



Case Study – Effect of Dispersant on Alumina Reduction

Benefits of Using Dispersants

Application:

Washing and beneficiation processes of Iron ore, Chromite ore and Manganese ore.

Advantages:

- Reduction in Silica and Alumina content in washed ore by 0.5 -1% over the existing levels
- Reduction in residual water in the product thus by reducing the transportation cost
- Improvement in the performance of scrubber/ classifier
- Operational benefits in the downstream processes due to reduction in clay content
- Reduction in coke consumption and improvement in productivity of blast furnace operation

Products:

FLUMIX – 330 D (PH: Alkaline, Inorganic silicate based)

FLUMIX – 220 D (PH: Alkaline, Organic salts based)

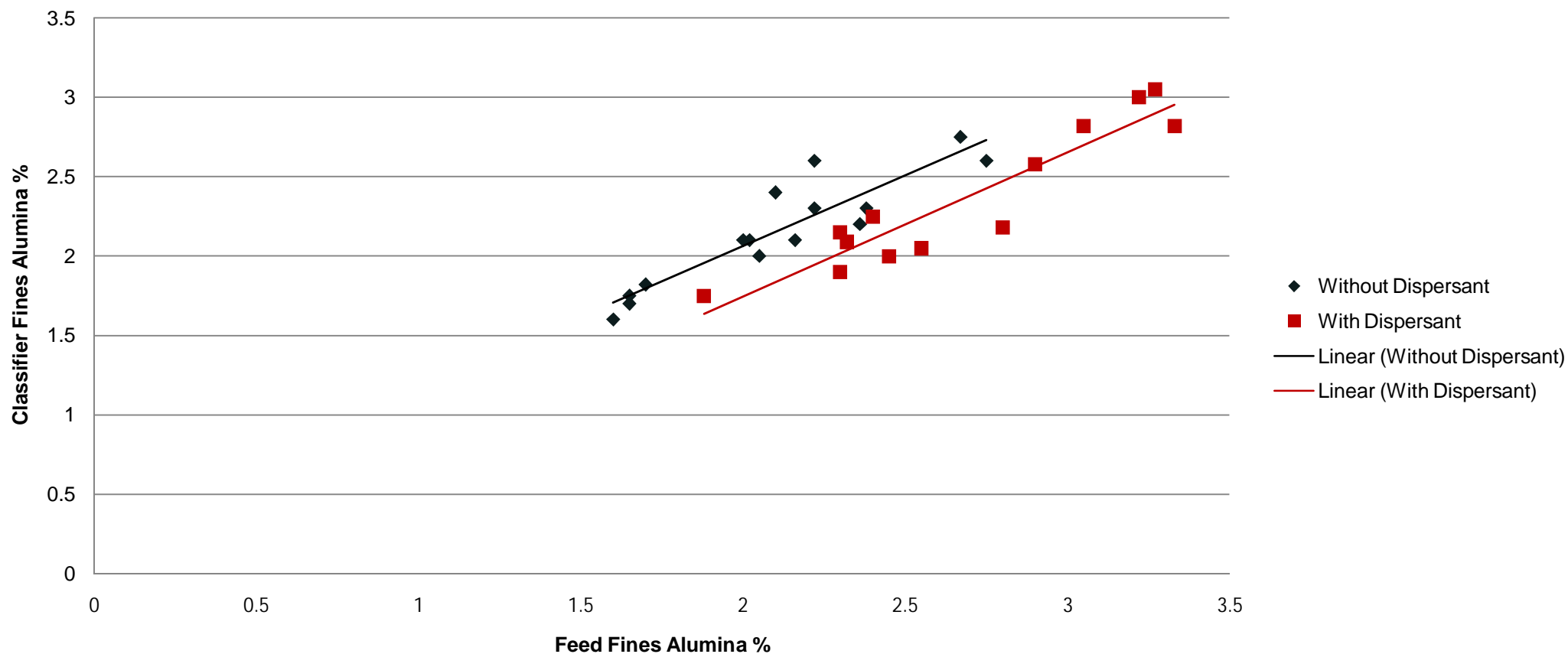
FLUMIX – 110 D (Organic salt, serves as both dispersing and dewatering aid)

Dispersant

Case Study: Dispersant trial in a Washing Plant in Odisha

Product: FLUMIX 330 D
Dosage: 0.005 to 0.01% (50 grams to 100 grams per MT of iron ore).
Dosing Points: Scrubber inlet (70%) and Screw Classifier (30%)
Results: Additional reduction in alumina % (alumina in product – alumina in feed) by 0.3-0.5% over washing without dispersant. Reduction in silica % increased by 0.4-0.7%

Effect of Dispersant on Washing



Case Study: Dispersant Trial in a Washing Plant in Odisha

(Contd.)

Results:

Reduction in alumina % (alumina in feed – alumina in product) by 0.3-0.5%. Reduction in silica % increased by 0.4-0.7%

Cost Benefit Analysis:

A decrease in alumina content by 0.6% lowers blast furnace coke consumption by 14 Kg/MT of hot metal and increase its productivity by about 30% under India operating conditions (Ref: Pradip et al).

Cost of coke: Rs. 7-10/Kg. Therefore, effective saving per MT due to saving in coke: Rs. 100/MT of hot metal production.

Cost of Chemical: Rs. 2 /MT of washed ore.

Approx Net benefit: Rs.95 /MT of hot metal