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LASER PROCESSING OF THERMAL SPRAYED BERYLLIUM

J. Scott O'Dell[1], Timothy N. McKechnie[1] and Dr. James E. Hanafee[2]

[1]Plasma Processes Inc.
4914 D Moores Mill Road
Huntsville, AL 35811

[2]Lawrence Livermore National Laboratory
7000 East Avenue, L-352
Livermore, CA 94550

The feasibility of using laser-processing techniques to consolidate thermal sprayed beryllium deposits has been investigated. During these experiments both continuous wave CO_2 and pulsed Nd-YAG lasers have been used to consolidate inert plasma sprayed and vacuum plasma sprayed beryllium deposits. Density of as-sprayed beryllium has been increased from <90% of theoretical to 100% through laser consolidation. Also, critical issues such as depth of consolidation and key processing parameters have been identified. A metallurgical analysis of these results is presented.