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**St. JOSEPH'S COLLEGE OF ENGINEERING**  
(An Autonomous Institution)  
**St. Joseph's Group of Institutions**  
**Jeppiaar Educational Trust**  
OMR, Chennai - 119.



**இந்திய தர நிர்ணய அமைவனம்**  
சென்னை கிளை அலுவலகம் - I  
**BUREAU OF INDIAN STANDARDS**  
CHENNAI BRANCH OFFICE - I

*Exposure Visit*



*Organized by*

**BIS STANDARDS CLUB**

Department of Mechanical Engineering  
St. Joseph's College of Engineering, OMR, Chennai-119,





## *Overview of the Visit*

Department of Mechanical Engineering, St. Joseph's College of Engineering, OMR, Chennai in collaboration with BIS Standards Club, Bureau of Indian Standards, Chennai, has arranged an industrial exposure visit to CEAT, Sriperumbudur, Kannanthangal, Maduramangalam, Tamilnadu on the 26th of August 2022. A batch of 12 members of the BIS Standards club along with Mr. Ruskin Bruce, Assistant Professor, has visited the esteemed organization.



Mr.D. Banukiran, Scientist-B, Assistant Director, Chennai Branch Office-1, Bureau of Indian Standards, Chennai extended a warm welcome and introduced the students to the elite CEAT team. Mr. Dinesh, CEAT, explained the Standard Operating Procedure of Safety for Visitors arriving at their facility. Along with him, we were accompanied by Mr. Yedhukrishnan for the rest of the visit.

We were warmly greeted by Ms. Niranjana and Mr. Guru Prasad, CEAT Team, who briefed us about the company and the agenda for the visit. The company follows a Self-Managed Team (SMT) culture and has the impressive achievement of having a woman in every department of the company. Mr. Guru Prasad then continued with the visit by showing us the process flow of the entire company.

## *Industrial Visit Report*

*Standards Club Member: Mr. Anirudh, III Year A Section*

Firstly, we started with the raw material. It is stored in separate storage called Raw Material Storage (RMS). Here, we saw the form in which the raw materials are bought and stored. For example, Accelerants and Synthetic rubber are stored in Air-Conditioned rooms inside RMS to extend their shelf life. We saw the various variations of natural rubber depending on the location of the source and pre-treatments. Chemicals like Carbon Black, Sulphur, Waxes, and Anti-tack were stored separately.

Then, we moved on to the mixing and extrusion part. Here the various components of the rubber (the recipe) were provided and long sheets of rubber were obtained. Sheets have codes lasered onto them to identify the batch number for easier tracking. Anti-tacks are applied to prevent adhesion between the layers of rubber. The sheets are then used to create rolls of the required thickness and width. Fabric is placed in between to prevent self-adhesion. A process called calendering, which is coating material with rubber, is done with nylon fabric and steel wires to create the

components required for the building of a tyre. After all the required parts of a tyre (apex, carcass, and others) are manufactured and assembled in a separate section.



Here the parts are assembled using machines with less manual labour. The green tyre, as it is called, which does not have the shape, thread pattern, markings, etc, is then moved to a curing section. Here, the green tires are placed over a bladder. Pressure agents (Nitrogen or steam) is used to inflate the bladder as heated platens are placed over the green tyre. This vulcanizes the rubber, creates the thread pattern, and markings, and provides the final shape to the tyre. They are then dried, and packaged.

Testing of tyres included destructive and non-destructive methods. Rolling resistance test, Life expectancy, Bead Strength, and various other tests according to the BIS are done at frequent intervals. If there are any deviations, the whole batch is tested and back-tracked to find the source of the error.

### ***Overall Feedback from the Student Members-Standard Club***

All the participants and staff appreciated the effort put in by the Bureau of Indian Standards (BIS), Chennai Branch Office-1 for organizing a very informative and eye-opening session inside a world-class facility. All the staff from CEAT were also welcoming and cleared the doubts as much as possible and we would like to extend our thanks to the wonderful CEAT team.

## Note of Thanks



On behalf of the Students, Faculty, Head of Department, and our beloved Chairman, Dr. B. Babu Manoharan, M.A., M.B.A., Ph.D., Chairman, St. Joseph's Group of Institution, thank Mr.D. Banukiran, Scientist-B, Assistant Director, Chennai Branch Office-1, Bureau of Indian Standards for arranging an industrial visit to the esteemed organization, CEAT, Sriperumbudur, Kannanthangal, Maduramangalam, Tamilnadu on the 26th of August 2022. We thank Mr. Guru Prasad, Mr. Yedhukrishnan, Mr. Dinesh, and Ms. Niranjana, CEAT Team for their reception, knowledge sharing, and support.

The Standard Club Student members had an opportunity to visualize an organization of international repute with world-class infrastructure. The students had a wonderful journey envisaging the future trend in manufacturing, testing, and inspection of automotive tyre.

The knowledge sharing was on par with excellence. We would like to have such engagement in the future and are sure such kind of engagement would definitely serve the purpose of the Government of INDIA in promoting awareness about standards from a quality perspective and customer outreach relatively.