



# ASM International, Pune Chapter Chapter News Letter

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Editor - Louis Vaz

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## EDITORIAL...✍



I wish all reader a very Happy New Year 2014. It gives me immense pleasure to release the first newsletter of year 2014. Period of Oct-13 till Feb-14 was especially exciting for ASM Pune. In October ASM Pune was represented by Dr. Renavikar, Dr. Satyam Sahay & Mr. K C Gogate at

ASM International's Centenary Year Celebration at Montreal - Canada. Dr. Sahay member of ASM Pune received Fellow of ASM (FASM) award. In Nov-13 a Technical Session was jointly organized with Eurotherm & SV Controls on "Heat Treatment - Global Trends, Regulatory Compliance & Solution & Process & Power Control and Data Management Solutions". In Dec-13 Prof. Ravi Ravindran - Chairman of ASM International visited ASM Pune Office, COEP & ARAI. He gave a presentation on "Research Opportunities in Light Metals" & "My Vision about ASM". It was pleasure to receive him and interact with him. In Jan -14, I attended India National Council meeting at Bangalore on behalf of ASM Pune. All other chapters were thrilled to hear about activities and achievements of ASM Pune. A technical presentation on "Process Innovation in Secondary Steel Making at Jailaxmi Castings & Alloys". Session was delivered by A K Sinha Executive Director - Jailaxmi Castings & Alloys. Training program on "Metallurgy for Non Metallurgist" was conducted at Kalyani Center for Technology & Innovation for 50 employees of M/s Bharat Forge.

In Feb-14, Dr. Prabhat Kumar FASM delivered a ASM - IIM lecture on "Refractory Metals-Introduction, Recent Developments and Application" at COEP and also conducted a workshop on "Refractory Metals - W, Ta, Mo, Nb".

Many more programs are scheduled in month of Feb and also in coming months. I had started participating in Pune Chapter activities in 1997 and seen the emergence of an active chapter. I Urge all members to actively participate to create & sustain a Vibrant ASM International Pune Chapter.

**L.D.Deshpande, Editor**

A warm Felicitations & Welcome Reception in honour of Prof. Ravi Ravindran - President of ASM International USA" was held at ASM, Pune Chapter on 26th December 2013. Prof. Ravindran spoke on "Research Opportunities in Light Metals" & "My Vision about ASM" The talk was well received by the members and well wishers.



**Prof. Ravi Ravindran,**  
**FASM**  
**President ASM**  
**International (2013-2014)**

Prof. Ravi Ravindran, FASM is Professor of Advanced Materials and Manufacturing Processes at Ryerson University and Director of the Centre for Near-net-shape Processing of Materials (CNPM). Ravi has been involved with metal

casting for more than 40 years, a unique combination of industrial (16 years) and academic experience (20+ years). Prior to his academic career, he was the Group Vice President of a multinational corporation manufacturing automotive castings and stampings with direct responsibility for Research and Development, Quality and Engineering at three major companies in USA and Canada (1985-89). This was preceded by senior administrative management position in steelmaking, continuous casting and rolling (1973-1984). His focused interest is in light alloy castings for automotive applications, and he has won accolades from AFS for outstanding contributions.

Ravi is widely recognized for excellence in collaborative research and technology transfer. He is a Fellow of ASM International (1994) "for innovative research in the areas of aluminum alloys and continuous casting of steels". He is a Fellow of several societies including Canadian Academy of Engineering, AAAS, Indian National Academy of Engineering, Canadian Institute of Mining, Metallurgy and Petroleum and Engineers Canada (CIM) in recognition of innovative research in steel making, continuous casting, near-net-shape casting processes for cast irons, aluminum and magnesium alloys and professional leadership. Professor Ravindran is the recipient of the 2012 Ryerson University Chancellor's Award of Distinction and the 2013 CIM-MetSoc Award for Research Excellence. He was awarded 2012 Engineering Research and Development Medal of Professional Engineers Ontario. Professor Ravindran is a Past President of the Canadian Academy of Engineering. He was Co-Chair, 2008 International Convocation of the Council of the Academies of Engineering and Technological Sciences (CAETS).

Ravi is a Past President of ASM Canada Council, and received the 1995 G. MacDonald Young and the 2004 M. Brian Ives Lectureship Awards. ASM honoured him with the Allan Ray Putnam Service Award. He is a Distinguished Life Member of Alpha Sigma Mu, the International Honor Society for Materials Science and Engineering. He is the founding chair of ASM Materials Camps Canada.



