

Derrick® Stack Sizer® machines in grinding circuit increase capacity and metal recovery at lead & zinc operation

- Overall classification efficiency increased by 22%
- Metal recovery increased by 4.2%
- Production rate increased by 20%

Background

At a major lead and zinc producer in Turkey, the grinding circuit in this concentrator initially consisted of two parallel lines of single-stage ball mills in closed circuit with hydrocyclones. Hydraulic classification in the circuit preferentially sent higher specific gravity lead particles to the oversize product stream. This has led to buildup and preferential grinding of higher specific gravity lead mineral, which has had serious negative implications on the circuit performance as well as the metal recovery process. The production rate was 35 mt/h with a circulating load of 220 percent.

Solution

Full-scale laboratory tests were conducted in Buffalo, New York, U.S.A.. Test results indicated that 150 micron size separation can be effectively achieved with the Stack Sizer®. The unit was equipped with 150 micron Derrick® non-blinding exceptionally high percent open area Polyweb® polyurethane screen panels. After full-scale test work and successful test results, the customer decided to replace the hydrocyclones with Derrick Stack Sizers.



One of thirteen Derrick Stack Sizers successfully implemented at Esan Eczacibasi's lead and zinc operations at Balya, Turkey

Using this equipment for particle classification, the circulating load decreased from 220 percent to 100 percent. Production rose by 20 percent, and metal recovery increased by 4.20 percent.

Conclusion

Derrick Stack Sizer technology was successfully implemented by the customer. Replacement of hydrocyclones in their grinding circuit

with Stack Sizers resulted in major process improvements. After successful results of the initial two Stack Sizers at a mill line, the customer expanded the production to five ball mill lines, for total of thirteen Stack Sizers.

For more information, please contact your local Derrick sales representative.

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