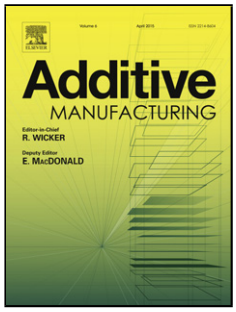

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Main defects observed in aluminum alloy parts produced by SLM: from causes to consequences

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HIGHLIGHTS:

- Defects of aluminium alloys SLMed parts are described from causes to consequences
- New prospects for studies concerning SLM and Al- alloys are highlighted
- Aluminium alloys studied by SLM are reviewed

Abstract

In recent years, the SLM process has been studied for the production of aluminum alloy parts, as these alloys demonstrate significant potential for the future, notably due to their low density which allows a considerable reduction in mass. The aim of this bibliographical study is to identify and classify the parameters and phenomena which influence the appearance of defects in aluminum alloy parts produced using the SLM process and hence the final properties of these parts. To do this, a cause tree diagram was created. For each defect or consequence identified (porosities, defects linked with hot cracking phenomena, anisotropy in the material and surface quality), we revealed the potential sources of the appearance of this defect, going back to the initial causes.

Keywords