## Felicitation & Welcome Reception in honour of Mr Shrikant Marathe Director ARAI

Pune Chapter Chairman Mr B R Galgali welcoming Mr Shrikant Marathe during the training program



## Appeal from ASM Pune to Members

ASM international sends AMP (the monthly magazine) to Members. Those who are not getting AMP, Please send email to ASM International Pune Chapter.

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"Members who have not paid their Annual Membership fees may please do so."

## ASM International's Centenary Celebrations in Montreal



Indian delegation at ASM International' Centenary Celebrations, with Mr. Thomas Passek, MD (ASM International)

ASM International celebrated its Centenary year in grand way in Montreal, Canada in the week 27th thru 31st October 2013. The event began with a Gala Dinner on Sunday, the 27th, followed by Awards Night Dinner on 29th October, where number of prestigious awards like FASM, Honorary Membership, Distinguished Life Membership etc were given away to the distinguished ASM members. Dr Satyam Sahay of Pune Chapter and Dr. Kamachi Mudali of Chennai Chapter received Fellow of ASM (FASM) award, while Distinguished Life Membership was conferred upon Dr. H.M. Mehta, Founder Chairman of ASM International India. Our heartiest congratulations to all of them!!

Ten member Indian delegation from Pune, Mumbai, Chennai and Gujarat was present to witness this lifetime event. Dr. P.G. Renavikar, Mr. K.C. Gogate and Dr. Satyam Sahay from Pune Chapter were part of the delegation. The delegation had fruitful discussions with the President, Dr. Maurer, Incoming President, Prof Ravi Ravindran, Incoming Vice president, Managing Director, Mr. Thomas Passek and other Trustees of ASM International on several issues pertaining to Indian Chapters.

... Contributed by Dr. P.G. Renavikar.



### Heat Treatment - Global Trends, Regulatory Compliance & Solution & Process & Power Control and Data Management Solutions

A technical Presentation on Heat Treatment - Global Trends, Regulatory Compliance & Solution by Mr. Peter Sherwin and Process & Power Control and Data Management Solutions by Mr. Tim Linnel of Eurotherm, in association with ASM International, Pune Chapter and was held on 21st November 2013.



#### The topics covered were :-

**Heat Treatment** - A global perspective. Insights and predictions based on the recent ASM show in North America and recent analyst reports on the Industry.

**Process Control** : Control Products, PID Control & Its Value Proposition  
**Data Management & Regulatory Compliance** : Secured Data Recording, 21 CFR Compliance & Its Value Proposition.

**Power Control** : How Can Eurotherm help Power Factor Improvement, Energy Saving & Its Value Proposition.  
**Introduction of Versadac** : Scalable, Multichannel, Expandable Data Acquisition System

**Introduction of Epack** : Intelligent, Flexible, Compact Power Controller

### Process Innovations in Secondary Steel Making

A technical Presentation on Process Innovations in Secondary Steel Making at Jailaxmi Castings & Alloys in association with ASM International, Pune Chapter and was held on 29th Jan 2014



Mr. A.K. Sinha delivering the technical Presentation

Mr. Arvind Kumar Sinha, Executive Director, Jailaxmi Castings and Alloys, Aurangabad, took the packed audience, of Engineers and technocrats, through the presentation. One such innovation was implementation of first of its kind, LD converter in combination with induction melting and also first Vacuum Degassing plant in India with dry pumps (Without Boiler).

### Refractory Metals - Introduction, Recent Developments and Application" by Dr. Prabhat Kumar

ASM International Pune Chapter and Indian Institute of Metals organized a Lecture at Pune on "Refractory Metals - Introduction, Recent Developments and Application" by Dr. Prabhat Kumar, on 3rd February 2014.



Dr. Prabhat Kumar delivering the technical talk

**Workshop on Refractory Metals**  
 College of Engineering, Pune, along with ASM International Pune Chapter, and Indian Institute of Metals, organized a workshop on "Refractory Metals - W, Ta, Mo, Nb" by Dr. Prabhat Kumar on 4th February 2014

This workshop was primarily for faculties and graduate students of College of Engineering.

