Improvement in Surface Characteristics of Polymers for Subsequent Electroless Plating Using Liquid Assisted Laser Processing - DTU Orbit (02/01/2019)

**Improvement in Surface Characteristics of Polymers for Subsequent Electroless Plating Using Liquid Assisted Laser Processing**

Metallization of polymers is a widely used process in the electronic industry that involves their surface modification as a pre-treatment step. Laser-based surface modification is one of the commonly used techniques for polymers due to its speed and precision. The process involves laser heating of the polymer surface to generate a rough or porous surface. Laser processing in liquid generates superior surface characteristics that result in better metal deposition. In this study, a comparison of the surface characteristics obtained by laser processing in water vis-à-vis air along with the deposition characteristics are presented. In addition, a numerical model based on the finite volume method is developed to predict the temperature profile during the process. Based on the model results, it is hypothesized that physical phenomena such as vapor bubble generation and plasma formation may occur in the presence of water, and it is because of these effects that causes an increase in surface porosity.

**General information**
State: Published
Organisations: Department of Mechanical Engineering, Manufacturing Engineering
Pages: 211-217
Publication date: 2016
Peer-reviewed: Yes

**Publication information**
Journal: Physics Procedia
Volume: 83
ISSN (Print): 1875-3892
Ratings:
Scopus rating (2017): CiteScore 0.67 SJR 0.351 SNIP 0.614
Scopus rating (2016): CiteScore 0.65 SJR 0.347 SNIP 0.574
Scopus rating (2015): CiteScore 0.61 SJR 0.262 SNIP 0.572
Scopus rating (2014): CiteScore 0.78 SJR 0.401 SNIP 0.696
Scopus rating (2013): CiteScore 0.72 SJR 0.29 SNIP 0.605
ISI indexed (2013): ISI indexed no
Scopus rating (2012): CiteScore 0.5 SJR 0.28 SNIP 0.623
ISI indexed (2012): ISI indexed no
Web of Science (2012): Indexed yes
Scopus rating (2011): CiteScore 0.45 SJR 0.227 SNIP 0.467
ISI indexed (2011): ISI indexed no
Scopus rating (2010): SJR 0.218 SNIP 0.318
Scopus rating (2009): SJR 0.202 SNIP 0.456
Original language: English
Keywords: Laser processing, Surface modification, Metallization, Electroless plating, Finite volume method
Electronic versions:
Improvement_in_Surface_Characterisitcs_of_Polymers_for_Subsequent_Electroless_Plating_Using_Liquid_Assisted_Laser_Processing.pdf
DOIs:
10.1016/j.phpro.2016.08.011

**Bibliographical note**
This is an open access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/by-nc-nd/4.0/).
Source: FindIt
Source-ID: 2345009537
Research output: Research - peer-review › Conference article – Annual report year: 2016