



Patil Rail Infrastructure's R&D lab is at the forefront of innovations for Indian Railways, driven by the Make in India initiative



GLIMPSES OF LABORATORY

PRIL's R&D Lab is a state-of-the-art facility dedicated to pioneering innovations for Indian Railways

Established under the Make in India initiative for Indian Railways

Focused on self-reliance and indigenous innovation

PRIL's emerging as a key player for innovation in railway track



Patil Rail Infrastructure's R&D lab



- Empowering Indian Railways with homegrown technologies to enhance operational efficiency and reduce import dependency.
- Pioneering new solutions tailored for the Indian railways by using local expertise and resources.
- Helping Indian Railways in modernization without any dependency on MNCs.



- Under the Make in India initiative, PRIL's R&D Lab has accomplished several groundbreaking projects.
- These projects are now significantly contributing to the modernization of Indian Railways



Modern Fastening with stricter tolerances

Liner Less Fastening System

Under Sleeper Pad

Coating Solution for ERC

Composite Sleepers

New SGCI Insert with addition of Cu and Tin (Sn)



- For increasing the speed, stricter tolerances are mandatory for better control of gauge and other track parameters.
- PRIL has proposed tolerances of ± 1 mm, on wider gauge sleepers.
- In WR, SR and ECoR work is in progress.

Stricter tolerance track laid in WR





- The major problem today is rail foot corrosion leading to premature renewal of rails due to moisture entrapment under the liners. Liner Less Fastening system will solve the problem.
- System approved by RDSO
- Under considerations in SCR and ECoR for field trial

Liner Less Fastening System

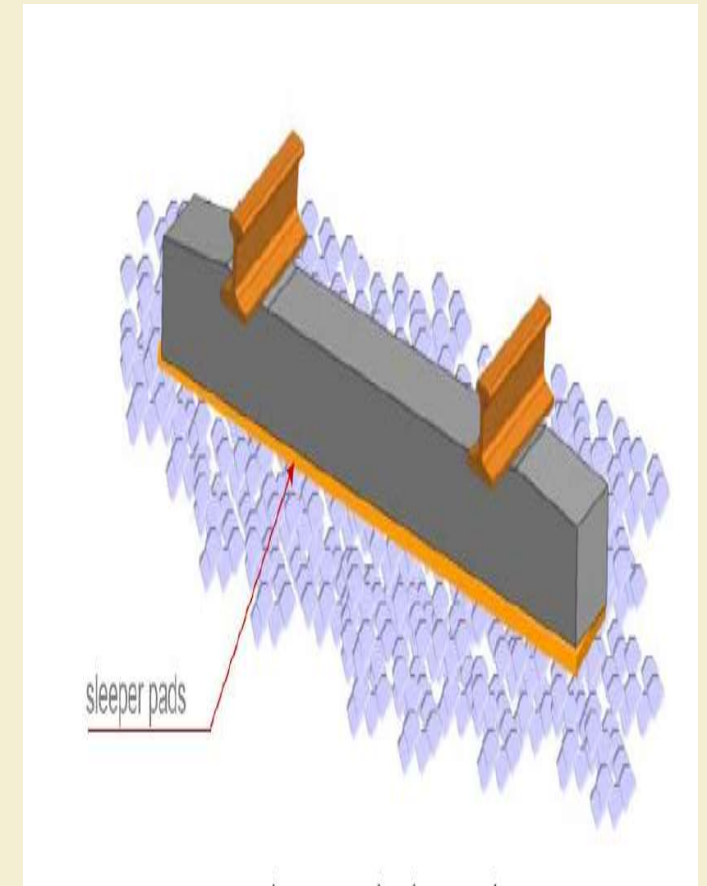




- Under Sleeper Pad- Technological advance in Railway track
- Under implementation in SCR and SER for field trial.



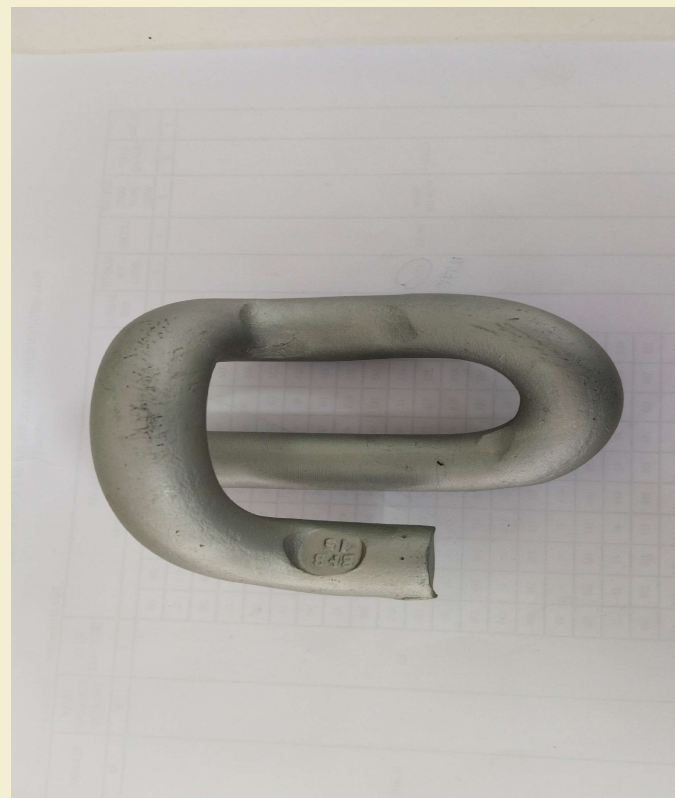
Under Sleeper Pad





- Coating Solution for Elastic Rail Clip- Zn flake coating for corrosion protection
- Under implementation in SCR for field trial.

Zn flake Coated ERC





- **Composite Sleeper-** Specialized sleepers used in bridges/high strength applications
- Laid more than 5000 Sleepers in NR and other Railways.
- **New SGCI Insert-** PRIL's is the first company to developed the new SGCI insert with addition of Cu and Tin (Sn). Due to the relatively low hardness of the earlier insert eye material, it was prone to wear. By altering the chemical composition and adding elements such as tin (Sn) and copper (Cu), this issue has been addressed. Consequently, the minimum hardness has increased from 170 to 210 BHN without compromising the minimum elongation, which remains at 7%.



Composite Sleeper



Conclusion and Future commitment

- Looking ahead, PRIL remains steadfast in its commitment to support the Indian Railways. The R&D lab will continue to innovate and collaborate closely with IR to ensure that the modernization of track systems is achieved through sustainable, homegrown solutions.
- This Collaborative approach will help to transform the Indian railway network into a safer, more efficient, and technologically advanced system, driven by Indian innovations.



THANK YOU