IAQ QUALITY SUSTAINABILITY AWARD 2021 - ONE-PAGE SUMMARY

The One-Page Summary should be filled in and submitted as Appendix 1 to your Application. It will also be published on the IAQ Quality Sustainability Award Homepage; http://iaqaward.com. The length of this document must not exceed 1 page.

Project and contact details

The name of the quality sustainability project: Conversion of hot water curing system to N2 curing to save steam generation		
Contact Person : S.K.Shetty	**Telephone: +91 8754440061**	**Email : sk_shetty@jkmail.com**
Organisation(s), country, where the project-members are working, including Web-page links		
J.K.Tyre & Industries Ltd, Truck Radial Plant, Hebbal Industrial area, Mysore, Karnataka state, India		

Project desciption

Essence of the project : Implementing new technology which is ***clean, green and Energy efficient*** in 25 year old plant by doing suitable inhouse modifications achieved significant reduction in plant carbon footprint
(Project Started :15.11.2018 and Project Completed : 20.07.2019)

Problem Definition :

In Tyre Industry, curing or vulcanization is the process where the semi-finished tyre commonly known as green tyre is cured or vulcanized in Curing Press. After the curing the green tyre takes the shape of the Type which we see in market. In our Truck Bus Radial tyre plant, the tyre curing is carried out with conventional hot water circulation process. In the existing technology, the hot water is prepared by providing live steam and pumped to presses using pumps & motor system. The Hot water is pumped at 28 KSC pressure and temp - $168^0 \pm 2^oC$. For hot water generation we used to consume live steam 105 MT/day and power consumption - 5500 Units/day . The steam is generated in our boiler by burning coal and power is purchased from state electricity board which is predominantly fossil fuel based

Analysis :

In order to reduce the our overall carbon footprint by 50% by 2030 from 2013 level, we analyzed and found that ,plant utilities are the major contributor & need to be improved to achieve our sustainability goal. Hence we prepared detailed time bound action plans to improve our energy performance, efficiencies and adopt new & clean technologies to meet our targets of achieving 50% reduction in emissions by 2030. During our Energy audit, we analyzed and found that the Nitrogen curing system is clean and does not require any hot water system in the curing process. As Nitrogen is clear & inherent gas which does not cause any impact to eco system, and hence decided to implement the Nitrogen curing in our plant. The Nitrogen curing is an advanced technology in tyre curing, offering many benefits including improved productivity, enhanced bladder life, quality of product and reduction in energy consumption (Power, Steam and Water). We did risk analysis for the project to assess the impact of project and no significant risk was present

Steps taken and Methodology :The Nitrogen Project:

Though the plant was old & not designed for Nitrogen technology, we did lot of site customization and successful in converting from Hot water based to Nitrogen based curing system After successful trials in one press & after obtaining statutory approvals we expanded it to all 76 curing press and removed hot water process. The tyres made from new technology underwent series of stringent Quality testing and met all the parameters prescribed to ensure customer safety.

Results :

- Reduced coal consumption by **20 MT/ day (7,300MT/ annum) (40% reduction),**Reduction in Power as pumping system eliminated - **2.445 Million units / annum**
- **Reduction in EqCo2 emission by this project : 10,517 Tons / annum ,**Reduction in water consumption - 80 KL /day & 29,200 KL / annum

Connection with UN SDGs

SDG -7, Reduction in energy consumption
SDG -9, Innovation in Curing process for Nitrogen curing
SDG -12 , Reduction in Resources
SDG -13- to mitigate climate action by reducing emissions- reduce our emission intensity by 40% in the year 2020

Project leverage potential	Picture/Image describing the project
Results of Project : Any tyre **industry can utilize this new technology .** **Total INVESTMENT : Rs 16 Million with ROI : 14.44 Months**	

Note. More information about the award and how to apply can be found on the IAQ Quality Award homepage