



Society for Surface Protective Coatings India

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NEWS BULLETIN

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Retd. IIT Bombay

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Advance Paints Pvt. Ltd.



Dear Friends

I am very happy to present to you the first issue of News Letter in 2019 which has been delayed due to the organization of 14th International Conference in March 2019. You

will see the detailed report of the 14th Int. Conference in this issue. We are reproducing atleast two articles from the conference one on Global Paint Market and the other on the suitable single coat application for aggressive environments. The 14th International Conference was a great success which focused on the essential paint coating topics and was attended by over 325 participants including 41 students. The new format of the conference was highly appreciated as it covered discussions and latest information on 8 important topics.

Another important outcome of this conference is new collaboration with M/s Chemtech who have invited SSPC India to conduct parallel Conferences/Seminars/Worshops during various Chemtech shows and EXPO's. We are going to have first such workshop in Hyderabad during Dec. 4-6, 2019.

Our next Course on Paint Coating inspection and quality control is from June 3-6, 2019. Kindly register for that the earliest.

Another Good News is that SECC has now got NABL Accreditation.

Thanks

Prof. A.S. Khanna
Chairman - SSPC India



The Society for Surface Protective Coatings, India

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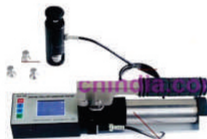
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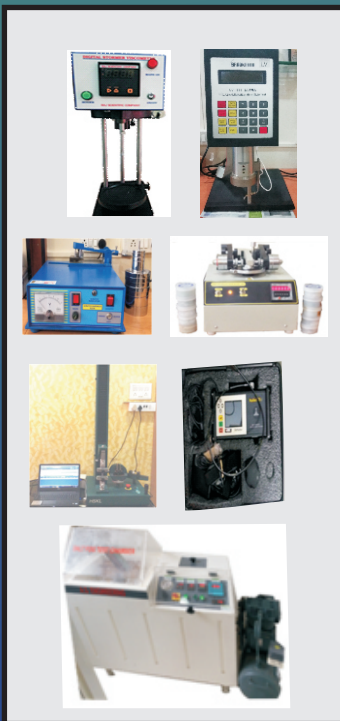


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New Organizing Committee Member of SSPC INDIA

During AGM Meeting of SSPC India Held at the Acres Club, Chembur on April 21st, 2017, new organizing committee have been formulated keeping members from industries in balanced manner.

The Name of the new organizing committee members are

Chairman

Prof. A.S.Khanna	<i>Retired IIT Bombay</i>
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Vice Chairman

Mr. Amrit Rekhi Mr. S. Ravichandran Mr. K.G.K. Moorthy Mr. Dharendra Singh	<i>Kansai Nerolac Paints Ltd</i> <i>Berger Paints India Ltd.</i> <i>SSPC Southern India</i> <i>Akzo Nobel Coatings India</i>
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Hon. Secretary

Mr. Neerav Thacker	<i>Unique Speciality Chemicals</i>
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Hon. Treasurer

Mr. K.J. Aiyangar	<i>Advance Paints Pvt. Ltd.</i>
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Members

Mr. N.H. Jani Mr. H.S. Shankar Mr. Ajay Sagar Mr. P. Hari Kumar Mr. Sanjay Chowdhury Mr. Ishan Raveshia Mr. B.B. Jha Mr. Santosh Kumar Mr. Hemant Moghe Mr. Sujit Sinha Mr. S. Mahadevan Mr. Vijay Bhamburkar Dr. Ramanuj Narayan Mr. Manoj Patil Mr. Rahul Sharma Mr. Gokul Sutradhar	<i>Ajanta Surface Treatment</i> <i>Clean Coats P. Ltd.</i> <i>J.K. Surface Coatings</i> <i>Carboline India</i> <i>Berger Paints India Ltd.</i> <i>Voxco Pigments & Chemicals</i> <i>CSIR, Kolkata</i> <i>OCS Services (I) Pvt. Ltd.</i> <i>Kansai Nerolac Paints Ltd.</i> <i>Grauer & Weil (India)</i> <i>Metcon Coatings & Chemicals</i> <i>Shivshakti Paints</i> <i>IICT, Hyderabad</i> <i>Demech Chemicals</i> <i>Director-India, International Zinc Association</i> <i>Shalimar Paints ltd.</i>
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Secretary's Message

Dear Members of SSPC India,

Warm greetings for the month of May.

First of all, I would like to thank each one of you for your participation and contribution in making the 14th International Conference 2019 a great grandsuccess.

I'm glad to present to you this newsletter which provides insights about the **14th International Conference 2019** in form of detailed report.

I am sure this event provided you an opportunity to gain knowledge about the most innovative technologies, applications& know how on Indian Paint & Coating Industry.

I am sure you too enjoyed the Networking and interactions you ad during the 2 day seminar.

In addition to all this, as the Mumbai Indians bring home the IPL cup, we bring you news of “**NABL Accreditation**” for SECC LAB as informed by our Chairman Prof. A S Khanna.

I request members to spread word of mouth for 100% utilisation of professional services rendered by SEEC Lab, details can be found on its website www.seccclab.com

Appealing members and first time readers to send us your company profile with writeup in form of technical papers and/or/ advertisements to enable us take this newsletter forward on quarterly basis.

SSPC India membership (Individual) is available at a cost of Rs. 7000/+ GST only for LIFETIME.

Neerav Thacker
Unique Speciality Chemicals
(Secretary)

**3 Day Certification Course (Level 1) On Paint Coating
Inspection & Quality Control Scheduled On January 3-5, 2019**



**3 Day Certification Course (Level 1) On Paint Coating
Inspection & Quality Control Scheduled On March 4-6, 2019**



Four Day Certification Course on Paint Coating Inspection & Quality Control September, 2019 (Level 1 & 2)

SCOPE

With thousands of paint formulations, available from various manufacturers, and a lots of new sophisticated Techniques of paints application and surface preparation, paint coating has become a science and art, and every

Person, whether he is a user, supervisor, applicator, supplier or manufacturer needs a proper knowledge in order to get maximum life out of a particular paint formation. Further, paint testing has become necessary both at the pre-qualification stage, during the application and even after the paint has been applied for periodic assessment of its life. Since a large number of paint suppliers, users, supervisors do not have a formal education on paint coatings, education and training through these courses has become necessary to take best out of paint coating.

What information you require?

Theoretical Knowledge

Level 1 Course

1. Fundamental knowledge of Corrosion
2. Basic of paint coatings and chemistry of various kinds of paints, resins, and formulations, their relation to corrosion protection.
3. Conventional and advanced coating systems.
4. Surface preparation methods with latest standards and specification.
5. Paint Application techniques and best application practice mantras.
6. Reasons for Paint Failure and its Mechanism.
7. Paint repair and rehabilitation – maintenance Coatings.
8. How to write paint specifications.
9. Safety aspects in paint coating application.

Level 2 Course

1. Integrity Management & Coatings for Underground Pipelines
2. Coatings for concrete structures
3. Corrosion Problems in Chemical Industries
4. Coatings for Offshore structures, refineries & Chemical Plants

Practical Training

1. **Surface preparation** – Each participant will be asked to carry out surface preparation using blast cleaning Method, asses its cleanliness as per NACE/SSPC/Swedish Standards and also measure its surface profile.

2. **Paint Application** - Various methods of paint application ranging from brush, roller, air-spray, and airless spray will be demonstrated and each applicant will be asked to prepare his own sample.

