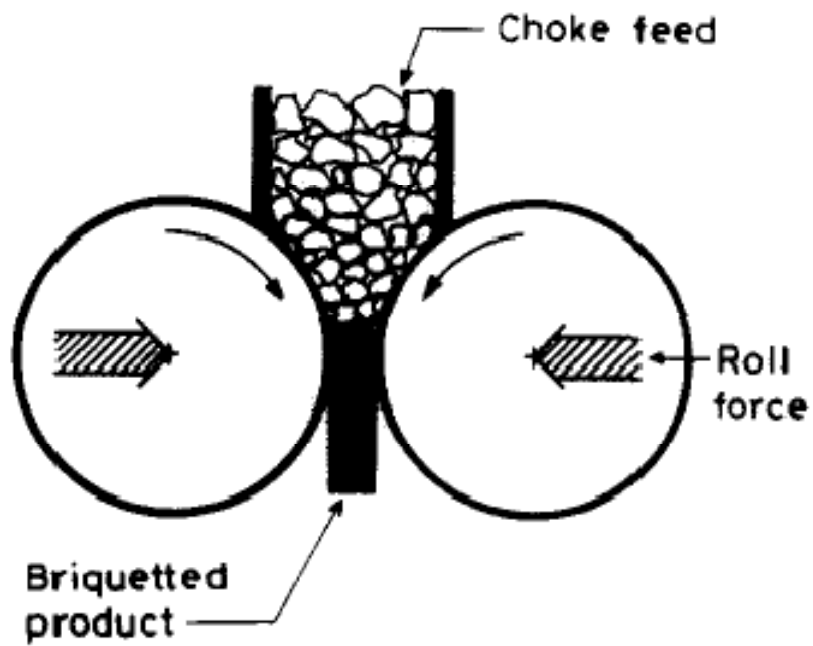


Benefits of using high pressure
grinding rolls at the Malmberget
concentrator

Background

- 20 % increase in capacity in the concentration plant
- One possibility is High Pressure Grinding Roll (HPGR)

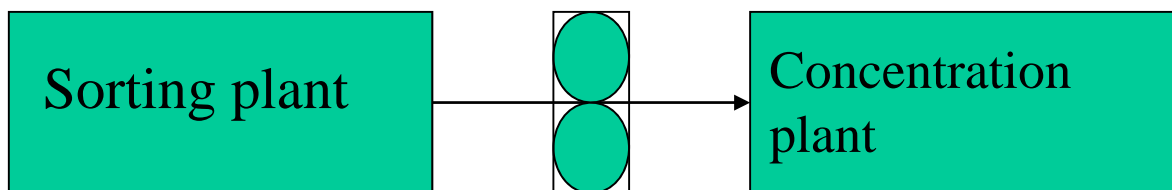
What is HPGR?



Questions to be answered

What can be expected from a HPGR in terms of increase in capacity in the concentration plant?

Is it possible to save energy with a HPGR?



Installation of HPGR

Benefits of using HPGR

- Energy efficient
- High availability
- High capacity
- Generating microcracks.

