It is my great privilege to extend my warm greetings to the readers of SAMPARK.SAENIS through SAMPARK provides the much needed “connect” among all stakeholders of both national and international automotive industry. It acts as great appraisal medium for them not only related to the activities of this leading scientific society of India but also keeping us abreast with the recent technological advancements that are happening across the world in automotive and allied areas.

Indian automotive industry, as we all know, continues to be on a higher growth trajectory, notwithstanding the occasional phases of suddenness arising out of economic intransigencies. The cumulative production data of Indian automobile industry for April-February 2012 shows overall production growth of 14.56 percent over same period last year, according to Society of Indian Automobile Manufacturers (SIAM). Production in February 2012 registered growth of 14.62 percent as compared to February 2011.

Being from oil industry, I observe these euphoric growth figures with equal excitement but at the same time seized of the challenges and opportunities that emanate from these growth patterns. Making available commensurate fuel quality and the world class, new generation lubricants to meet the global standards are the immediate challenges. As a core automotive lubricant formulator, I am aware of the need to upgrade and customize automotive engine oils – at par with highest API and ACEA standards and most importantly to meet the specific requirements of OEMs. We are well aware of the sensitivities of lubricant compatibility with emission after treatment devices. Re-optimization of lube formulations with low “SAPS” (Sulphated Ash, Phosphorus and Sulphur) additive chemistry is a serious exercise which the lubricant formulators, the world over, are presently engaged in and so in India. With the impending mandatory fuel economy targets, we are trying to contribute our bit in developing fuel efficient, long drain lubricants. On the driveline front also, lubricants are now expected to enhance the shiftability experience as a customer delight and garner as much fuel economy as they can, besides the regular performance features.

These are some of the updates from automotive lubricant front that I would like to share with you.

Wishing all the readers a happy reading,

Dr. SSV Ramakumar
Deputy General Manager (Technical Coordination)
IOC R&D Center

SAENIS salutes all Women as the world celebrated 100 years of the declaration and observation of the first International Women’s day on 8th March!!!!
**BAJA SAEINDIA 2012**

The 5th edition of the 2012 BAJA SAEINDIA concluded after a 3-day event held at the NATRAX facility of NATRip in Pithampur, about 40km from Indore from 16th-20th Feb’12. SRM University, Chennai grabbed the top honors of the event followed by Modern College of Engineering, Pune and BMS Institute of Technology, Karnataka.

The BAJA SAEINDIA is an event organized for young undergraduate engineering students wherein, the students have to design, fabricate and engineer a single-seater four-wheeled off-roader completely from scratch. The event tests the vehicle for the engineering practices, agility, speed, acceleration and maneuverability.

There were a total of 96 judges from leading automotive companies like Cummins, Mahindra, NATRIP and Maruti. This year over 100 teams from various engineering colleges across India participated in the event, out of which only 82 teams made it to the third and final day and to the final test of the 4-hour endurance run on a dirt track. AIIMS College of Engineering, Pune took the top spot in the endurance run followed with PSG Engineering College, Coimbatore. The overall winners of the event were declared based on the endurance run on 3.2 km long track that accounts for a total of 600 points and the series of test conducted over the first two days of the event, which account for 400 points. IET college Nebula won the Go Green award and GS Racers of SGSITS won Pride of Indore and CAE awards.

**TECH BUZZ**

**Low compression Ratio Diesel Engine**

Diesel engines generally have a high compression ratio due to which the compression temperature and pressure at piston top dead center (TDC) are extremely high. If fuel is injected under these conditions, ignition will take place before an adequate air-fuel mixture is formed, causing heterogeneous combustion to occur locally. As a result, the formation of NOx and, due to combustion with insufficient oxygen, the formation of soot is brought about.

Under recent strict emissions regulations, this makes it difficult to ignite the mixture at the optimal timing (TDC), leaving no other choice but to delay combustion until the piston begins to descend and lower the cylinder pressure and temperature, although this causes fuel economy to worse. When the compression ratio is lowered, compression temperature and pressure at TDC decrease. Consequently, ignition takes longer even when fuel is injected near TDC, enabling better mixture of air and fuel. This alleviates the formation of NOx and soot because the combustion becomes more uniform without localized high-temperature areas and oxygen insufficiencies. Furthermore, injection and combustion close to TDC result in a highly-efficient diesel engine, in which a larger amount of actual work (or, a higher expansion ratio) is obtained than in a high-compression-ratio diesel engine (Fig.2). Due to its low compression ratio, the maximum in-cylinder combustion pressure is lower than the current diesel, realizing significant weight reduction through structural optimization.
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