METALLIZATION WITH LASER RADIATION FOR THE JOINING OF HYBRID MATERIAL COMBINATIONS - LAMETA -

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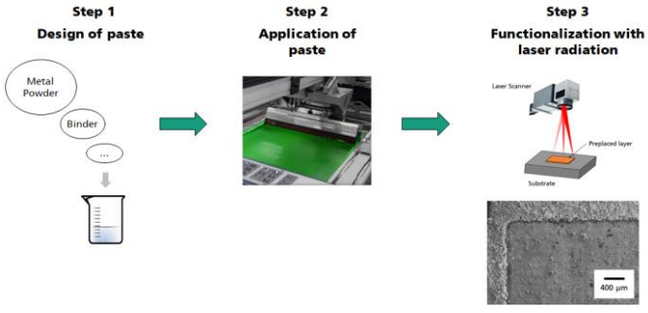
AIM AND APPROACH

AIM

Soldering on ceramic, glass or oxidized metals like aluminum is difficult and often requires a metallization prior to the soldering process. In LaMeta EUROMAT and Fraunhofer ILT in cooperation with the end users ProfiLed and Hommel Maschinentechnik are developing a laser based metallization process using nano/micro suspensions.

APPROACH

Suspensions containing a metal like silver or tin and other agents for adjusting the desired viscosity and to improve wetting are designed and applied on the surface of the substrate to be metalized via screen printing or dispensing in a layer thickness around 50 µm. After drying at a low temperature the layers are melted or sintered by laser radiation in a local shielding gas atmosphere.



Process steps of laser based metallization

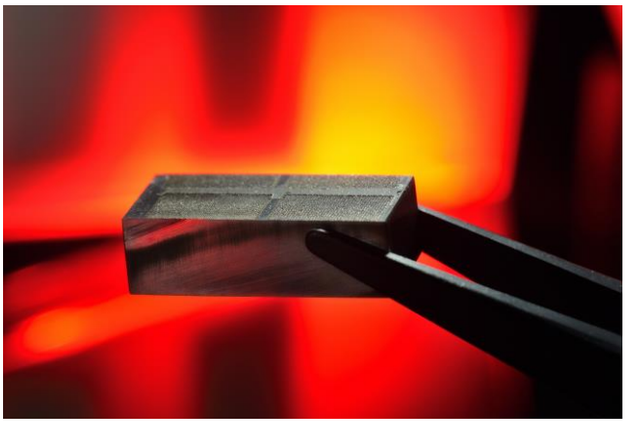
EXPECTED ADVANTAGES AND APPLICATIONS

EXPECTED ADVANTAGES

The laser technology enables local metallization with minimum heat input into the component. In contrast to a furnace process it can be easily integrated into a process chain. It can also be used for repair.

APPLICATIONS

Applications can be found in all areas where material combinations are used, e.g. batteries, fuel cells, heat exchangers, LED or tool industry.



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