



TSI NEWS LETTER



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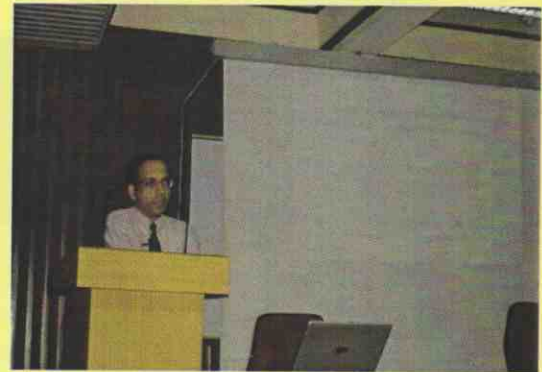
A Round-up of Memorable Events

MUMBAI CHAPTER : TRIBOLOGY DAY -2009 AND OTHER EVENTS

Tribology Day Event – 2009 : TSI Mumbai Chapter

Tribology Day was celebrated on 19th June 2009 at HPD Auditorium, CTCRS Building, Bhabha Atomic Research Centre, Anushaktinagar, Mumbai. The event was attended by about 45 participants from BARC, NPC, L&T and other members from Mumbai and Pune. Following programs were conducted:

A Lecture was delivered by Dr. Barun Chakrabarti, Principal Technologist, Larsen & Toubro Limited, R&D – E&C Division, Mumbai & Secretary – Tribology Society of India, on topic "Gear Technology – A Tribological Perspective".



Dr. Barun Chakrabarti delivering his Talk

The Speaker noted that, traditionally, the gear designers focused mainly on sizing calculations based on defined service factors for a given application. However, the emphasis has now shifted from such macro levels to a more fundamental level of understanding the gear contact mechanism, estimation of contact stresses, evaluation of elasto-hydrodynamic lubrication (EHL) parameters, studying the wear mechanisms and modeling of material / lubricant interactions. The advancements in analytical and experimental techniques in Tribology have greatly benefited the field of gear technology. The designers are now more confident of the performance prediction and design life of gears, while the manufacturers have better control over material properties, surface finish and friction / wear behavior of the gears. In his talk he briefly mentioned a few emerging trends in the domain of current Gear Technology and concluded that Tribology had a vast potential in improving the performance of critical gear drives, specifically with respect to enhancing operational reliability, controlling material wear and minimizing energy losses.



Dr. Chakrabarti unveiling a book on "Nuclear Tribology", Ed. By Mr. N.L. Soni & Mr. P.K.Limaye

A book titled "Nuclear Tribology" was unveiled by Dr. Barun Chakrabarti. The book is edited by Mr. N.L. Soni and Mr. P.K. Limaye and is published by Board of Research in Nuclear Sciences (BRNS). Tribology in nuclear application is considered as a very specialized field, where conventional concepts and practices of design, lubrication and materials may not work effectively. Although there are very few moving components in nuclear plants which see tribological interactions, these components are critical for the operation of nuclear plant. The book discusses the unique characteristics of such nuclear applications and provides insight into the research work dealing with specific design and operational issues in such cases.

Inaugurating the function, Mr. N. L. Soni, Chairman – TSI Mumbai Chapter and Head of Fluid Power & Tribology, Reactor Technology Division – BARC, explained the purpose of such a program. He mentioned that sharing of experience among Tribologists from different areas of design and operation was of prime importance. The objective of highlighting the specialized field of nuclear Tribology was to enable the participants from various industries, institutes and professional bodies to get a basic understanding of the challenges involved in the field of Nuclear Tribology.



Sh. N.L. Soni inaugurating the event



A section of the participants

For the benefit of the participants, Mr. Soni also highlighted the events and activities being planned by TSI Mumbai Chapter.

