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P. P. Patel & Co.

Editorial

International PM-09, Goa features the latest developments and trends in metal powders and particulate materials, powder metallurgy products and technology trends and developments. 5th. in the international conference series with the theme high performance materials by PM for automotive and engineering industries, the event will take place during Feb.16-18. 2009 at Cidade De Goa resort . Since this is the centenary year of the ductile tungsten in incandescent lamp filaments a brief report of the same is in this issue. We pay our homage to Dr. N. K. Rao , a past president of PMAI. Trans PMAI, Vol34, Dec.2008 and proceedings of the International PM-07 are just published. Other coverage in this issue include the international PM related events and the sponsor company P.P.Patel & Co. Season's Greetings from PMAI.

P.Ramakrishnan

2008 Centenary of Tungsten Filament Powder Metallurgy

PM Ductile Tungsten Filament

The first commercially successful mass produced PM product-ductile tungsten filament was developed in 1908 by W.D.Coolidge of General Electric Corporation's R&D laboratory in Schenectady, New York. Current year marks the centenary of incandescent ductile tungsten electric lamp filament. Second half of the 19th. century was using carbon filament for electric lamps. The search for a more efficient filament material resulted in metal filaments like osmium, tantalum and finally tungsten. Early tungsten filaments -1904, British Patent, were elastic but brittle as in the case of Dr. Just, wolfram of Osram , Fig.1. A breakthrough took place when W.D.Coolidge and his team of General Electric Company successfully produced ductile tungsten by suitable heat treatment and mechanical working that could be drawn through diamond dies during 1908 and resulted in a British Patent 1909. These filaments are shown in fig.2. The Coolidge process for making ductile tungsten and the main features of the process are applicable even today. Billions of meters of tungsten wires are drawn and used in today's incandescent lamp industry. It will be interesting to note that PMAI organized the first seminar of Powder Metallurgy of Tungsten and its products at Bangalore during 1975



Fig.1 : Elastic but Brittle Tungsten Filament



Fig.2 : Ductile Tungsten Filament

Up date PM09

ACCOMMODATION



Cidade De Goa Resort

Vainguinim Beach, Panjim Goa

Vainguinim Beach, Goa.

Phone : + 91-832 245 4545

Fax : 91-832 245 4541

e-mail : cidadedegoa@cidadedegoa.com

Limited Rooms are available in Conference Registration Package. Delegates can register by paying Rs. 60,000 or equivalent for twin sharing basis (2 persons) as conference package which include stay for Three days in the Cidade De Goa Hotel the venue, for the conference period by Checking in the Hotel at 3 pm on 15th Feb 2009 and Check out by 11am on the 18th of February 2009. This package includes airport transfer free breakfast, Lunch and dinner at the hotel in addition to full conference benefits such as Registration for all technical programs, ATM, all lunches, Banquet Dinner, Cruise Dinner, Cultural programs and entry to Exhibition.

The Conference Organiser have blocked limited no. of rooms at discounted rates in the following Hotels for the period of PM 09. These room will be allotted on first cum first basis. Those desires of participating in PM 09 shall book the rooms in advance as it is a festive season in Goa.

Hotel Nova Goa

Hotel Nova Goa is located in the heart of Panjim city (Capital), 10 km. from the Karmali railway station & 29 km. from Dabolim Airport Hotel Nova Goa, is the 3 star Goa's most preferred holiday destination & enjoy the Traditional Goan Hospitality in attentive welcoming warmth. A 3 Star Hotel Centrally Air-Conditioned has 88 Luxurious Rooms with Swimming Pool, Business Centre, A.C. Bar & Restaurant with all other amenities.

For the PM 09 a special rate package is available for **the charges per double room per day, inclusive of breakfast and taxes, after discount would be Rs.2,500.00 or US \$ 55**

Extra Person Rs. 750/- or US \$ 15

These charges cover-

- ◆ Stay on single or double occupancy
- ◆ Airport to hotel transfers at the scheduled timings on request.
- ◆ Buffet Breakfast
- ◆ Free use of Swimming Pool and Gymnasium

Add. : Dr. A.B. Road, Panjim, Goa-403 001.