### Metallurgy for Non Metallurgists Training Camp



"Participants and Faculty Members for Metallurgy Non Metallurgists Training Camp"

Participants and Faculty Members for Metallurgy for Non Metallurgists Training Camp

Metallurgy for the Non Metallurgist Training course was conducted by ASM International, Pune Chapter for M/S Bharat Forge at their "Kalyani Center for Technology and Innovation" from 27th to 29th January 2014. 50 Employees attended the programme. EC Members of Pune Chapter and Dr. Rajkumar Singh, Director, KCTI conducted the programme which was appreciated by the Trainees.

.... Contributed by Mr.K.C.Gogate.





## TUFRAM FAMILY OF "SYNERGISTIC" COATINGS

- FC-12: Special combinations of polymers and dry lubricants allow low COF
- H-2 : Maximum hardness (Rc 60 - 65).
- HCD-31: High dielectric strength.
- H-O: Hard (Rc 40-50), wear resistant, dry lubricated surface. Good release. USDA/FDA/CFIA-compliant
- H+: High strength aluminum (T-6) maintains maximum hardness, corrosion resistance and lubricity.
- L-4 : Minimizes "stick/slip".
- R-664 : Permanent mold sealing surface release. USDA/FDA-compliant.
- 604: Chemical resistance and mold release. USDA/FDA-compliant.
- 608: For rubber and food applications. Durable, abrasion resistant. Dark green in color, USDA/FDA-compliant.
- 611: Tough. Easy to clean. Available in colors. USDA/FDA-compliant.
- 615: Maximum release properties. Operating temperatures to 5500F (2880C). Sparkling black or white color. USDA/FDA compliant.
- 641: Excellent release for food and drug packaging, molding and manufacturing applications. Grey in color, USDA/FDA compliant.
- 2000: Excellent thermal conductivity. Effective dielectric barrier. For complex shapes. USDA/FDA compliant

## NEDOX

"Synergistic" Surface Enhancement Coatings Protect Most Metals - Including Aluminum - Against Wear, Corrosion, Sticking and Galling

*By Shrikant Bhawe*

All types of metal parts, including those made of aluminum, are treated with NEDOX to create a harder-than-steel, self-lubricating surface that resists corrosion, friction, sticking, galling, and static buildup, and exhibits superior mold release as well. The General Magnaplate-applied process improves parts made of less durable and/or less costly metals by adding physical properties that permit them to out perform and outwear even chrome and stainless steel. Because NEDOX-treated surfaces are superior in performance to the base metal itself or to any of the individual components used in the enhancement process NEDOX coatings are considered "synergistic."

MSFC Handbook 527F (NEDOX SF-2), Johnson Space Flight Center #D9604F

### Advantages:-

- Dramatically increase surface hardness
- Resist corrosion, chemicals, and acids

- Prevent abrasive wear and galling
- Self-lubricating for extended wear
- Provide superior mold release
- Meets and exceeds requirements for ASTM B656 and ASTM B733
- Permanently dry-lubricated for very low COF
- Many meet NSF, FDA, USDA, and CFIA codes
- Speed cleanup and sanitation maintenance
- Eliminate sticking and product "hang-up"
- Ideal for cryogenic uses down to -250°F (-157°C)
- Prevent galvanic corrosion with incompatible metals
- Won't chip, peel or flake off like "paint-ons"
- NASA material #20386\*
- ITRA and REACH Compliant

## Engineering Data and Performance Characteristics

### Wear resistance

Hardness is up to Rc 68 (940 Vickers scale) - better than hard chrome plate. There is no degradation of fatigue strength. NEDOX coatings also eliminate the likelihood of galling or seizing.

### Corrosion resistance

NEDOX "synergistic" coatings are superior in corrosion resistance to chromium or standard electrolytic-nickel plated coatings. A 0.001" coating shows little or no corrosion after 14 months of continuous exposure to atmosphere and salt water. Good resistance to most common chemicals. Certain coatings show no effect after 90 days immersion in pH 3.0 - 9.5 solutions. Some NEDOX coatings are especially resistant to phosphate-free bleach used in washdown solutions in food processing and packaging operations. NEDOX coatings on aluminum also provide resistance to a wide range of chemicals.