HPGR disadvantages

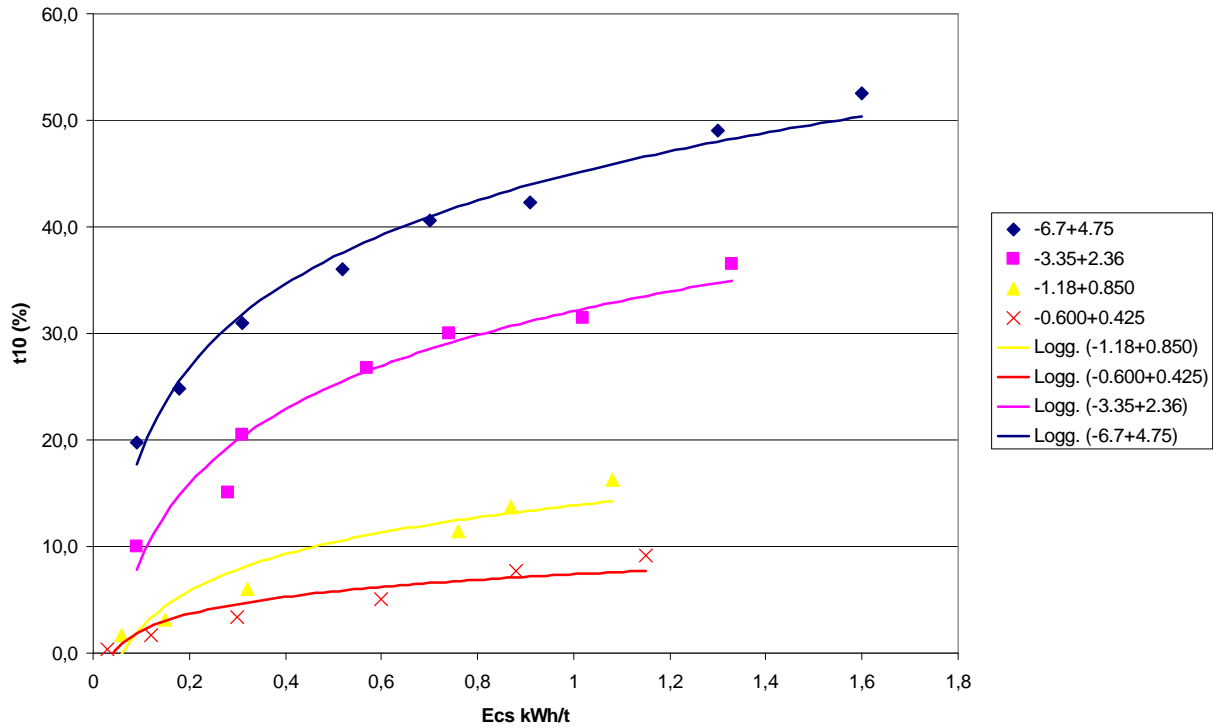
- Feed to HPGR important
- Dry feed required (max 10 % moisture)
- Choke feed
- The product must be deagglomerated

Test on material

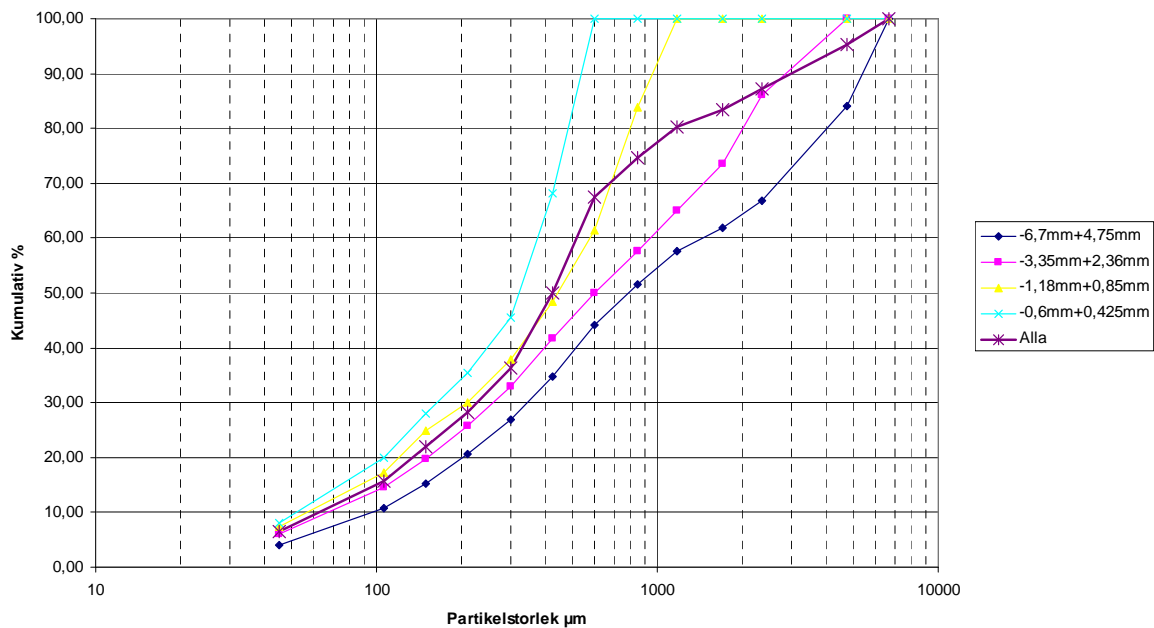


Photo: Erik Degerstedt and Bertil Pålsson

Results



Beräknade produktstorlekar



Calculation of capacity and specific energy

Four alternatives

Alt 0: Reference. Existing circuit.