Paint testing – Divided into following three categories:

1. Paint Characterization - % Volume solid, total non volatile component, density, viscosity, drying time, surface coverage, paint wastage calculations etc.
2. Mechanical Testing – Adhesion, Pull off Strength, impact, abrasion, scratch, flexibility, hardness test etc.
3. Chemical Resistance – Salt spray, humidity, weathering and immersion tests.
4. Miscellaneous Test – Cathodic Disbondment, moisture/water permeability, high and low temperature resistance.

WHO SHOULD ATTEND

This programme is designed for persons interested in broadening their theoretical and practical knowledge about Coating and Linings, including Manufacturers, Plant Maintenance personnel, Engineers, applicators, Contractors, Architects and sales & marketing personnel's.

WHAT YOU WILL TAKE HOME

Lecture notes in bound volume, list of recommended practices for coating and linings, literature for various coatings and list of important books and technical papers on coatings. Information on the available coating from some manufactures in the country and abroad.

COURSE FEE

Rs. 25,000/.+ 18% GST for Level 1

Rs. 28,000/.+ 18% GST for Level 1 & 2

REGISTRATION

Please send the duly filled registration form along with the **Cheque /Draft in favor of "SSPC India"** at least 1 month in advance. Cancellation in genuine cases will be allowed with 50% refund. There are limited seats (50) and would be allotted on the first come first basis.



The Society for Surface Protective Coatings, India

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SSPC Southern Chapter

Dear Members,

It gives me great pleasure to extend my warm greetings to everyone who is gracing this conclave with their presence. In particular, I would like to extend a warm welcome to all the new members of S S P C. SOUTHERN INDIA.

I express My sincere thanks to all members of SSPC southern India, who have with their efforts and their presence at this event, ensured the success of the same.

It is greatly gratifying to see the enthusiastic support that this event has generated from members, supporters and visitors alike. My special thanks goes to all the new members for their whole hearted, "on the spot" support to SSPC Southern India, because of which we could execute this event within such a short time span, starting with Chennai and then going onto Bangalore and Kochi.

SSPC (Southern India) had made an extremely promising start on April 18 and within a short time, marked Its presence at CHENNAI, TRICHY, BANGALORE, MANGALORE, HYDERABAD, VIZAG, VIJAYAWADA, KOCHI, CALICUT and TRIVANDRUM.

I am sure that all information exchanged, discussions, interactions and networking at this conclave will definitely help in enhancing the knowledge and working methods for all the active participants.

While wishing for this conclave to be a huge success, it is my humble request to all members to whole heartedly and sincerely extend their valuable support to SSPC SOUTHERN INDIA, which has just started taking its baby steps. Your support will ensure great future success for this illustrious body.

I am very happy to welcome the following as Vice President for SSPC Southern Chapter.

1. Col. U. Ganesh Kumar - Chennai, Tamilnadu, 2. Mr. Anwar Husain Trivandrum, Kerala
3. Mr. Ravishankar, Bangalore, Karnataka

I sincerely wish this CONCLAVE a grand success!!!!



K G K Moorthy
President
SSPC Southern India, Chennai

Membership List

Sr. No.	Name	Company Name	Card No.
1	Mr. K.G.K Moorthy	Cera Chem Private Ltd.	M-ML-74c
2	Mr. Gangadharan Manari	Totale Global Pvt. Ltd.	M-ML-75
3	Mr. S. P. Srinivasan	E S Consultancy	OM-692
4	Mr. K. M. Agastine	A and A Enterprises	OM-693
5	Mr. C. Shiva Thanu Pillai	Associste Director IGCAR	OM-694
6	Mr. Ganesan	NIIT Calucut	OM-695
7	Dr. Aravindan	Structural Consultant	OM-696
8	Mr. T.D.Prathaban	Cera Chem Private Ltd.	M-ML-76
9	Mr. Ravishankar M	Dura Materials and Services LLP	M-ML-77
10	Mr. P. Santhosh	Padmaja Engg. Services (P) Ltd.	M-ML-78
11	Col. U Ganesh Kumar	Padmaja Systems & Services Pvt. Ltd.	M-ML-79
12	Mr. K.T. Ilango	Surface Treatment Consultant	M-ML-80
13	Mr. R. Thangaraj	NU-Tech Rubbers & Plastics	M-ML-81
14	Mr. P. Raghunath		M-ML-82
15	Mr. S. Anwar Hussain	Formerly Deputy Chief Enginee	M-ML-84

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Low voltage Pinhole Detector



GERMANY
Sheet Metal, Corrosion



GERMANY
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A Report on the 14th International Conference on Surface protective Coatings

The 14th edition of the Surface Protective Coating Conference was held on April 11-12, 2019 at CIDCO Convention Centre, New Bombay. Along with the conference, there was also a Paint Expo. More than 325 delegates, including 41 students, registered for this twin event. The Technical program consisted of three Keynote talks which followed 7 Technical Sessions with Expert panel Members. The topics of various panels were: Reinforced Corrosion Protection Solution – Coated Steel Bars vs Steel/Stainless Steels, Paint Raw Materials, Graphene – The Wonder Material, Paint Training, inspection- under broad topic of Skill Development, Smart and functional coatings and the last session was on Coatings for highly aggressive environments. Paint Expo had more than 35 stalls, represented by various paint manufacturing companies, companies dealing with raw materials, paint equipment manufacturer and dealers, new functional coatings etc. There were in total 24 sponsors and 15 exclusive Stall owners.

The program started with an opening remark by Neerav Thacker, Honorary Secretary of SSPC followed by Welcome address by Prof. A.S.Khanna, Chairman, SSPC India. In his welcome address, he mentioned about the activities of SSPC in the last two years and also informed participants about a new activity – The Surface Engineering and Coating Consultant – a Reliable paint testing laboratory and consultation and advisors to industry. He also talked about Indian Paint market which stands today at 65000 CR and told that inspite of two factors such as Demonetization and GST, paint market has done well and the market growth till 2023 is about 8%. There was another important announcement made by Mr. Hemanth Shetty, the next speaker inviting SSPC India to organize jointly the conferences along with Chemtech Exhibitions. Mr. K.J.Aiyengar gave a vote of thanks



Keynote Talks

Three keynote talks were presented next. The first was on the Global Paint Market with Indian Scenario by eminent Speaker Mr. Mukund Devnani from Frost and Sullivan. In a very lucid manner, he described the International market which stands at US \$ 1.58 b and then told that 50 % of the share goes to booming Asia Pacific. In Asia Pacific, after China, India comes next with a growth rate of about 8% for the next 5 years. He

then described the drivers of the paint coating market and also emphasized on functional coatings with nanotechnology, green coatings, sustainability and smart coatings as the main drivers.

In second Keynote talk, Dr. Shubh Gautam, CTE of American Precoat, California talked on Genesis of Innovation in Coatings. He emphasized that we have to work for tomorrow thus Innovation is the only way. He also told that that the need of the hour is to make coatings which not only protect the substrate but also do a specific function, such as self-cleaning, self-healing, anti-bacterial, anti-glare, anti-icing etc. In the third Keynote talk, Mr. Sebastien of ASCOTEC, France talked about The Development of Anti-corrosive Coatings in an Regulatory environment. He basically described how the new coating development can take place keeping low VOC or use of water as solvent. He described the method of synthesis of this coating and also characterized it with several techniques.