Tel. : 0832 - 2226237

Website : www.hotelnovagoa.com

Hotel Goa International

Located near Mira Mar Beach in Panjim and is a budget Hotel. The rate offered is Rs. 1000 /- per A/c Double Room for 2 persons per day.

Add. : Tonca, Near Mira Mar Beach, Panjim, Goa-403 001.

Telephone Number : 0832 - 2461104 / 2461186

Sea Homes

Sea Homes close to Mira Mar a Apartment Hotel with 8 beds in each flat with facilities. The rate offered by the Sea Homes is Rs. 160 /- per bed per day.

Address : Hotel Sea Homes, 18 Lake View Colony, Miramar, Panaji Goa 403001.

Mobile Number: 9823100929 / 9822582897 Tel. : 0832 2463085

For Bookings contact :

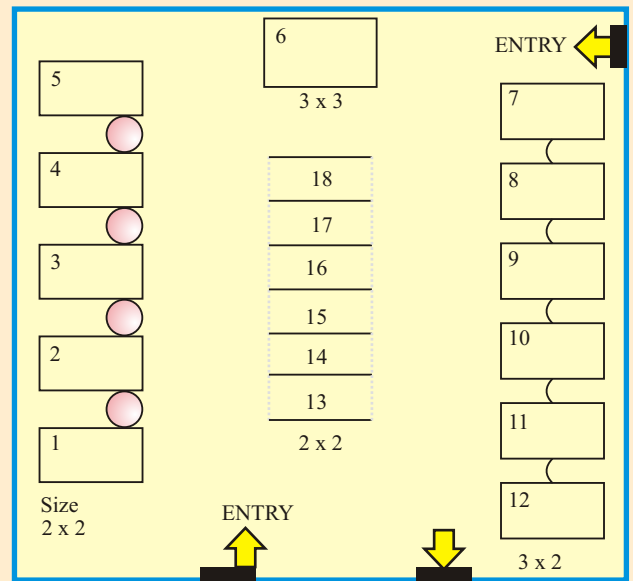
Secretariat, International Conference PM-09

1002, B Wing, Kingston, High Street, Near D Mart, Hiranandani Complex, Powai, Mumbai 400 076. INDIA

Tel. : +91 22 25704588

E-mail : info@pmai.in, pmai_pm@yahoo.com

EXHIBITION HALL LAYOUT



Stalls 13 to 18 are open from both sides.

List of Items to be provided with Stall

No	Details of Item	Unit	Remarks
1	Table	1	
2	Chairs	2	
3	Dustbin	1	
4	Spot Light	2	60 watt each
5	Power Point	2	5 amp each
6	Stall	1	(3 mt) (2 mt) l x 2 mt b x 2 .25 mt h
7	Facia	1	

Do's and Donts for Stall's

a Donts

- 1 No Nails to be used
- 2 No Permanent Colour to be used
- 3 No Permanent Adhesive to be used

b Do's

- 1 Use double sided tapes or norm tapesl
- 2 Kindly give prior requisition for anything extra needed

IMPORTANT

Power in all stall to be provided by hotel Overseas Exhibitors please ensure to forward list of articles to be sent to India for PM09 exhibition in advance by 20 Jan 2009 for completing the formalities of custom clearance.

For Bookings contact :

Secretariat, International Conference PM-09

1002, B Wing, Kingston, High Street, Near D Mart, Hiranandani Complex, Powai, Mumbai 400 076. INDIA

Tel. : +91 22 25704588

E-mail : info@pmai.in, pmai_pm@yahoo.com

Sample Stall



Sight Seeing Tour Programme

North Goa Tour

Covering Shri Saptakoteshwar Temple at Narve Mayem Lake, Bicholim Handicraft Centre, Shri Ravalnath Temple. Fort Aguada, Anjuna Beach, Calangute Beach, Vagator Beach

South Goa Tour

Covering Old Goa Churches - Basilica of Bom Jesus, Se Cathedral, Museum of Christian art, Temple of Shri Manguesh and Shanta Durga, Dona Paula, Miramar Beach.

