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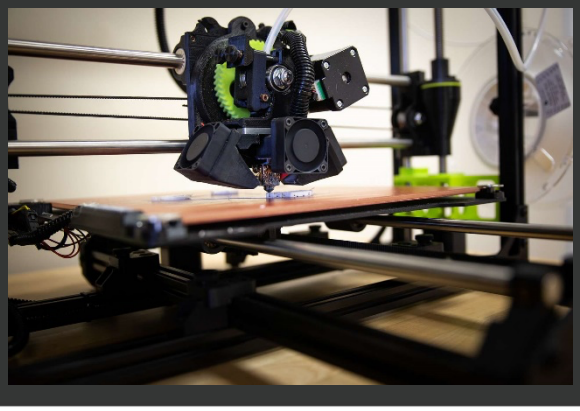

POLYIMIDE COPOLYMERS AND COMPOSITES FOR IMPROVED 3D PRINTING ACCURACY

DESCRIPTION

Poly (amic acid), PAA is often used in producing thermoplastic polyimide films and coatings. However, PAA can only obtain a limited viscosity, and after casting the beads can easily collapse due to the nature of the linear polymer chain. Therefore, current applications using PAA for 3D printing have decreased printing accuracy and limited applications for printing.

However, creating a thermosetting hybrid system between PAA and a copolymer with or without nanofillers, remedies post printing bead collapse by increasing bead stability. Additionally, it overcomes the extreme curing conditions that are necessary for traditional 3D printed PAA parts and has both hydrophobic and adhesive properties. Without the PAA and copolymer hybrid structure, 3D printed parts using PAA are rare and cannot achieve the thermal stability and performance necessary for use in industrial applications.

Dr. Iroh and his team have invented a thermosetting PAA and copolymer hybrid reinforced with nanofillers which significantly improves bead stability and printing accuracy. The nanomaterials filled PAA and copolymer hybrid structure have many industrial applications where manufacturing, fabrication, and prototyping is utilized due to a high thermal stability. Therefore, 3D printed parts with a PAA and copolymer hybrid and their nanocomposites can be used in thermal applications requiring high stability and performance.

For discussions around learning more or licensing this technology, please contact Madison Bourbon today.

TECHNICAL FIELD
3D Printing

APPLICATION
High Temperature Lightweight Engine Components, Additive Manufacturing

ADVANTAGES

- High Thermal Stability
- Improved Curing Time
- Improved 3D Printing Accuracy

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