Summary of Various panel Discussion's

Panel 1 - Market of Paint Coating – Panel Members : Mr. Amrit Rekhi, VP Kansai Nerolac, Mr. H.Shankar, MD Clean Coats, Mr. Suresh Nair – VP Shalimar Paints, Mahesh Aradhaya – Grauer& Weil, Sanjay Choudhary- VP Berger Paints and Dhirendra Singh- Akzo Nobel, India

On asking whether Demonetization and GST has affected Paint Market of Kansai, Mr. Rekhi said that there was no effect as there were several other factors which were positive. He also told that Kansai is trying to increase the share of Eco-friendly, green and sustainable technology for paints. Kansai was

congratulated for opening a state of the art R & D center in Turbhe. Mr. H.Shankar admitted that though he does not have a dedicated R & D, his long experience and nag on various formulations and a good knowledge is responsible to achieve certain specific properties to make high performance and long durable paint systems. Suresh Nair told that inspite of some fire accidents twice in the factory as well as a big exodus of many experienced persons leaving Shalimar, it has now established once again and its market has picked up well and R & D is working in efficient way. On a question why inspite of more revenue earning in comparison to Kansai, the net profit after tax is lower for Berger, it was told by Mr. Choudhary that Berger has much deeper reach to clients and their marketing is much superior. He also told that yes the Industrial paints may have lower market but they have established products in marine. Mr. Dhirendra Kumar told that Akzo is one company which introduced several industrial coatings in India and even today they have a biggest share in industrial paint systems market.



Panel 2 – Topic Reinforced bar Corrosion – Coated Rebar vs Steel/Stainless steels – consisted to RajanBahri – PSL, Rahul Sharma- International Zinc, Satya Bodha – MittleCorporation, Paramjit Singh – OutokumpuSteel and Samir Surlekar – Assess Build Chem Pvt. Ltd.

Prof. Khanna, who was the moderator for this session and he gave an over view of the various, technologies in reinforced rebars used in concrete structures, viz., TMT bars, CRS bars, IPnet, CPCC, FBE Coating, and steels. Mr. RajanBahri, when asked about the two main limitations of FBEC, that is 13% Lower Bond strength and damage during handling, confirmed very confidently, it was a myth. As till today PSL has participated in 855 structures and the oldest structure is 20 year old, there is no complain about distress of any structure not to say about

any major failure. When asked to Rahul Sharma in spite of the fact that Galvanized rebar is better technology, though 5-6% costlier than FBEC, why it has not picked up in India so far. Mr. Sharma replied that many galvanizing companies are so busy in their on going alternative galvanizing work that they are not pushing this technology, however they are ready if order comes to them. Mr. Bodha's company was first to introduce SS rebars and their (410L) is now recommended for Ambedkar Statue project and is working fine and it is expected to give 120 years of life. Mr. Paramjit Singh from Outokumpu feels, in Onshore and offshore structures, only lean Duplex 2304 be used as in the presence of Mo, the chromia passive layer becomes more stronger to be attacked by chlorides. Samir told that any RCC structure must be coated on the cover by an anti-carbonation coating, if applied in C3 – C5 environment and if the environment has other pollutants such as chlorides, SO₂ etc. a modified epoxy system can be better.



Panel 3 – Raw Materials - Mr. Mukesh Bhutta – Expanded Polymers Ltd., C. Karthikeyan – Dow Chemicals, Ishan Raveshia – Voxco Pigments and T.Ikura – Kusumoto Chemicals and Bharat Dadia – Doall Corporation

Mr. Bhutta first discussed in details various applications of Polyurethane and then he told about the Global PU market which according to him is 7078 KT in 2017 and the Indian market lies at 635 KT. He then described the Polyurethane Chain and the main raw materials used in PU making and main PU products formed and finally the end user market. Karthikeyan identified three power market

leading segments : Performance materials and coatings, industrial intermediates and infrastructure and packaging and specialty plastics. He told that the ground breaking offerings to paint coatings are :all acrylic binder for latex paint, associative thickeners elastomeric binder, waterborne direct-to-metal binder, hollow sphere pigment technology, Isocyanate free urethane technology with ambient cure and Formaldehyde abatement technology. He further said that their water-based acrylic emulsion technology revolutionized the global paint industry, and was named a historic chemical landmark by the American Chemistry Association. Ishan Raveshia talked about the Global Pigment market and that in India. He is manufacturing various kinds of Yellow pigments which are called inorganic pigments but they usually have Pb impurities. They are now in the process of manufacturing organic pigments. One of their yellow pigment is very effective in SO₂ environment. Mr. Ikura discussed about a range of additives used in various paint applications.



Panel No. 4 Graphene – A Wonder Material – Panel Members – Choi Beak Beon from Standard Graphene, South Korea, Sisir Mantry- IMMT, Bhubneshwar, Ravi Mohan Dabral- OCSIAL, R.S.Mishra, Asian Paints, Ravindra Puri– IICT, Jalgaon and R.Baloji- NMRL, Ambarnath

Mr. Choi started with a success story of Industrial Scale manufacturing of Graphene (Graphene Oxide) using Chemical Method and claimed theirs is the 1st company which produces more than 1 ton of graphene and claimed no other

company produces more than 1 kg of equivalent product in the world. He also described several applications of graphene. Dr. Sisir Mantry described the R & D they are doing at IMMT Bhubneshwar especially on the Corrosion Resistant Graphene Coatings by Electrophoretic Deposition. Mr. Ravi Mohan gave an excellent presentation on the development of Carbon nanotubes which is available freely in the market in the name of TUBAL, which is finally dispersed solution and can be used directly. He showed when used in Zn based primers, the concentration of Zn can be reduced substantially. R.S. Mishra talked about the Graphene quantum dots which he thinks are better than 2D graphene and CN. Prof. Khanna who was the moderator of the session, then summarized the whole session and informed that their company called Pressure Exfoliation. He also told that they have used graphene to make Corrosion resistant coatings, anti-static and conductive coatings.



Panel No. 5 Skill Development, Paint Training and Characterization- Panel Members – Lokendra Singh- Ross Mixers, S.RaviChandran- Berger India, Santosh Kumar from OCS, Varun Kumar from Fischer Equipments and R.J.Choudhary from Caltech Engineering

Mr. Lokendra told that a state of the art technology is being used to make various mixers used for special mixing required in paint coatings or special slurries which are difficult to mix by other methods. They also showed special mixers which can be used for mechanical exfoliation of Graphene. Ravichandran gave a detailed information on

the Coating and explained the use of Simulators to give paint application training. Santosh talked about the problems one faces in big contracts of paint coatings, right from logistics to the safety and application related issues. Mr. Varun told a host of new thickness measuring equipments from Fischer and also described new techniques, the use of WiFi etc. Mr. Choudhary described how he started making several paint characterization equipment's locally which are cost effective as well equally accurate in measurement.



Panel 6 – Smart and Functional Coatings – Panel members – Mr. Sakthivel Shanmugam- ARCI Hyderabad, Ramanuj Narayan- IICT Hyderabad, B B.Jha – Director CGCRI Kolkatta, Swapan Ghosh – MD NANOVA Surface Care, Sachin Joshi- S.K.formulations, Mukesh Madhup and Amol R. Bakare from 3M.

