

# Report on the Green Chemistry Awareness Seminar for Lote-Parshuram Industries Association (LPIA) members, 31<sup>st</sup> May 2012

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## Objective of the Seminar

The objective of the One-day Seminar on 'Green Chemistry' was to bring together the member companies of Lote-Parshuram region to create collective awareness on the urgency and importance of implementing green chemistry and engineering based technologies.

The Seminar also intended to connect the participant to the solution providers of few emerging technologies which has the potential to address some of the pressing environmental challenges existing in their manufacturing units.

## Partners & Organisers

The Seminar was organised by the **Green ChemisTree Foundation** in partnership with the **Lote Parshuram Industries Association (LPIA)** and **Newreka Green Synth Technologies Pvt. Ltd.**, with support and partnership from the **Maharashtra Pollution Control Board and Excel Industries Pvt. Ltd.**

## Why Lote region?

Parshuram-Lote Lote-Parshuram industrial area is established on both sides of Mumbai-Goa national highway 17. This area is 12 km from Chiplun taluka (towards Mumbai) and 17 km from Khed taluka (towards Goa) and 115 km. from Ratnagiri district. The Lote MIDC consists of 119 Industry units, of which 80% of the companies are Chemical Manufacturing companies of Pharmaceutical Intermediates, Dyes & Pigments, Agro chemicals and Fine and Specialty Chemical Sectors. These Sectors are chemistry intensive and water intensive sectors directly impacting the water, air and soil quality of the region.

Around 15 companies are Large scale companies including Gharda Chemicals, USV Ltd., Rallis India, Excel Industries, United Phosporous Ltd., Dow Agro Sciences Ltd., Hindustan Unilever Ltd., Kansai Nerolac Paints Ltd., etc.

With the enforcement of environmental regulations and stringent effluent disposal norms introduced by the State Pollution Control Boards, the manufacturing units are facing tremendous pressure towards integrating new technologies or systems to minimize their effluent load. jects With these shifting trends, it is now an apt time for such awareness events on subjects like green chemistry and engineering practices, so that the shop-floor and operations people are well aware of the subject and can evaluate suitable alternatives for their respective units.

## Overall Participation

The Seminar was participated by 40 representatives of 15 member companies, which mainly included large scale units such as AB Mauri, Deepak Novachem, Dow Agro Sciences India Pvt.

Ltd, Excel Industries Ltd, Gharda Chemicals Ltd., Kores India Ltd, Rallis India Ltd., SI Group, Supriya Chemicals Ltd., Swastik Industries Ltd., USV Ltd., etc.

Apart from these organizations, there were representatives from the Maharashtra Pollution Control Board, Chiplun; LPIA Secretary and Praj Industries Ltd. The Seminar was also fully attended by all the Six Speakers, who made themselves available throughout the day for technical interactions and participants queries.

### Flow of the Seminar

The content of the Seminar was designed in two sessions, part one consisted of presentations to orient the participants on the overall context of implementing green chemistry and engineering, the environmental challenges, to share about the emerging trends in regulations and the profit-centric approach in ‘managing’ effluents. The first session also included Industrial case-studies by member companies who have successfully implemented green chemistry technologies with the objective to learn from experience sharing.

The Second part of the day, included a Session on ‘Solution Providers’, which exclusively included presentations by environmental solution provider companies, who shared about their products, services and technologies which can be considered by the participants for its implementation to address some of the immediate environmental challenges such as energy and water efficiency in their existing processes, solvent recovery or recycling, recycling at source technologies for reducing the overall *e-factor* or the environmental factor (i.e.: kgs of waste generated behind per kg of production) and zero discharge facilities.

### *Speakers- Orientation & experience /case-study sharing:*

Following is the brief background of the Speakers, their technical expertise and the topic that they shared at the Seminar:

#### **1. Mr. Nitesh Mehta, Founder Director, Newreka Green Synth Technologies and the Green ChemisTree Foundation**

Mr. Nitesh Mehta’s expertise is in Process development & process scale-up for various pharma & speciality molecules, Green Chemistry based Technology Implementation at plant level, setting up recycle loops at commercial scale and knowledge based marketing in local & international markets

Mr. Nitesh Mehta’s presentation was to share the ‘**Overview of Potential Utility of Green Chemistry**’

#### **2. Dr. C Nandi, Vice-President - R &D, NOCIL Ltd., Mumbai.**

Dr. Nandi over 30 years experience in developing new process and products from concept to commercialization level. In last 10 years, his special endeavour been has in pursuing Green

Chemistry & Process Intensification research which led to considerable success in developing new processes with substantial reduction of pollution at source.

