



**CASE STUDIES OF PIHBOND INDUCTION IN
KW HP LINE PRODUCING AUTOMOBILE CASTING**

By Goyal Technical Team

AGENDA

- The Goyal Group, trying to ensure better castings for the foundries, have now after considerable R&D effort, developed Single Additive product – ***PihBond series*** for foundry's green sand system and now associated with a Foundries with KW Line, producing sophisticated Automobile castings.
- Goyal Group introduced Single Additive– ***PIHBOND series*** in the sand system with the following objectives:
 - ✓ *Improve the peel off and finish of castings.*
 - ✓ *Optimizing Shot blasting time .*
 - ✓ *Optimize the addition of various consumables.*
 - ✓ *Control Weight of Castings.*
 - ✓ *Reduction in Sand related Rejections.*

SAND STICKING

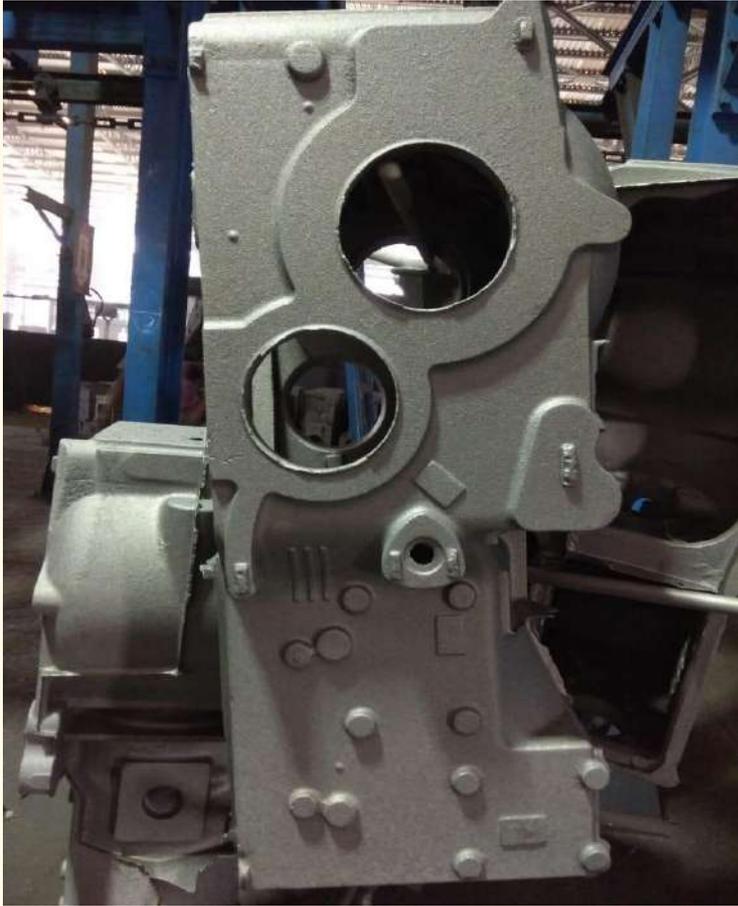


PRE - TRIAL

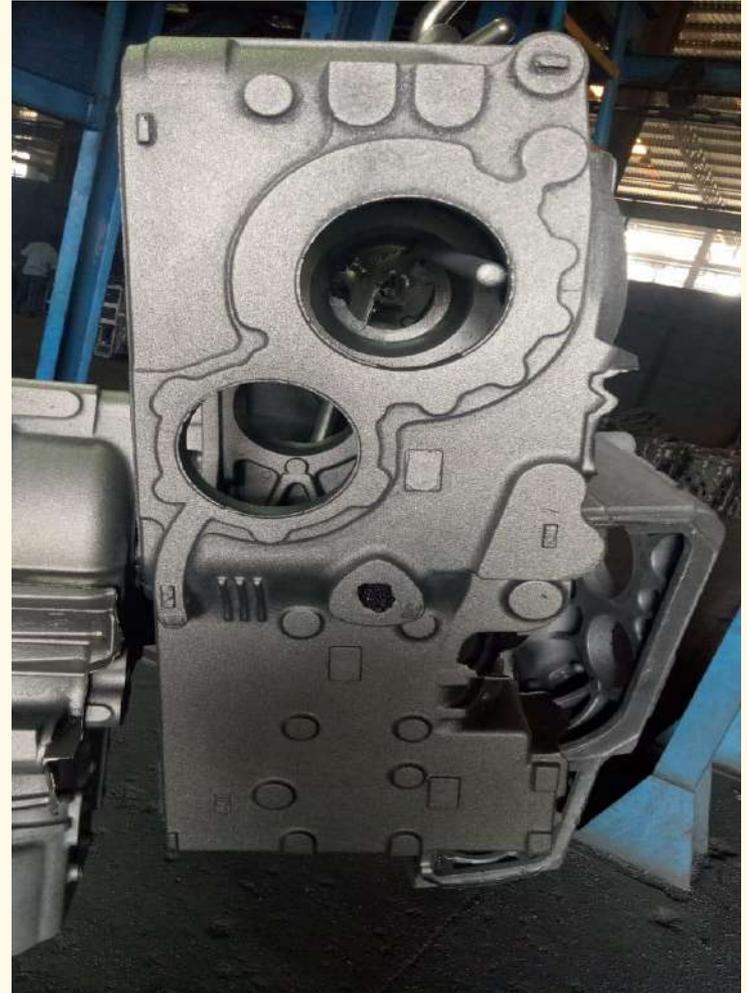


POST - TRIAL

SHOT BLASTING



PRE - TRIAL



POST - TRIAL

CASTING FINISH



PRE - TRIAL



POST - TRIAL

CASTING FINISH



PRE - TRIAL



POST - TRIAL

CASTING FINISH



PRE - TRIAL



POST - TRIAL

CASTING FINISH



PRE - TRIAL



POST - TRIAL

CASTING SURFACE FINISH & SCABBING PRE PIHBOND



CASTING SURFACE FINISH



SCABBING TENDENCY

IMPROVED CASTING SURFACE FINISH & REDUCED SCABBING TENDENCIES POST PIHBOND



CASTING SURFACE FINISH PRE PIHBOND



IMPROVED CASTING SURFACE FINISH AFTER PIHBOND



TECHNICAL IMPROVEMENT - FOR 3120MT PRODUCTION FOUNDRY

- Reduction of additives by 34%
