

CERAMIC PORCELAIN SLURRY FOR 3D PRINTING APPLICATIONS

ABSTRACT OF THE DISCLOSURE

5 The present utility model relates to a ceramic slurry composition for additive manufacturing, particularly stereolithography (SLA) 3D printing of dental prosthetics. The composition comprises 40-60% by weight porcelain and 60-40% by weight organic resin. The porcelain is formulated from feldspar,
10 silica, clay, and alumina, and may further include 2-5% by weight of polymeric additives such as polyethylene glycol, oleic acid, or stearic acid to enhance compatibility with the resin matrix. The resin is liquid, photocurable, and selected from polylactic acid, polymethylmethacrylate, or acrylate-based resins. In SLA
15 processing, the slurry is selectively cured layer by layer through photopolymerization, enabling the production of patient-specific dental restorations with high resolution and precision. Compared to traditional subtractive methods of porcelain prosthetic fabrication, the disclosed slurry composition
20 provides improved material efficiency, reduced waste, and time-effective processing, thereby supporting the advancement of additive manufacturing in dental applications.