SUSTAINABLE SOLUTIONS FOR MINING AND REMEDIATION

DISA

NOVEL PROCESS

- HPSA is a mechanical process (i.e. no chemicals) leveraging particle - particle collisions.
- HPSA focuses on liberating minerals along their intergranular boundary lines, creating a much more efficient liberation at particle sizes that are coarser than the industry standard.
- Slurries are transported by high-pressure pumps through opposing nozzles, creating impinging jets contained in a collision housing.

GEN A Deployed at an Iron Tailings Site

SELECTIVE LIBERATION

- HPSA uses the difference in Mohs hardness between the base mineral and target mineral for selective liberation, which provides a more energy efficient alternative to conventional grinding mills.
- By liberating target minerals from the gangue, the post-HPSA material can be more efficiently separated by size classification or flotation for increased grade and recovery.
- Due to HPSA's ability to selectively liberate, the target minerals are efficiently concentrated earlier in the processing sequence, which reduces the amount of overall material that needs processing. This creates opportunities to reduce or remove downstream unit operations.

HPSA Skid

CONTINUOUS OPERATION

- HPSA can be used as a stand alone system (typically for remediation and tailings applications) or as a "plug and play" unit in the grinding/regrinding stage of the processing circuit (replacing the need for ball mills, rod mills, and/or attrition scrubbers).
- Throughput scaling options based on processing needs - currently offering units with a range up to 50 TPH.
- Units can be applied to any circuit with minerals that benefit from selective liberation. Successful applications currently include, but are not limited to: Uranium / Vanadium / Phosphate / Potash / Graphite / Copper / Molybdenum / Gold / REEs.

GEN B Full Circuit

1653 English Ave. Casper, WY 82601
11005 N. Dover St. Suite 500 Westminster, CO 80021
info@disausa.com
www.disaUSA.com

DISA GRAPHITE

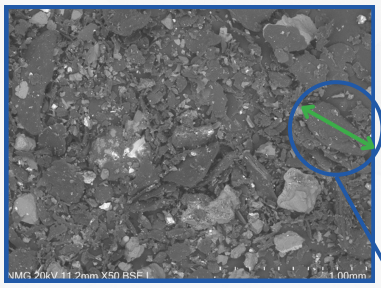
APPLICATION

- HPSA was evaluated to replace a ball mill in a secondary grinding circuit for a graphite deposit. Both the ball mill and the HPSA post-processed material were assessed for grade/ recovery ratios through the same flotation procedure.
- Test results show that HPSA has the potential to greatly increase the grade of the graphite concentrate fed to the polishing mill, at the same recovery.

SCANNING ELECTRON MICROSCOPY

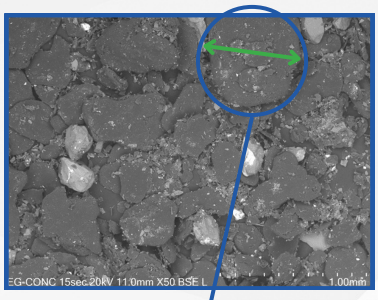
- The HPSA process improved graphite grade at a larger P80, while maintaining recovery.

Ball Mill



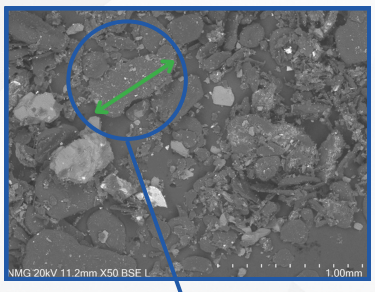
P80 = 350µm

HPSA Test 1



P80 = 372µm

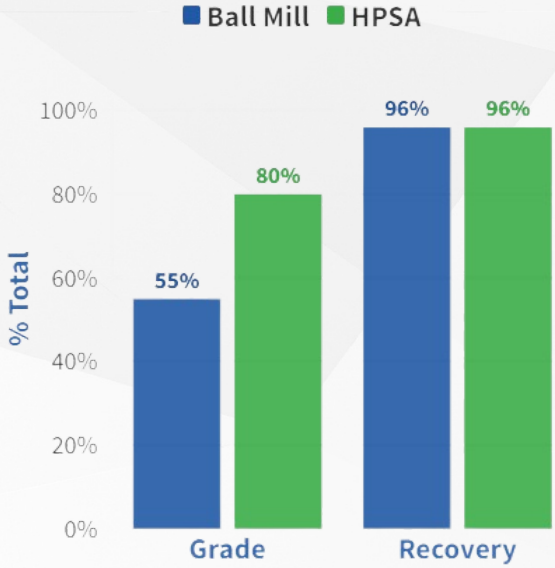
HPSA Test 2

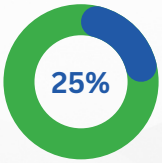


P80 = 352µm

RECOVERY AND MASS

HPSA Vs. Ball Mill





INCREASE IN GRADE AT A LARGER P80

- The HPSA process increased graphite flotation concentrate grade by 25% at a larger P80. This equates to significant savings in OPEX and CAPEX.
- These results indicate that HPSA has the potential to replace the current process (ball mill), multiple downstream regrind mills, and flotation cells in the graphite circuit.