Alt 1: A finer product from HPGR assumed to give increase in capacity in concentrator

Alt 2: A finer product from HPGR combined with lower Bond Work Index in primary grinding step assumed to give increase in capacity in concentrator

Alt 3: A finer product from HPGR combined with lower Bond Work Index in all three grinding steps assumed to give increase in capacity in concentrator

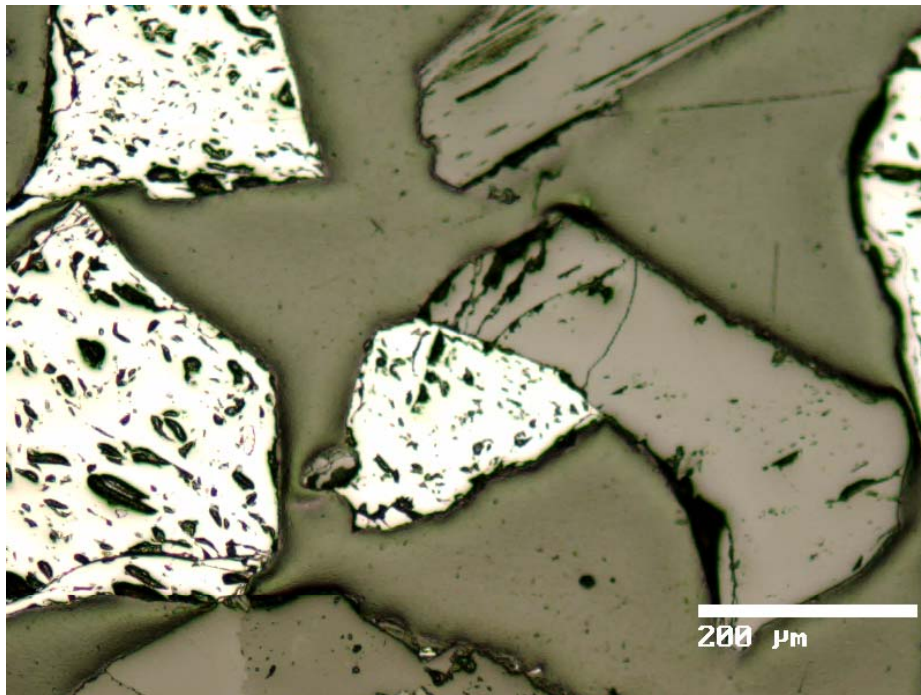
Results based on HPGR in open circuit

Results from calculations

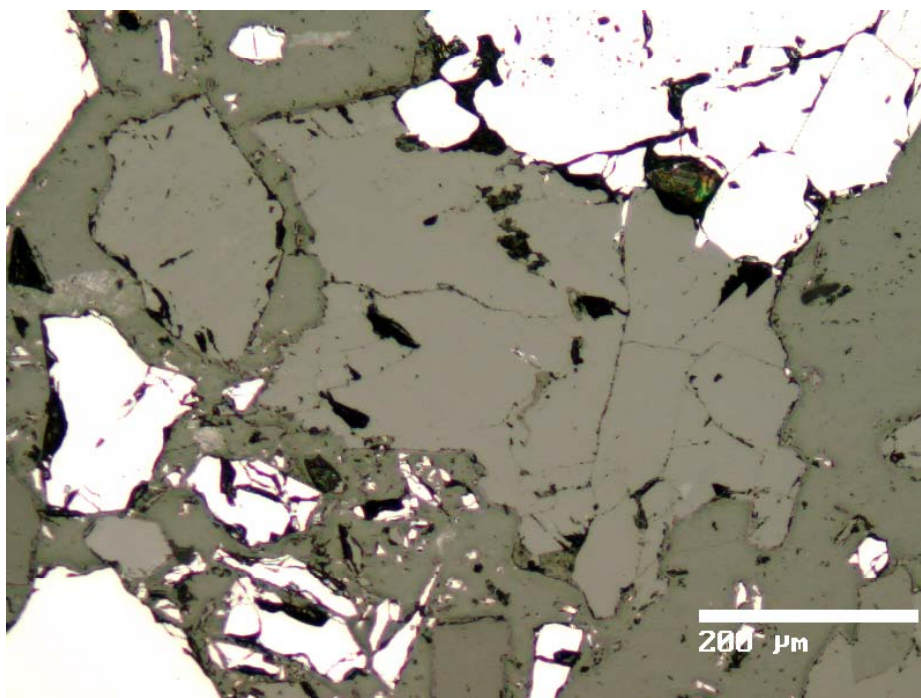
- Increased capacity in concentrator with 5 – 13 %
- Specific energy is lowered with 1 – 7 %
- Total power consumption increase with 4 %.

Microcracks

Before pressing



After pressing



Conclusion

For HPGR in open circuit

- HPGR cannot, alone, increase the capacity by 20 % in the concentration plant

Thanks to

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The end!