This was the most crowded but useful Technical session with lots of new information on several new industrial applications. While Dr. Sakthivel talked about the Anti-reflection coatings for solar panels and their use in protecting the solar efficiency, Dr. Ramanuj Narayan talked about the basics of functional coatings and their origin and how to include a function in the coating to make it smart. Dr. Jha talked about a special Radiation resistant coating on Glass being developed for BARC. Swapan Ghosh talked about several Smart Coatings which he has taken from Lab to market. Mr. Sachin Joshi talked about a

single component waterborne coating which can give long durability, fire retardancy and also cooling effect. Mukesh and Bakre talked about several smart coatings based upon nano additives which can function as self cleaning. Bakre talked mostly about Sustainable coatings.



Panel 7 Marine & Oil & Gas Corrosion - Panel Members – Emran Siddiqui from 3M, S.S.Pawar from NMRL- Amabrath, Anup Phalke from Covestro, Vivek Natu from Clean Coat, S Ghure from Asian Paints and Sanjay Choudhary from Berger.

In this session, Emran talked about dual FBE coatings for underground pipelines and highlighted some factors which need to be taken care when applied. He also told more than 2000km of dual FBE coating has been used in Indian Oil & Gas companies. Mr. Anup Phalke described Polyaspartic Coatings which is just a two layer coating and can be very useful for big structures even in highly aggressive environment. SS Pawar talked about the development of antifouling coatings for ships. Mr. Natu talked about special surface tolerant coatings which have a long durability of 3000h of salt spray passing. Mr. Sanjay Choudhary talked about the Oil and Gas business in Berger and also ever increasing market potential..



On 11th evening, during Banquet Dinner, following Awards were given :

1. Life Time Achievement Awards

- Mr. Sujit Sinha, President Grauer & Weil for his dedicated efforts to create several new coatings and enhancing marketing and sale of the company
- Mr. S.Ravichandran of Berger India for his untiring efforts to enhance the skill development in giving training to paint applicators thru' a Simulators



2. Excellence in Coating Award and its Industrial marketing

Dr. Swapan Ghosh – MD NaNOVA Surface Care



3. Excellence in Paint Application Training Equipments

- ❖ Mr. Uttam Ganguly, MD, Bend Joints Pvt Ltd, Bhopal
- ❖ Mr. Sabarinath C Nair, Founder & CEO, Skillveri Training Solutions, Chennai



4. Young Achiever Awards

- ❖ Dr. Ramanuj Narayan, IICT Hyderabad for his dedicated work in Functional Coatings
- ❖ Dr. Sisir Mantry for his work in development of Graphene based coatings using electrophoretic deposition.
- ❖ Dr. Shailesh Dhoke, CEO SECC, for his dedicated work in lab development and testing procedures.



Best Poster Awards



Quiz Competition



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ART PEARL: Polyurethane Micro-beads, Spherical cross linked fine particle polymer used in area which requires excellent flexibility, toughness, low temperature stability, scratch resistance and Excellent weather resistance, **MAIN APPLICATION:** Matting or Touch modifying agent for coatings, functional coloring agent, surface modifier for synthetic leather, Anti blocking agent for films and light diffusion agent.

ART RESIN: Urethane Acrylate oligomers and reactive urethane polymer used in EB, UV, viable light, room temperature curing type resin modifier. The cured material can be constructed from rubber like to high cured material. It can be used for plastic which cannot be heated, **MAIN APPLICATION:** Adhesive, Hard Coat, Potting, sealing, dental materials.



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Presentation on
**Global coatings market
with focus on Indian scenario**

Presented by
Mukund Devnani
Business Head, Visionary Science South Asia

F R O S T & S U L L I V A N

Expanding automotive industry, and growing construction activities are the major factors driving the growth of Global Paints & Coatings market



Note: Chart not drawn to scale

Source: Coatings World, News Articles, Frost & Sullivan

F R O S T & S U L L I V A N

Innovation of new products and technologies that anticipate and solve customer challenges are gaining momentum globally



Nano technology in Paints

Global Nano Coating Market was valued US\$ 3.5 Bn in 2017 and is estimated to grow at a CAGR of more than 20% till 2026

Eg: I-CanNano (India) has developed a large variety of paints using nano-technology; Company has anti-bacteria paint, self-cleansing/anti-graffiti paints, etc.



Smart Paints

Currently Valued at USD 2.7 Bn, it is projected to reach USD 6.3 Bn by 2022, at a CAGR of ~24%.

Smart Anti-Corrosion Coatings - the Most Attractive Segment in the Next Five Years (Easy clean, Anti glare, Anti reflective, Anti smudge etc.)



Europe and North America are key demand centers for Solar Paints. Penetration in Asia is low

Eg: IkoNobel is actively researching on "spray on solar cells"; a paint composition or scheme of paint layers that can operate to capture solar energy



Energy Saving Paints

Energy saving coatings minimize building cooling load and enhance solar gain. Construction industry is the leading application sector with the highest number of technology developments.

Eg: Heat reducing exterior coating by Dr. Fixit (Pidilite)



Coatings for Medical implants

Bone & Dental Implants, Titanium coated PEEK implants, Orthopedic implants and Zirconium Nitride based coating are key growth areas

Eg: AAP Implantate AG has developed antibacterial silver coating for the implants

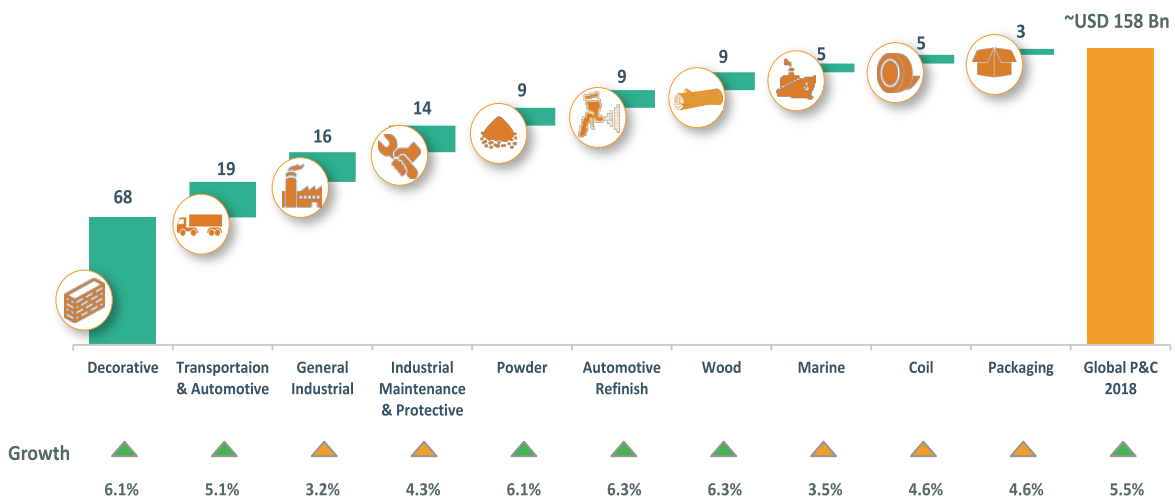


Self Healing Paints

Market for self-healing materials expected to reach \$2.4 billion by 2022.