Workshop on “Development of Special High Temperature Lubricants and Hydraulic Fluids for Nuclear Applications”

A one-day Workshop on “Development of Special High Temperature Lubricants and Hydraulic Fluids for Nuclear Application” was held in November 2009 at Training School Hostel, BARC - Anushaktinagar, Mumbai. Large number of hydraulic oils and lubricants are used in different subsystems of nuclear and subsidiary plants. Selection of these types of items is preliminarily based on OEM. Detail knowledge is required for selecting these types of items for longer life of critical equipment. Indian Oil Corporation (IOC) has agreed to give a detail talk on above topic. This one-day interaction cum workshop was organized with IndianOil R&D Staff, who shared their experience and capabilities to develop, test and deploy such products for some specific critical applications. The Workshop was attended by various delegates of BARC, NPC and other DAE units. Various areas were identified where development work can be carried out for special applications.

Seminar on “Tribological Aspects of Rubber Technology”

A half-day Seminar on “Tribological Aspects of Rubber Technology” was jointly organized by TSI Mumbai Chapter and Indian Rubber Manufacturers Research Association (IRMRA) on 9th January 2010 at IRMRA premises in Thane. Dr. S.K.Chakraborty, Director (Acting) - IRMRA and Dr. K Rajkumar, Asst. Director and Quality Manager, delivered lectures in the Seminar. The topics covered included preparation, composition and properties of rubber; compatibility issues under different environments; differences in static / dynamic applications for rubber and damage of rubber compound due to temperature and radiation effects.

Tribology Day Event – 2009 : Delhi Chapter

Tribology Day Function was held on 19th June 2009 at Indian Oil R&D Centre. The function was presided over by Shri Anand Kumar, Director (R&D), IndianOil and President - TSI. Dr R K Malhotra, Executive Director (R&D), IndianOil and Vice President – TSI, also graced the occasion. Shri C. Mishra, former Chief Technologist - Tata Steel and Tribology Consultant of international repute was the guest Speaker. Though he could not attend the event due to last-minute indisposition, his lecture on “**Tribology – Its Economic Impact and Future Trends**” was delivered by Shri A K Mehta, Executive Director - TSI and a well-known metallurgist and tribology expert.



Shri Anand Kumar, Director (R&D) - IndianOil and President (TSI) addressing the session.

Some of the suggestions given by President (TSI) on this occasion were as follows:

- Conduct of survey in major industries like steel, cement, petroleum about the losses being incurred due to inadequate knowledge and awareness of Tribology in industries located throughout the country. ED (TSI) was advised to initiate the plans to conduct such survey.
- Introduction of Tribology as part of curriculum for undergraduates by Universities and Colleges – approaching AICTE and IITs for inclusion of Tribology courses in curriculum
- Opening of Students’ Chapters of TSI in colleges on regional basis
- Conduct of more awareness programs, jointly with academia and R&D institutions
- Publication of Tribology related articles and advantages of best tribology practices through TSI web site
- Internship on Tribology at IIT-Delhi
- Institutionalization of TSI - Students Meet through periodic two- day workshop / program

On the occasion of Tribology Day, TSI Delhi Chapter launched web based publication of **Tribology Research Reference Quarterly Update (TRRQU)**, a compilation of Tribology-related literature and references. The compilation is now being brought out periodically and this is also being hosted on TSI web site. This initiative has received appreciation from researchers and practicing engineers.

During the Tribology Day function, TSI Delhi Chapter announced the initiation of dialogue with Faridabad Industrial Association (FIA). It was also reported that the Delhi Chapter would make efforts to enhance the interaction of TSI with students from engineering colleges from NCR zone. The Chapter would also encourage student memberships and promote participation of students in TSI – Delhi Chapter events.