PM Publications

Powder Metallurgy
For Automotive and Engineering Industries

Editor : **P. Ramakrishnan**, Professor Emeritus
Indian Institute of Technology Bombay,
Mumbai 400 076, India

250 pages | 185mm x 240mm Hardback

ISBN:978-81-7319-934-9 2009 | Rs.490.00

Powder Metallurgy: *For Automotive and Engineering Industries* discusses current status and future potential of powder metallurgy in India, Asia, Europe and U.S.A., and suggests that the technological advances for the growth of powder metallurgy is linked with the global automotive vehicle production. A Large number of powder metallurgy applications in automotive industry including synchronizer systems and connecting rods and future potential alongwith recent developments in CNC compaction and comparison of sintering technologies under the aspect of economy and quality are covered in the book. Articles on special atomization and energy saving technologies for metal powder production which have great potential, structure and properties of super alloys, bronze powders, diamond tool binders, sintering of titanium-titanium nitride nano composite powders, aluminium-silicon carbide, molybdenum-silicon carbide, molybdenum-silicon nitride composite materials are also included in the book.

CONTENTS : Global Perspective in Powder Metallurgy / Powder Metallurgy in Automotive Industry / Production of Metal Powders / Structure and Properties of Special Materials.

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Who's Who in Particulate Materials in India. PMAI Directory compiled by Prof. T.R.R. Mohan
Cost Rs. 250/- now available



Transactions of PMAI,
VOL.34 December 2008
Price Rs.300/-

A NEW TAILORED NANO-SCALED NETWORK-STRUCTURE FOR METALS AT OUTSTANDING MECHANICAL PROPERTIES BY SEVERE PLASTIC DEFORMATION PM PROCESS

Kei Ameyama, Hiroshi Fujiwara and Henning Zoz

DESIGN, FABRICATION AND PERFORMANCE EVALUATION OF A LABORATORY SIZE HIGH ENERGY ATTRITION MILL

K. Gururaj, G. Poshia

Preparation of NanoCrystalline Stainless Steel Powders By Mechanical Alloying

C.S.C. Reddy, A.N. Tiwari, V. Gopinath, M.M. Godkhindi

ON-LINE DENSITY DETERMINATION OF MIM PARTS INSIDE PUSHER TYPE SINTERING FURNACE USING MODEL BASED SUPERVISORY CONTROL SYSTEM

Hill Nandi , Deborah C. Blaine, Randall M. German, and Jerry LaSalle

MICROWAVE SINTERING OF TUNGSTEN

G.Prabhu, Amitava Chakraborty, Bijoy Sarma

SINTERED PROPERTIES OF DUPLEX STAINLESS STEELS IN NITROGEN ATMOSPHERE

R Mariappan, S Venu kumar, P R S Kumar, S Kumaran, T Srinivasa Rao

EFFECT OF HEAT TREATMENT ON STRUCTURE AND PROPERTIES OF P/M EIP 698P SUPERALLOY PROCESSED BY HOT ISOSTATIC PRESSING

U. Prakash and D.V.V. Satyanarayana

MODELING OF THE PRODUCTION TECHNOLOGY OF HIGH-DENSE COPPER FROM A POROUS FIBROUS BILLET

Lyudmila Ryabicheva, Dmytro Usatyuk

MANUFACTURABILITY OF Al-Pb ALLOYS BY POWDER METALLURGY FOR BEARING APPLICATIONS

Ch.V.S.H.S.R.Sastry, Dr.G.Ranga Kamardjama, , Dr. Kim Sun

SINTERED METALLIC DISC BRAKE PADS FOR AUTOMOBILES

G.Babu, Dheeraj Golla

STUDY OF ULTRA FINE ALUMINA REINFORCED COPPER COMPOSITE

Mahesh Kamble, N.B.Dhokey

STRUCTURAL, ELECTRICAL AND MAGNETIC PROPERTIES OF NANOSIZED Ni-Co FERRITE PREPARED BY HIGH ENERGY BALL MILLIN

R. Rakesh Radhakrishnan, G. Sreenivasulu, B.S. Murty

Nano-Crystalline Powders by Solution Combustion Technique Powder Treatment, Characterization and Sintering Behavior- CeO₂ - Y₂O₃ System - A case Study