Eg: Covestro AG offers polyurethane raw materials for self-healing coating that can repair minor scratches automatically by parking the car in the sun

**Though decorative paints is the mainstay for the Paints & Coatings business globally...T&I, Iuto
refinish, powder, protective and wood coatings are expected to drive the global coatings business**

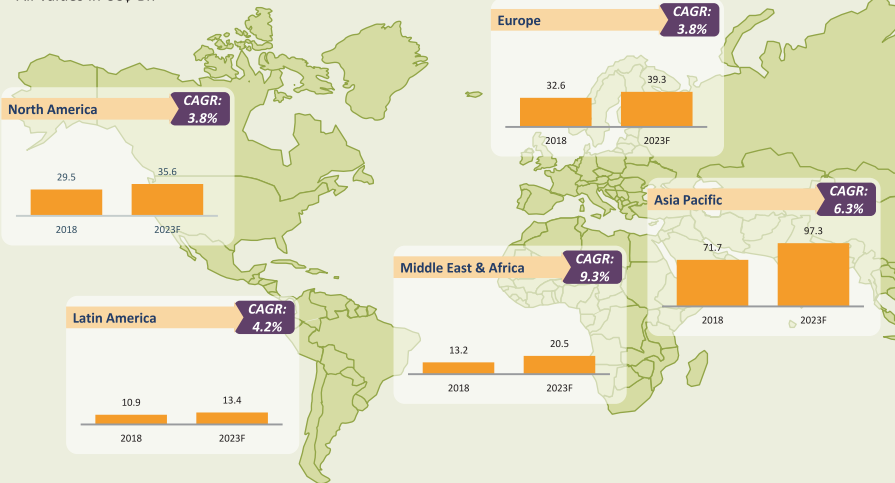


The global coatings industry is expected to experience good growth with decorative and automotive coatings leading the way. The growth values are higher than global GDP growth of 3.7% primarily driven by high construction activities in APAC and other developing regions of the world

Source: IPPIC Global Market Analysis, Coatings World, Press Release

MEA and APAC are high growth zones for Paints & Coatings business

All Values in US\$ Bn



- ▶ The APAC is the largest Paints & Coatings consuming region with China being the world's largest paints and coatings market
- ▶ Growth in APAC is supported by the automotive and infra sectors
- ▶ Europe would witness a moderate growth, fuelled mainly by eastern European countries
- ▶ African market is dominated by architectural segment. The growth is led by increasing per capital consumption and growing Industrial consumption
- ▶ LATAM market to grow owing to developments in countries such as Mexico, Brazil and Chile

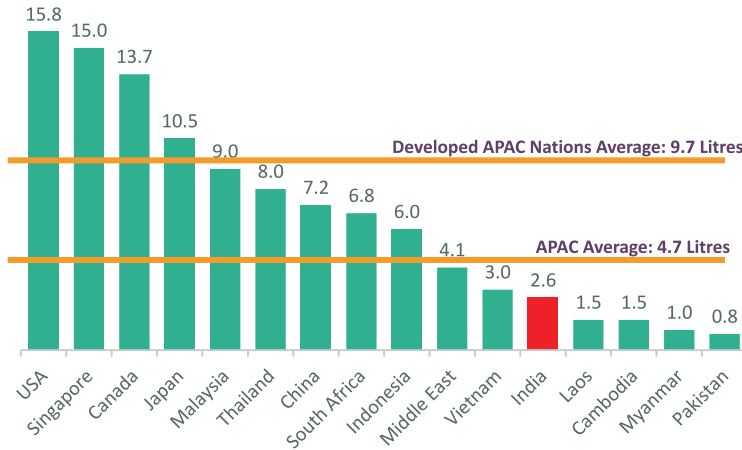
Source: IPPIC Global Market Analysis, Coatings World, Press Release

INDIA STORY



India has one of the lowest per capita Paints & Coatings consumption at less than 3 litres as against ~ 10 litres for few of the developed countries. Adequate headroom to grow -

Per Capita P&C Consumption (in litres)



- The per capita consumption of Paints & Coatings in India is very low against global counterparts. However, this offers immense opportunity for market penetration in India.
- The industrial sector aided by impetus in infrastructure, is expected to drive the GDP growth, resulting in increased consumption of coatings.
- The increasing GDP per capita and a growing middle class are expected to raise per capita paint consumption by 30 – 40% by the year 2022.

In Decorative Coatings, we expect above-average growth in emerging regions like China and India. In these emerging markets, there currently is a low consumption of paints in relation to the population when compared to traditional markets in Europe and North America, indicating a potential for growth.

--- Clariant

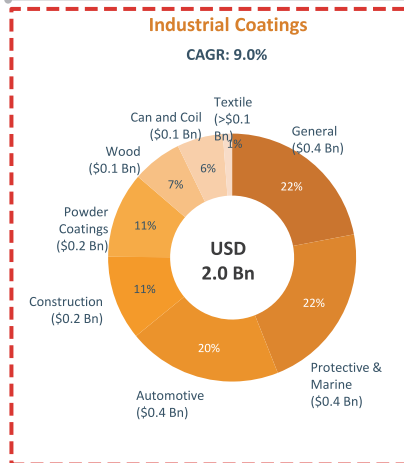
Source: News Articles, Frost & Sullivan

Industrial coatings are expected to maintain a healthy growth primarily driven by automotive, protective, powder and general coatings

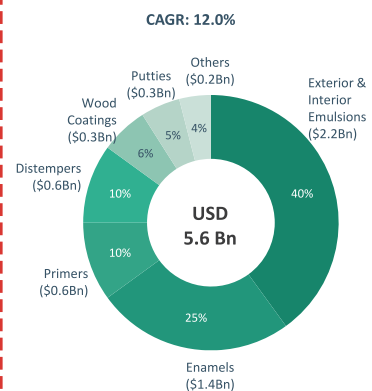
India Paints & Coatings (2018-23F)



India Paints & Coatings – by Product Segment, 2018



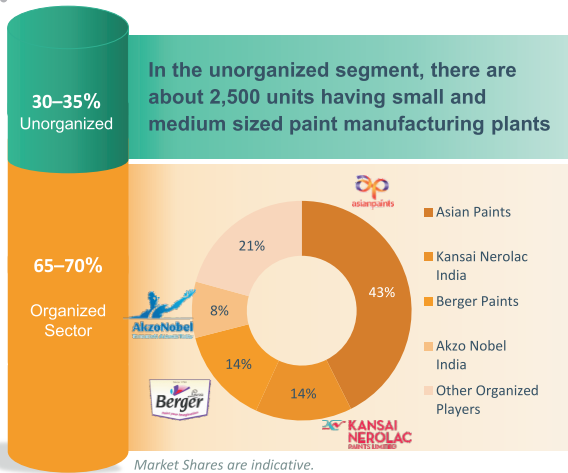
Decorative Coatings



Source: Coatings World, News Articles, Frost & Sullivan

India paint & coatings market is consolidated unlike Russia and China. Major players such as Asian Paints, Kansai, AkzoNobel & Berger Paints lead the business with unorganized players mainly focusing on decorative paints, powder coatings, auto refinish etc.

