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Hamweendo, Agripa

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ABSTRACT FOR THESIS

FABRICATION OF POROUS STRUCTURES USING COLD GAS DYNAMIC SPRAY TECHNOLOGY

Agripa Hamweendo

Porous structures are increasingly becoming important engineering materials in aerospace, health, cooling of electronics, and several other areas. However, the supply of porous structures in these areas is still not being met because the conventional methods of manufacturing porous structures lack the modern requirements of competitiveness, quality, and flexibility. Therefore, new methods are required. One of these methods is the cold spray technology. However, studies do not give clear indications on how the cold spray technology could be used to fabricate porous structures. Consequently, this thesis uses various methods such as the control of cold spray parameters, powder mixtures, and the integration of the cold spray with alloy-de-alloy process to investigate the capability of cold spray technology to manufacture porous structures. The results of this investigation proved that the cold spray technology can be used to fabricate porous structures with varied amount of porosity for a number of applications.