WASTE MANAGEMENT

TATA STEEL

Waste Management

1. Middling Coal

By Product from Dense Media Cyclone	Size 0.5 - 13/15/20 mm	Production 1.7 mtpa

Characteristics

Ash %	VM %	FC %	IM %	UHV (k.cals/ kg)	GCV (k.cals/kg)	Ash fusion Temp ^{o}C
38-40	20-21	39-42	0.85-0.88	3400-3700	+4800	+1400

Customer

- Captive Power Houses (10%)
- Tata Power (65%)
- Bokaro Power Supply Corporation (25%)

Waste Management

2. Tailings

By Product of Froth Flotation Cell	Dewatering in tailing pond (decantation)	Size 0 to 0.5 mm	Production 1.0 mtpa

Characteristics

Grade	Ash %	VM %	FC %	IM %	UHV (k.cals/ kg)
E	37-38	21-22	39-40	0.97-0.98	3500-3800

Market

- Customers of Tailings: Brick manufacturers
- Consumption: 20T of tailings per 100000 bricks.
- Consumption pattern : Cyclical
- Favourable period : November to March

Improvements

- Dosing of flocculants and defoamers in tailing ponds for faster setting of tailings and clear water recirculation
- Concrete roads for tailing transportation route to prevent ground contamination
- Spillage arrestors fitted in all trucks
- Use of high frequency screen and solid bowl centrifuge for faster recovery of tailings

Waste Management

3. Rejects

Discard from Dence Medium Cyclone	Size 0.5 to 13/15/20 mm

Characteristics

Ash %	CV Kcal/kg
60-65	2200 – Jharia 1540 – W.Bokaro

Power Houses

- 1 X 10MW power house at Jamadoba
- 2 X 10 MW power house at West Bokaro

Features of FBC Boilers

Jamadoba	W.Bokaro
Bi Drum Natural Circulation	Bi Drum Natural Circulation
56 tph steam rate @400 deg. C at 24 kg/sq.cm	62 tph steam rate @400 deg. C at 24 kg/sq.cm
In bed Generator and Superheater Tubes	Waterwall Tubes only
Underbed reject Feed System	Over Bed rejectection feed System
Reject feed : 60-65% ash Washery Rejects @24tph	Reject feed : 65-70% ash Washery Rejects @32tph

Improvements

- Boiler upgradation to generate additional power.
- One boiler and two turbine combination is able to generate at 16MW peak load.
- Addition of Capacitor banks to improve power factor and thereby improve power generation.

Improvement Projects for Future

- Fine Coal Beneficiation : Costliest component of beneficiation process. Any improvement will not only improve the yield but also the product quality.
  Technologies :
  - Hydrosizer
  - Jameson cell
  - Column flotation
- Fine Coal Dewatering : Conventional method can reduce the moisture to approximately ~20% level only. Technologies to reduce it further.
- Coal Drying :
- Dry Beneficiation : Water is becoming scarce resource and dewatering requirement are becoming more and more critical to reduce downstream transportation cost. It is worth while to develop dry beneficiation technique.
- Chemical Beneficiation : For reducing cost in downstream process in the Steel Industry there is a need to reduce ash further (say 10% & below) and also try reducing Phosphorous in Indian Coals.

THANK YOU