding machines.

Lokesh Upadhye, Leister India

Abstract :

Plastics are part of our everyday life. It has transcended in to all aspects of our life including necessities in addition to desires. From diapers to clothing to gadgets to cars to medical devices, plastics is everywhere. As the parts are getting complex, the need to join the moulded components is getting more demanding. The weld must be strong, hermetic with a process that is consistent, repetitive, CLEAN and ECONOMICAL TO RUN.

Laser technology is the cleanest method to assemble plastic parts. There is no particle dust formation. Moreover, it leaves minimal or zero stress behind making it the most suited technique for medical devices. Laser being a focused source of energy can melt plastic in quick time. As it is one of the latest technical advancements, it is expensive than the more established techniques. However, concentrated energy of laser means that we can use fraction of energy of other techniques to melt plastics. Again, laser can be used in different source formats to get the most out of available energy.

Leister, a renowned name worldwide in plastic welding and process heat, is a Swiss origin company that has added Laser and Infra-red technologies to meet customer demands. Leister provides 6 configurations of laser source to suit the part to be joined making it possible to provide an economical, energy efficient, assured technique to weld plastic medical devices. With a pan India footprint of 10 sales, service offices, Leister is committed to be with customers from pre-sales consultancy to post-sales support.

Mr. Rajesh K. Gera

**Asst. Vice President, Business Development
Reliance Industries Limited, PET Division, Mumbai**

PET Plastics Applications in Pharma Industry

Introduction :

Mr. R. K. Gera is working with Reliance Industries Ltd. PET Division based in Mumbai in India since Dec'97. He worked in Marketing Technical Services and Market Development and is currently General Manager Marketing of Western region. He work comprised of Trouble-shooting, Technical Services with current focus on PET Application development for bottles, sheets and strapping.

He is B. Tech in Plastics Technology from H.B.T.I. Kanpur of 1985 batch. His work experience includes L. G. Polymers Vishakhapatnam and FGF Hyderabad in their Technical Services and Market Development Depts prior to joining RIL. He has over 20 years of experience in plastics industry including PET, Polystyrene and FRP.

In L. G. Polymers, he worked on Polystyrene developments, commissioning of EPS processing plants & developing new grades. The major developments in FRP were FRP Underground Petroleum Storage Tanks and uses in automobiles and Railways.

In PET developments, focus is on niche bottle applications including Hot-fill and FMCG sector & non-bottle uses like APET blisters and cartons among others. Today he is going to share with us his views on '**APET Developments**' with focus on possibilities in Pharma and Healthcare sector.

Mr. Aditya Kumar

Managing Director, Marco Polo

Introduction :

Company founded in 1999 and began with offering 3D printing services to the industry using FDM technology. Gradually started services using SLA and SLS techniques and also offering a range of parts using Vacuum Casting and RIM. Over the last 5 years the company has been actively engaged in manufacturing tools and supporting supplies for Injection Moulding.

Personal :

Polymer Engineering from Pune University and masters in Plastics Engineering from USA. Have been associated with 3D printing technology technologies for last 20 years primarily in the field of automotive applications and development of medical devices.

Overview of presentation

1. Brief history of 3D printing
2. Applications for prototyping
3. Various industry verticals using 3D printing
4. Use of 3D printing for medical applications
5. Specific applications in detail including
 - pre surgery models
 - dental applications
 - hearing aids
 - other medical devices
6. Future expectations from the technology