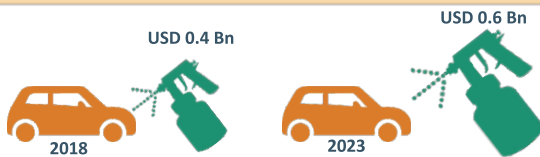
India Paints & Coatings Competition Structure



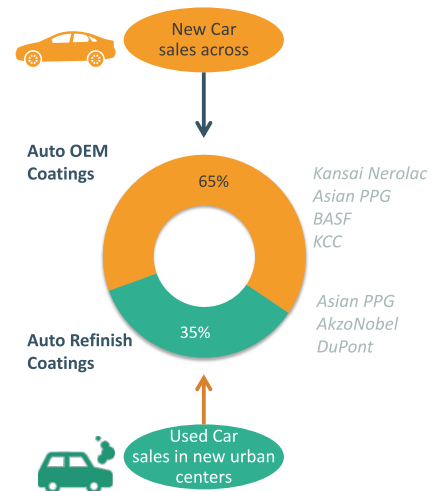
- Unorganized players are mainly focusing on decorative paints segment primarily due to low technical know-how and a highly scattered market
- To succeed and progress these companies need to invest in R&D
- Organized sector should continue to develop eco-friendly paints, invest heavily in performance coatings and develop novel product offerings customized to India requirements
- The industrial paints segment is dominated by the organized sector due to its high technology orientation and higher margins. Berger leads in Protective and Coil Coatings, Kansai in Powder and Auto Coatings
- Chugoku paints lead in marine coatings

Source: Coatings World, News Articles, Annual Reports, Frost & Sullivan

Automotive Coatings: OEM coatings likely to witness faster growth compared to refinish coatings...

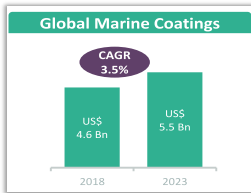


- Vehicle sales in FY 2018 grew by 9.2% with total sales of 4.02 million units. India automotive industry is expected to grow at more than 9% CAGR between 2018-2023
- Auto refinish segment reflects growth specific to used car sales and repair services. Volumes in the pre-owned car space is around 3.6 million units and expected to grow at 8-9%
- The major players in the automotive coatings segment are Kansai, PPG Asian paints, AkzoNobel and BASF. Kansai is the market leader in this segment followed by PPG Asian Paints and BASF. PPG Asian Paints is the market leader in Auto refinish segment as it had acquired ICI's auto refinish business.



Source: Coatings World, News Articles, Frost & Sullivan

Marine coatings have a smaller share in the overall business but high on margins, technological advancements and newer opportunities



- ❑ APAC accounts for ~75% of global market
- ❑ Europe continues to decline in marine coatings consumption
- ❑ Sales are on the rise in MEA and Latin America due to increased offshore oil exploration, recovery and processing. The Middle East area has become an important focal point, especially following the rapid increase in drydock capacity

Global demand for marine paints is about 40% for new ships and 60% for ship repairs. The ship repair and maintenance market is witnessing positive growth. Increasing number of companies targeting repairs segment to boost their sales

Changing requirements shaping the dynamics of Marine Coatings Industry

- The need for fuel-saving and low-emission are factors driving the growth of the marine coatings. Anti-fouling coatings used to protect ships from organisms that can impede performance, have been the most in-demand over the last few years.
- 50 – 60% of a ship's driving power is expended on overcoming frictional resistance. **Manufacturers of marine coatings have a great opportunity to substantially reduce frictional resistance and thereby reducing emissions and energy requirement**
- Changing government regulations and environmental clauses becoming stricter, it is anticipated that there will be product innovations in the near future to create eco-friendly products. **Manufacturers are focusing on developing advanced coatings which has no negative impact on marine life or the environment.**

Source: Coatings World, News Articles, Frost & Sullivan

Marine coatings – A white space for Indian Paints & Coatings manufacturers ?

India's share in global shipbuilding industry is expected to expand!



India has 25 commercial shipbuilding yards and 30 plus dry docks



India's share in global commercial shipbuilding sector is less than 1% with a turnover of ₹3,200 Cr.



India's ship repair services are low. India takes their ships to China for repairs

Insights on India Marine Coatings Market

- India's share in marine coatings is low; Growing shipbuilding market coupled with GOI initiatives to boost requirement of advanced marine coatings
- Great whitespace for Indian Paints & Coatings manufacturers to enter the market
- Investment in marine coating in India increasing: In 2017, Chugoku Marine Paints (Japan) announced a business alliance with Berger Paints India Limited with a aim to promote market research and product supply, mainly of marine paints, and eventually expand into countries around India
- India plans to develop the shipbuilding market with projects such as extension of Cochin Shipyards Limited (CSL), Inland Waterways of Kerala, etc.
- The government plans to enter into partnerships with South Korean and Japanese shipyards to set up modern shipbuilding yards and at least 20 ship repair docks in India

Source: Coatings World, News Articles, Frost & Sullivan

Low VOC coatings is the future !!!



- In India, regulatory changes are expected to increase adoption of water-borne and high solids coatings which has lower VOC content. Moreover, adoption of green technologies and bio based materials may positively impact waterborne coatings demand in the country.
- Architectural & decorative sector contributes to majority of the waterborne coatings market share and is expected to continue dominating during the forecast period
- Polyurethane coating is the fastest growing segment with increasing application in the construction and automotive industry
- Shifting from solvent based coatings to waterborne coatings require various modifications to the existing equipment and operating procedures, along with high capital investments and operating costs. **These changes increase the switching cost for manufacturers which can impede the growth of the market**
- Extensively used in automobiles, buildings and constructions, marine applications, oil and gas, metallurgy and metal forming, aerospace, mining, and medical and healthcare

Source: Coatings World, News Articles, Frost & Sullivan

India Paints & Coatings industry faces some challenges which can be addressed by way of cost reduction, novel formulation, raw material substitution, innovation, digital transformation, among others

Key Challenges

- ✦ Concerns for paints industry remain on the raw materials front with y-o-y growth in crude oil prices
- ✦ Change in customer buying behavior with customers wanting for a wide spread of options and advanced technologies
- ✦ High manufacturing cost and skewed operating margins

Key To Do's

- ✦ Companies should look to invest constantly in R&D to address factors such as performance, cost reduction, new application and shades development.
- ✦ Development of smart and multi-functional coating systems
- ✦ Leveraging online retail platform and mobile applications
- ✦ Riding the Digital Technology Wave: Companies should make use of IoT to augment their business and customer approach. Use of robotic warehousing, blockchain, artificial intelligence should be promoted
- ✦ It is very critical for Indian companies to curb their manufacturing cost which is higher than their foreign counterparts to remain competitive
- ✦ To tackle with high cost price of RM, companies should hedge the price exposure through crude oil futures against an input delivery contract.

Case Examples

- ✦ **Asian Paints** leveraged digital innovations to become customer centric
- ✦ **Berger Paints** to invest in an integrated paint plant to produce coatings, resin, construction chemical, etc. It also established high capacity of water-based paints
- ✦ **Axalta** operates four refinish training facilities in India to better serve customers in the growing market.

Source: Frost & Sullivan Analysis

Key takeaways for Paints & Coatings industry

Concentrate on novel technologies. Undertake more customer interactions to understand their challenges and develop unique and advanced products to meet the product gap

Forge alliances with construction companies/contractors. Emergence of public and private funded housing projects will create opportunities in project segment. Create capital buffer to mitigate delayed payment risks.

Focus on technology tie-ups and investments in niche segments such as thermal barrier coatings, marine coatings, aviation coatings, among others to boost top and bottom lines.

Customize channel strategy for tiers of cities to increase penetration across geographical segment in the country.