### Versatility

With few exceptions, NEDOX coatings can be applied to parts of any configuration, any weight, virtually any size or thickness, and almost any metal (including aluminum) Precise control of coating thickness permits use on machine threads and similar close-tolerances

### FDA/USDA/CFIA

Compliance with FDA, USDA, and CFIA codes makes many NEDOX coatings advantageous for food and pharmaceutical applications. These non stick coatings eliminate the potential growth of mold and bacteria by creating a dense, non-porous surface. They are used extensively on processing, packaging and handling equipment to prevent product residue from clinging to machinery and add the benefits of quicker equipment clean up and sanitation maintenance.

### Non-stick release properties

Very few solid substances, even adhesives, adhesive backed products or glues, will permanently adhere to the proprietary polymer-impregnated surface of a NEDOX coated part. Most substances, such as plastics, rubber or slurries, release easily.



substances, such as plastics, rubber or slurries, release easily. Some extremely tacky materials may exhibit mild temporary adhesion.

**Thickness:**

Typical normal surface deposition is "0.0002" - 0.002"/ side and is based upon thickness requirement and coating formulation.(See section describing NEDOX FAMILY OF "SYNERGISTIC" COATINGS)

**A few typical applications**

Aircraft, aerospace, chemical processing equipment, electronic equipment, food processing, heat sinks, meters (gas & electric), molds (release media), packaging equipment, pharmaceutical processing, pumps, sealing equipment, textile manufacturing, and valves.

**NEDOX FAMILY OF "SYNERGISTIC" COATINGS**

- SF-2: Hardness (up to Rc 65) combined with lubricity. USDA/FDA/NSF/ AgriCanada-compliant. NASAMaterial#20386\*.
- SF-2R: Same as SF-2, but with superior mold release. USDA/FDA/NSF compliant.
- SF-2SB : Resists bleach washdown solutions and lactic acid from dairy equipment. USDA/ FDA- compliant.604 Maximum chemical resistance, mold release, and abrasion resistance. High dielectric strength.FDA-compliant.
- 615: Maximum release properties. Operating temperatures up to 550°F (288°C). Sparkling black or white color. USDA/ FDA-compliant.
- 641: Excellent release for food and drug molding and manufacturing applications. Grey in color, USDA/FDA-compliant
- NH-2: Hardness of coating can be varied for excellent corrosion and chemical resistance..
- CR+: Maximum wear resistance. Hardness up to an equivalent of Rc 68. Maximum salt spray FM-5 : Special combination of proprietary polymers and dry-lubricants. Low coefficient of friction after burnishing.

- MR-3(U-4): Excellent mold release for plastics, urethane epoxies and rubber. Black color. Recommended for UV curing.
- NH-1 Excellent for resistance to wear and corrosion. Hardness of coating can be varied based upon specific requirements.
- NH-1SB : Same as NH-1, with superior corrosion resistance to chlorinated solvents.
- HTR : Excellent release properties at high temperatures.
- SLK : Combines release properties of 615 with the wearproperties of SF-2. USDA/FDA-compliant.

Licensee of General Magnaplate (USA) in India

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**Shrikant Bhave**

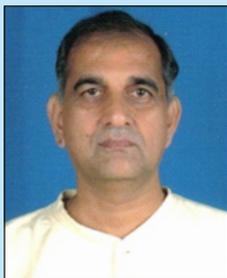
Proprietor of Electrochem and Partner in Plating Engineering

Professional Qualifications and area of work done:

Graduate in Metallurgical Engineering from COEP. Has been working in the field of surface coating and surface engineering for last 30 years. Has closely worked with companies in USA and Sweden related with surface coating technologies and manufacture of plating equipments.

.....compiled by Louis Vaz

**Know Our Member**



**Dattatreya Laxman Joshi**

**Dattatreya Laxman Joshi** is a graduate in metallurgical engineering from Indian Institute of Technology Mumbai. He was president of the Heat treatment business at Unitherm Engineers Ltd. Joined Bodycote Metallurgical Services as Business Development Manager. At present working as Head of Metallurgy and Customer Support at M/SRIJ Engineers Pvt. Ltd. He has commissioned a number of atmosphere furnace plants consisting of SQF's , Endo gas generators, Washing machines, air tempers etc. in various parts of India and one in Ukraine, as a senior manager, customer support at Unitherm. During this period he has worked closely with many heat treatment service customers and metallurgists.

He has worked with automobile manufacturers M/S. Force motors Ltd. And M/s Bajaj Auto Ltd. In their heat treatment facilities.

He has been setting up new heat treatment capacities and making these technically and commercially successful for many years.

He can be contacted on 09604288122.