

Behavior of a 3D printed panel under thermal stress

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Abstract.

PLA-based parts are widely used in many applications. The internal layout and printing strategies have a significant impact on the material's ability to provide thermal insulation. Under the action of a radial infrared heat source, the parallelepiped-shaped parts behave differently, depending on the printing parameters used. It can be seen how the thermally induced stresses are distributed over the entire surface by finite element analyzes. Corrective actions can then be taken on printing strategies. The power of the heat source and the distance from it are other factors that could influence the overall insulating capacity of 3D PLA based printed specimens. In the paper, some results obtained experimentally with those determined by using the finite element analysis method are compared.

References

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