Enter geographies with similar customer preferences. Some of the countries in South Asia and MENA present a lucrative avenue for geographical expansions

Source: Frost & Sullivan Analysis



A Coat of protection for every application

High Performance Industrial Coatings



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- Hi-Gloss Polyurethane Finishes • Bituminous Coatings
 - Gas Flow Coatings • Polysiloxane Coatings
 - Food Grade Epoxy Linings • Vinyl Ester Coatings
 - Chlorinated Rubber • Alkyd • Vinyl Co-Polymer Based Paints

OEM Coatings



- Quick Drying Primer & Top Coats, Low Bake & Stoving Systems
- Thermosetting Acrylics • Hi Gloss Polyester Top Coats
 - Low Bake Polyurethanes
 - Casting Sealers & Unicoat Epoxy Chasis Black

Marine Coatings



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Sustainable Smart Coatings

Mr. Sachin Joshi

SK Formulations India Pvt. Ltd.

INDEX

1. Title
2. Background
3. Details of Invention
4. Description of Invention
5. Testing
6. Outcome of Invention
7. Conclusion

1. Title

Zero VOC water Based Sustainable Protective Coating System offering high performance and functional properties like

1. Energy Saving
2. Fire Protection
3. Corrosion Protection
4. Waterproofing

2. Background

The paint industry globally has evolved from the basic purpose of providing protection for surfaces to incorporate innovations such as improved environmentally "green" solutions primarily aimed at protecting the surrounding environment as well and delivering the longest sustained value for consumers, society and the environment

In the nutshell, sustainable coatings addresses following parameters

- Responsible use of resources
- Very low or Zero VOC
- Enhanced Life Cycle
- Enhanced Functionality
- Safe Disposal, Recovery & Recyclability

3. Details of Invention

Inputs for Development

1. Responsible use of Resources – Using ingredients which are nontoxic and safe for environment and work forces during manufacturing.
2. Low VOC – Use of Solvent free or Water based coatings

3. Enhanced Life Cycle- Inducing Performance properties like

- Resistance to Moisture
- Impermeability to Oxygen
- Resistance to UV Radiations
- Resistance to Chemicals
- Scratch & Abrasion Resistance
- Thermal stability at elevated temperatures
- Flexibility & fatigue Endurance

4. Enhanced Functionality

- Energy Saving Properties
- High SRI, High Emissivity values
- High Performance at low DFT
- Less consumption of coating material
- Fire Protection properties: Lower FSI & SDI values
- Prolonged water repellency and high Anti Carbonation values for water proof properties
- High Salt Spray Resistance values for corrosion protection
- Easy Application Process with no energy requirements

Based on above inputs, SK Formulations has successfully developed Water Based coating with "Grafted Copolymer Technology" which comprises of multiple specialty polymers to achieve entire spectrum of high performance properties. Moreover, polymer is synthesized to create branched structure to achieve desired performance properties at low film thickness of 80 to 100 microns as against 300 microns of conventional solvent based paint systems of EPOXY & Polyurethane.

4. Testing

4.1 Test Panel Preparation

- MS panel of 1 to 1.5 mm thickness having dimension of 150*100 mm
- Shot blasted to Sa 2 1/2 level
- Applied two coats of coating with interval of 30 minutes to the final DFT of 80 to 90 microns
- Allowed it to flash dry for 60 minutes.
- For testing, coated panel is allowed to dry for 7 days of coating.

4.2 Test Results

Sr. No.	Performance Test	ASTM STD.	ACTUAL
01	Density	D-1475	1.1 Gms/cc
02	Drying Time	D - 1640	30 Minutes at 250C
03	Scratch Hardness (4.2 KG)	D – 7027	No Exposure of Metal Substrate Passes the Test
04	Conical mandrel (4 mm)	(4 mm)	D – 522 No film cracking or crazing
05	Adhesion	D – 3359	No Peel-Off
06	Salt Spray Resistance 1000 HRS (At 80 Microns DFT)	B - 117	No Surface Deterioration & corrosion.
07	Thermal Stability at 1800C for 24 Hrs	D – 2243	No effect on coating surface.
08	UV Resistance 1000 hrs	D-4587-05	Uv-b-313 nm-1 No Chalking No colour change
09	Accelerated Weathering	D-822	Passes with slight colour change
10	Resistance to Humidity	D -2247	1000 Hrs No Visual Change Adhesion after 2 Hrs- Passes
11	Resistance to Fire	E – 84	Class I (A)
12	Chemical Resistance 10% HCL 10% H2SO4 18% Aromatic Hydrocarbon	ASTM D 543	No Dusting

5. Outcome of Development

5.1 Green Technology

- Zero VOC water based high performance coating system
- No Smell, No Fumes
- All resources used are Non-Toxic, ROHS compliant and safe during & after use of coating

6.2 Performance & Functional Properties

- Excellent Resistance to UV Radiation
- Excellent Flexibility
- Excellent Resistance to Corrosion
- Excellent Resistance to Chemicals
- Service Temperature range: -40 to 1800C
- Very good scratch hardness
- Excellent Moisture resistance

All performance properties are achieved at lower DFT of 80 microns

5.2 Application Features

- Single pack, ready to Use system: No Mixing operation
- Quick drying at room temperature- Dries within 30 minutes without oven baking.
- Easy application procedure
- Application with conventional application tools like Brush, Roller, Airless & Air Assisted Spray Gun
- Application on all substrates like Steel, Concrete, Wood, Paper, Gypsum surfaces
- Variety of colour shades possible.
- Variety of surface finish possible like smooth, textured, matt, Semi glossy, and Glossy

6. Product Range

- Heat Insulation Energy Saving Coatings (Energy Saving up to 30%)
- Anticorrosion Coatings (For most challenging environments)

- Room Temperature Galvanizing Coatings (Replacement of HDG)
- Electric Insulation Coatings (High Di Electric Strength)
- Waterproof Coatings

- Infrastructure
- Residential, Commercial & Industrial Construction
- Oil & Gas
- Marine & Shipping
- Automobiles
- Power
- Steel & Cement

7. Conclusion

The said technology fulfils all the desired parameters to be qualified as a Sustainable coating with additional functional properties of Fire resistance &

waterproofing. All the performance & functional properties are achieved at DFT of 80 microns. The invention also makes the application operational friendly with Single Pack, Ready to use formulation & Fast Drying properties at room temperature. These features are instrumental in saving Time, Manpower, Energy requirements & cost of operation. In nut shell, it helps to achieve cost effectiveness with value addition. The invention has wide application areas in segments like

Building smarter doesn't just mean using the greenest products, it also means choosing products that deliver the longest sustained value for consumers, society and the environment. In the words of Professor Michael Braungart of EPEA, we need to focus of eco-effectiveness rather than eco-efficiency. "Doing the right things rather than doing things right" will speed our way towards a totally sustainable industry.

An Appeal

Next Issue of SSPC India News letter is in Jan -Feb. 2019. Articles, News item, new products, new R & D result and company profiles are invited
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NEWS

Free Webinar: Architectural Coatings Specs

PaintSquare will host a free webinar on Wednesday, May 15, entitled: “Architectural Metal Coatings: What is in a Coating Specification?”

In a presentation sponsored by AGC Inc., AkzoNobel's Arturo Lugo will update the design and construction community on the latest technologies to achieve AAMA compliance, improve finishes options, define nomenclature and discuss other topics that will help to correctly specify liquid and powder coatings.

Learning Objectives

Understand architectural coatings and where they can be applied; Understand AAMA as a specification standard and how coatings manufacturers achieve categories; Determine sustainability with LEED/EPD; and Learn examples of different ways to specify.

About the Presenter

Lugo was born and raised in Puerto Rico, graduated with a degree in architecture from the City University of New York, started his career designing residential and commercial projects in the New York area and continued his design experience developing healthcare and hospitality projects in the Caribbean, all while securing the NCARB architectural registration.

