FINE COAL RECOVERY

TATA STEEL
History of Fine Coal Recovery in Tata Steel

• 1980 : Froth Flotation Cells introduced : Flat bottom mechanical cells.

• 1993 : Introduction of round bottom flotation cells.

• Reagent : Pine oil replaced by synthetic frothers in 90s.

• Automation : AMDEL coal slurry analyser with auto control.

• Dewatering : Screen bowl centrifuges being used since 80s.
A new approach to Fine Coal Recovery

• Fine coal recovery became critical for ash reduction.

• Critical issues: Low ash froth, stable recovery and dewatering

• Major areas of improvement:
  • Feed quality: Oversize (+0.5mm) reduction from 18% to < 6%.
  • Hydrocyclone: for recovery of low ash coal from feed to FF cell.
  • Split dosing: better particle frother interaction.
  • Dosing of coagulant flocculant: To reduce loss of fine coal in screen bowl centrifuges.
  • Froth washing trial.
Beneficiation : Froth Flotation
Reduction in Clean Coal Ash - West Bokaro

Raw Coal Ash: 35%
Coal Beneficiation : Future

Coarse Coal :

• Rationalise processing stream - use of larger dia in Dense media cyclone.

• Use of counter current magnetic separators for efficient magnetite recovery.
Fine Coal:

- Need to evaluate a different process for size 0.2 -1.5mm fractions for efficient separation.
- Efficient Dewatering of fines.

![Relative efficiency of separation of fine coal using different methods](image-url)
THANK YOU