Dr. Nandi's topic of Presentation was on '**Identification to Implementation of Green Chemistry**'

**3. Dr. Dharshan Deshpande, Manager Environment at Excel Industries Ltd.**

Dr. Deshpande has been involved in various plant relevant environmental initiatives at the Excel Industries' manufacturing units in Lote and Roha. Presently he is working as a Manager Environment at the Lote unit.

Dr. Darshan in collaboration with Mr. Omkar Gokhale shared about Excel's innovative Technology in rapid conversion of Municipal Solid Waste to organic compost.

**4. Hemant Dange, Sr. Manager – EHS, USV Ltd.**

Mr. Dange has over 22 years of industrial experience of working with Excel Industries, Rhodia & Hikal industries in various sections such as Production, R&D, Water treatment management, QC/QA & since last 12 years has been working in EHS field.

Mr. Hemant Dange shared the USV Ltd. Industrial case-study to share how successfully they have impacted the environmental footprint and the profitability by incorporating simple 'green chemistry' based technologies and systems.

#### *Speakers- Solution & Technology Providers*

**5. Prof. Aniruddha Pandit, Professor, Chemical Engineering Dept, Institute of Chemical Technology, Mumbai**

Prof. Pandit has developed many novel designs of gas-liquid contactors and also developed new impeller designs and has been instrumental in starting a major activity & program in the area of Hydrodynamic Cavitation.

He has singularly and successfully exploited the cavitation phenomena for a variety of operations such as crystallization, emulsification, nano-particle synthesis and processes such as esterification, oxidation etc.

Prof. Pandit's topic of Presentation was '**Cavitationally Induced Chemical, Physical & Biological Transformations for Water & Energy efficiency**'.

**6. Mr. Rajesh Mohalkar, Senior Technologist (Recycle Services), Newreka Green Synth Technologies Pvt. Ltd.**

Mr. Moholkar has over 21 years of working experience in various industries – Dyes & Dye Intermediates, API & now in Technology Development. Since January 2004 he is working with Newreka Green Synth and has successfully implemented more than 20 Green technologies on plant scale.

Mr Moholkar Presented on Newreka's **'Recycle at Source' Technology- one of the tools of implementing green chemistry at scale.**

7. Mr. Manish Kharwade, General Manager, Praj Industries Ltd, Pune.

Mr. Manish has more than 18 years of experience in the field of Effluent Treatments of complex effluents from various industries. Praj Industries Limited has expertise in providing Water and Wastewater solutions across various industrial sectors with major focus on achieving "Zero Liquid Discharge".

Mr. Manish shared following technologies which help in achieving **Zero Liquid Discharge:**

8. Dr. Sanjiv Bachal, Head R&D, Equinox Software & Services Pvt. Ltd.

Dr. Bachal has been associated with then chemical process industry for the last 17 years in the field of process and product development. Over the years, he has acquired an extensive experience in the elements of product life cycle- starting from the concept stage to commercial operations / process.

Dr. Sanjiv Bachal's topic of presentation was **'Solvent Recovery Simulations for Performance Improvement'**

### **Overall Outcome**

The Green Chemistry Awareness Seminar for Lote Parshuram Industries Association members was well received by the participants. In the concluding session of the Seminar, the participants appreciated the overall initiative, they particularly liked presentations by Prof. A B Pandit from UICT, Mr. Manish Kharwade of Praj Industries and the local case-study presentations were much appreciated by the participants.

The participants well utilized the networking time as provided during tea and lunch breaks to interact with Speakers and seek experts' guidance on their process relevant environmental challenges. This gathering was also an opportunity for the participants to specifically exchange experiences and know-how on their respective environmental issues and initiatives.

The companies participating in the seminar expanded their knowledge on various aspects involved in the implementation of green chemistry and engineering practices, where as they were

also introduced to specific solution providers who can specifically resolve some of their immediate process relevant environmental challenges.

The topics of presentations covered wide scope of subjects such as recognizing the potential utility of green chemistry, identifying where to begin the implementation, and these contextual topics were substantially complimented by the presentations in session two by providing tangible tools for incorporating green chemistry and engineering practices, such as cavitationaly induced transformations to enhance water and energy efficiencies, integrating simulation models for solvent recovery and performance improvement, decreasing the overall effluent load by integrating recycle at source technologies and working on long-term implementation plans such as zero liquid effluent discharge solutions.

In conclusion, the one-day seminar for LPIA members served as comprehensive platform to both, identify their key environmental challenges, and providing them range of short, medium and long term solutions and alternatives towards implementing green chemistry and engineering based technologies.