

Workshop on “Special Lubricants and Hydraulic Fluids for High temperature nuclear applications”



At the Inaugural function : (from right to left) : Mr. R.G. Agarwal, Head, RTD, Mr. P.K. Limaye, SO/G, RTD, Dr. R.T. Mookken, DGM I/c. (PD-GISM), IOC, R&D, Mr. R. Suresh, DGM I/c. (Technical Services), IOC (Marketing)

The Fluid Power & Tribology Section, Refuelling Technology Division (RTD) in co-ordination with Indian Oil Corporation Ltd (IOCL) and Tribology Society of India – Mumbai Chapter (TSI) organized a one-day interaction for development of “Special Lubricants and Hydraulic Fluids for High temperature nuclear applications”. The workshop was attended by around 60-70 participants from DAE and 8 participants from IOCL. IOCL team was headed by Dr. R.T.Mookken, Dy. General Manager, IOCL-R&D Centre, Faridabad. Mr. R.G. Agrawal, Head RTD, inaugurated the workshop and briefed about the requirement of high temperature hydraulic fluids and radiation resistant lubricants for various applications. After the inauguration, Dr. R.T.Mookken, proceeded with his talk on “High temperature base fluids for nuclear plant

applications” where he emphasized on the importance of selection of base oil type for various applications.

The Second session started with presentation by Dr. N.K. Pokhriyal, Senior Research officer, IOCL. His topic was “Advances in Greases”. He spoke on selection of various base oils and additives for various application and their importance in performance enhancement for various applications. During his talk, he explained the basic steps involved in selection of grease for a particular application and various testing methods used for qualifying the grease. His lecture was followed by Dr. R.T.Mookken’s lecture on “Conventional power plant lubricants and hydraulic fluids”. The talk focused on selection of Hydraulic fluids and

lubricants for a conventional power plant and where it could have a similar application in a nuclear power plant. The Third talk in the session was by Mr. Ajay Kumar, R&D IOCL, Faridabad on "Tribotesting of Lubricants". He gave a detailed presentation on various aspects of tribology and the testing requirements for qualifying the product.

After tea, an interactive session was held where various requirements were raised by the participants. IOCL suggested that a joint project could be taken up to develop indigenous products which are radiation resistant and are suitable for high temperature applications. R&D Centre IOCL has the capability to develop such products on demand basis. Following was concluded from the session:

1. Nuclear power plants are generally use existing lubricants with frequent change overs. However, they could use high performance long life lubricants. BARC requested for data on existing high temperature lubricants from IOC such as Servo system HLP Oils, Servo synco E-68, high temperature grease with synthetic oils etc.
2. BARC will evaluate the performance of these oils including gamma radiation environment

and recommend their applications in nuclear power plants. BARC / nuclear power plants can give their requirement with respect to service life expectations of lubricants for different application areas.

3. Neutron exposure testing can be held only at BARC which can be arranged on request from IOCL. BARC may send the list of lubricants which at present are being used in Nuclear Power Plants.
4. BARC requested IOC to give different types of base oils available in the market with respect to high temperature capabilities. IOC R&D will send this information to BARC.
5. BARC also agreed to share the specifications of the products which at present are being imported for nuclear power applications.

The Workshop concluded by a vote of thanks presented by Mr. N.L.Soni, Chairman, Tribology Society Of India, Mumbai & Pune Chapter and Head Fluid power & Tribology Section, RTD.