- Reduction of sand sticking 3%
- Reduction of Shot Blasting time 30%
- Reduction of weight 1.0%
- Mould Breakage reduced considerably: -
 - *Year's Average 6% reduced to 2%
 - *Summer's Average 16% reduced to 2%
- Increase in GCS 14%
- Decrease in water demand 12%
- Reduction in sand related rejections 1.5%
- Reduction in machining rejection 0.5%
- Enhanced finish of Shot Blasted castings

INTANGIBLE BENEFITS ACCRUED

- Retention of sand containing valuable active ingredients in the system
- Reduction in Pollution Level
- Lower Water Demand
- Lower waste sand generation
- Lower waste sand disposal
- Better casting finish
- Better sand control and condition
- Improved production due to fast dispatches - Increased Throughput.
- Man Power Savings due to single handling of material.
- Technical service of the Goyal team.

CONCLUSION

- The Foundry accrued Technical Advantages as stated in our proposal.
- WIP in the fettling was reduced considerably
- This enabled faster dispatch of castings
- Mold breakage reduction, enabled better production
- Shop floor pollution reduced considerably enabling better working conditions in the Foundry
- ***While the cost of PihBond enriched sand works out higher than Bentonite + LCA enriched sand, when considering the overall costing (cost advantage accrued by the tangible Technical Advantages) the Foundry was advantaged commercially in comparison to the Bentonite + LCA System.***