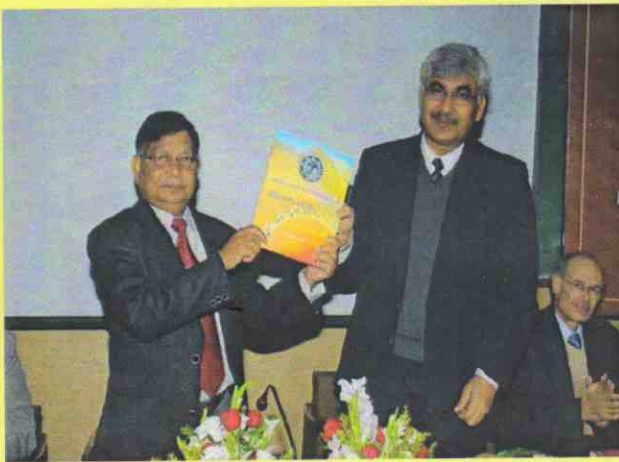
On this occasion, the Delhi Chapter also announced a major initiative: the organisation of **Tribo-India Conference** in association IIT - Delhi during 11th and 12th December, 2009. The Conference would cover several key areas of concern, including:

- Bearings, Brakes, Clutches, Seals, manual transmission, final drives
- Advanced materials, testing and modeling
- IC Engines
- Smart materials and novel applications
- Base oil and additives
- Lubricants and greases
- Condition monitoring

Indian Institute of Technology – Delhi and TSI - Delhi Chapter jointly organized the **First Tribo-India Conference** focusing on **Tribology of Automotive Systems**, during **11 – 12 December 2009** at IIT – Delhi. Shri Anand Kumar, Director (R&D) IndianOil & President - Tribology Society of India, inaugurated the event. Director (IIT), presiding over the session, addressed the delegates and invitees to the inaugural session. The other speakers included Head - Mechanical Department, IIT Delhi, Head - ITMMEC, IIT Delhi, Dr. Harish Hirani, Conference Coordinator and Sh. B.S. Rawat, Chairman TSI-DC. During his inaugural address, Director R&D emphasized the role of Tribology in automobile sector.



Shri Anand Kumar Director (R&D) IndianOil and President TSI addressing the session.



Shri Anand Kumar, Director (R&D) IndianOil and President – TSI, releasing the Proceedings

Shri Anand Kumar's views on application of tribological principles to reduce friction and improve durability in automobile sectors were well appreciated. He also shared his views on recent developments of surface engineering, materials science and lubricant technology to counter various challenges faced by the automobile industry. He also inaugurated the exhibition of various equipment displayed by the vendors. Director - IIT shared his vision on use of Tribology for the benefit of the industry. Dr. H. Hirani gave brief details about the conference and its objectives. Shri B.S. Rawat thanked the dignitaries for their valuable time and for gracing the occasion.

The conference was jointly organized by the Delhi Chapter of Tribology Society of India (TSI) and Department of Mechanical Engineering & ITMMEC, Indian Institute of Technology - Delhi. The main motive of this conference was to provide a common platform to researchers from industry, R & D organization and academic institute, who were working on automotive systems, to reduce friction and wear in transportation. Tough competition, government regulations and rapid technological advancements in automotive sector clearly point towards the growing need of research efforts in the area of tribology of automotive systems. Usage of higher energy-conserving engine oils, wear resistant and low-friction materials and novel design of automotive components will become increasingly important, for saving of natural resources and lowering the engine friction. The purpose of this Conference was to bring together the tribology fraternity to explore, disseminate and strengthen initiatives in the area of improvements in automotive sectors. The main topics discussed during the Conference included: bearings, brakes, clutches, seals, manual transmission, final drives, advanced materials, testing and modeling, IC Engines, smart materials and novel applications, base oils & additives, lubricants & greases and condition monitoring. More than 60 participants covering oil industry, academia, and automobile industry took part in two-day long deliberations.

The Conference ended with the round –up of two days of deliberations covering various aspects of tribology, lubrication, condition monitoring etc. A Vote of Thanks was proposed by Dr. Pankaj Bhatnagar, Secretary, TSI-Delhi Chapter.