In 2009, he joined AkzoNobel's Decorative Paints Division to develop the architectural market through the Caribbean, additionally working close with architecture students to educate the upcoming generation. In 2014, he took an opportunity with AkzoNobel's Protective Coatings division to develop the engineering specification market in the Northeast U.S., working on significant infrastructure projects. In 2018, he joined the AkzoNobel Powder Coatings division to support architects in specifying facade coatings for global projects.

Source : <https://www.paintsquare.com> , Thursday, May 9, 2019

Researchers Work to Extend Ship Coating Life

Researchers based out of the Corrosion and Coatings Engineering Branch at Naval Surface Warfare Center, Carderock Division (West Bethesda, Maryland), are testing and evaluating coatings that could help mitigate corrosion on Navy vessels.

In their work, engineer Charles White and chemist Kylee Fazende factor in different requirements in coating chemistry, including exposure to sunlight, temperature and biofouling. The team tests the survivability of coatings in different sea environments.

Vessel Coating Evaluation

Choices made must meet the requirements of Naval Sea Systems Command's (NAVSEA) standard item numerical index, as well as meet approval of the corresponding technical warrant holders.

Researchers note that different areas of a ship require different coatings—each part of a hull is coated differently to account for environmental variables, and the coating used on a ship's exterior, which will face warmer temperatures, will be different from what is used in the context of an air-conditioned interior.

“The critical points, 22 [percent] and 50 per cent relative humidity, are very common conditions in daily life and these points can be easily crossed,” said lead author Yiwei Sun, from Queen Mary's School of Engineering and Materials Science. “Hence, many of the extraordinary properties of graphene could be modified by water in between graphene layers.

“Some graphene-based devices may function to their full capability in dry places while others may do so in humid places. We suggest all experiments on 2D materials should in future record the relative humidity.”

- The study was published in *Physical Review B*. The same effect has been demonstrated in layered graphene.

Source : <https://www.paintsquare.com>, Wednesday, January 23, 2019

CALENDAR OF EVENTS AND EXHIBITION IN 2019

Date	Event	Venue	Organizer	Contact Details
May 22-24, 2019	Paint & Coating Expo Osaka	INTEX Osaka, Japan	Reed Exhibitions Japan Ltd.	T: +81-3-3349-8568 E: Coating-e@reedexpo.co.jp W: reedexpo.co.jp
June 19-22, 2019	Surface and Coatings 2019	BITEC, Bangkok, Thailand	Reed Tradex	T: +66-26867222 E: surfaceandcoatings@reedtradex.co.th W: surfaceandcoatings.com
June 26-29, 2019	Coatings Expo Vietnam 2019	SECC, Ho-Chi Minh City, Vietnam	Minh Vi Exhibition & Advt. Services Co. Ltd.	T: +84-28-3848-8561 E: info@veas.com W: coatings-vietnam.com
July 10-12, 2019	Expo Paint and Coatings 2019	Pragati Maidan, New Delhi	Toredo Fairs India Pvt. Ltd.	T: 080 4302 3831 E: info@expopaintcoating.com W: expopaintcoating.com
Aug 08-10, 2019	ISTF Expo 2019	Pragati Maidan, New Delhi, India	M 7 Creations	T: (91-11) 65173001 E: marketing@m7creations.com W: istfe.com
Sept. 23-26, 2019	CORCON 2019	Mumbai, India	NACE International Gateway India Section	T: (022) 25797354 E: info@naceindia.org W: naceindia.org
Nov. 18 -19, 2019	Int. Conf. on Coatings	Holiday Inn, Delhi	MATOCRR. / SSPC India	T: (011) 40196599
Dec. 4 - 5, 2019	Chemtech EXPO One Day Technical Meeting. SE	Hyderabad Convention Centre	Chemtech / SSPC India	T: (022) 40373636

“Anti-condensation coatings are used outside air-conditioned habitable spaces, but a lot of other parts of the ship do not have that commodity,” said Fazende. “In those air-conditioned spaces, the surrounding bulkheads will start condensing water because of the difference in the temperature inside and outside.”

“So you have to factor in that there's going to be standing water on this wall permanently when selecting a proper coating.”

Fazende also noted that some coatings require specialized formulation to meet specific needs. A nonskid flight deck coating needs to be able to stand up to mechanical wear and a hot surface, for example. Color selection is also imperative.

“A black coating can work really well for some applications and deck camouflage until you start factoring how much sun it is going to absorb. You can get elevated deck temperatures very quickly,” said White.

Polysiloxane paint, a recent replacement for silicone alkyd, has exhibited better color retention, UV resistance and adhesion compared to earlier coatings.

White and Fazende use special chambers equipped to deliver an accelerated environment in testing coated panels. After the first wave of testing, both researchers go to one of Carderock's Florida detachments to carry out real-world testing.

“What we do here is shorter term, so it's our way of being able to test the paints and be able to get an idea of how their performance is going to be. We have accelerated light exposure, salt spray and salt fog, which simulates what the ships would actually experience with humidity, water coming off of the waves and salt content in the air,” Fazende said.

White noted that both researchers do lab testing in West Bethesda, and then when the paint panels go to the South Florida Ocean Measurement Facility, the two do corrosion studies for the Marine Corps and for the Navy.

“Corrosion is one of those complicated multivariate processes that is difficult to control by addressing only one variable,” White said.

“Many pathways for corrosion propagation and control exist, and the Corrosion and Coatings Engineering Branch is structured to address them as a team to make sure the Navy platforms and equipment stay in the best condition.”

Source : <https://www.paintsquare.com>, Wednesday, May 1, 2019

Research: Graphene Properties Change in Humidity

In light of reports of graphite losing its lubricating ability in low humidity conditions, [researchers based out of the Queen Mary University of London](#) investigated bi-layer graphene, demonstrating that water seeps between layers in a humid environment.

Graphite's loss of lubricating ability has been recorded on airplanes flying at high altitudes.

Graphene and Humidity

Graphene, an atom-thin layer of carbon, has been touted for its strength and conductivity. Findings demonstrated that water seeps between the layers of bi-layer graphene, which is composed of two sheets of one-atom-thick carbon stacked together. According to the university, material properties largely rely on how the carbon layers interact; when water is introduced, the interaction can change.

In the study, researchers found that water forms an atomically thin layer at 22 percent relative humidity, separating graphene layers at 50 percent relative humidity. This finding suggests that layered graphene could exhibit different properties in a humid environment, such as Manchester, where relative humidity hovers at over 80 percent throughout the year, and Tucson, Arizona, where relative humidity can fluctuate from 13 percent during May afternoons and rises to 65 percent on January mornings.

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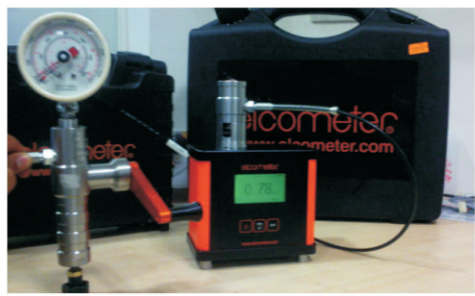
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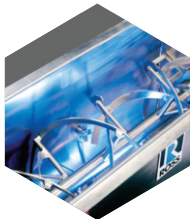
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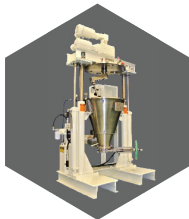
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