S. Ramanathan, Rohit Bansal, M.B. Kakade, G.K. Dey and A.K. Suri

Advances in Process Materials for Production of UO₂ Fuel Pellets at NRC

D. Pramanik, Nirmal Santra, Meena Ravindran, G.V.S. Hemantha Rao, R.N. Jayaraj

International PM Events 2009

PM-09 5TH INTERNATIONAL CONFERENCE & EXHIBITION :
February 16-18, Cidade De Goa, Panjim, www.pmai.in

PIM 2009 INTERNATIONAL CONFERENCE ON POWDER INJECTION MOLDING AND WORKSHOP ON MEDICAL APPLICATIONS OF MICRO POWDER INJECTION MOLDING :
March 2-5, Lake Buena Vista (Orlando) FL MPIF*

MATERIALS 2009 5th INTERNATIONAL MATERIALS SYMPOSIUM :
April 5-8, Lisbon, Portugal, www.demat.ist.utl.pt

PM - ASIA 2009 :
April 6-8, 2009 Shanghai, China. www.pmasia2009.com

17TH PLANSEE SEMINAR ON HIGH PERFORMANCE PM MATERIALS :
May 25-29, 2009 Reutte, Austria www.plansee.com

POWDERMET2009: MPIF/APMI INTERNATIONAL CONFERENCE ON POWDER METALLURGY & PARTICULATE MATERIALS :
June 28-July 1, Las Vegas, NV www.mpif.org

THERMEC 2009 : SIXTH INTERNATIONAL CONFERENCE ON ADVANCED MATERIALS AND PROCESSES :
August 25-29, Berlin. Germany

SDMA 2009/ICSF VII-4TH INTERNATIONAL CONFERENCE ON SPRAY DEPOSITION AND MELT ATOMIZATION/

7TH INTERNATIONAL CONFERENCE ON SPRAY FORMING :
September 7-9 Bremen, Germany www.sdma-conference.de

PM 2009 :
October 12-14, 2009 Copenhagen, Denmark www.epma.com / pm 2009

CERAMIC TECH :
October 20-23, 2009 Munich, Germany, www.ceramictech.de

OBITUARY



Dr.Nidamirathi Kondal Rao, a past President of PMAI passed way on22-10-2008. He took over as the second President of PMAI from the founder President late Dr. R. V.Tamhankar and served the Association creditably during 1983 to 1985. He

continued his contributions and support to PMAI. Dr.N.K. Rao, joined the Atomic Energy Establishment, Trombay in the year 1956 . He was responsible for making quality Nuclear fuel for various reactors starting from kilogram quantities to pilot level and industrial scale production at Nuclear Fuel Complex, Hyderabad, where he was the founder Chief Executive. Members of PMAI pay our deepest homage to him.

With Best Compliments From

P. P. Patel & Co.
POWDER METALLURGY DIVISION



Estd. 1933



(AN ISO 9001: 2000 REGISTERED COMPANY)

THE COMPANY :

The P.P. Patel & Co. belongs to Patel family of Ode (Gujrat State). The activity of Powder Division was established and Inaugurated on 19th December 1996 by Dr. Ing. Lothar Albano-Muelle, then President of European Powder Metallurgy Association. P.P. Patel & Co., has considerably grown over the past Twelve years, devoting every year a high percentage of its budget to research & development.

THE UNITS :

The Powder Metallurgy Division of M/s. P.P. Patel & Co. has manufacturing facilities located in a plot admeasuring 16 acres of land 7,00,000 sq. ft at Tamalwadi which is distance of 20 kms. North, from the city of Solapur. On Solapur Aurangabad National Highway.

PRODUCTS ARE MAINLY :

- ◆ Bronze Powders
- ◆ Copper Powders
- ◆ High Green Strength Copper Powders
- ◆ Tin Powders
- ◆ Powders for Cutting and Grinding Tools
- ◆ Zinc and Lead Powders

Mfg. of Metal Powders : Copper, Tin, Bronze, Lead & Zinc

▪ **FACTORY** ▪

Gat No. 363, Tamalwadi, Tal. : Tuljapur, Dist. Osmanabad (M.S.)
Phone No. : 91-2471-265005, 265006.

▪ **OFFICE** ▪

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