

Inkjet varnish cured by UV LED technology

Development status

Phase 3

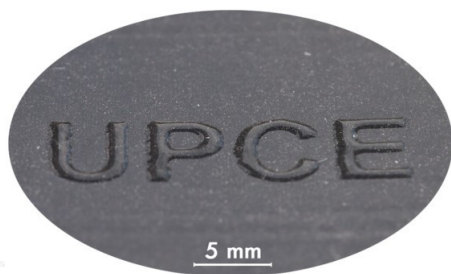
Technology validation and implementing it in real environment. Testing the technology outside of the laboratory and its adjustment to external conditions.

IP protection status

Utility model granted (Application form No. 2021-39352, Registration No. 35783)

Partnering strategy

Co-development, Collaboration, licensing



Institution

University of Pardubice

Vlastník

Univerzita Pardubice

Challenge

Nowadays, varnishing is used not only to intensify the protection of the prints, but also to increase the attractiveness of the product's appearance (especially the packaging of various products, book covers, etc.). Printing with conventional varnishes poses some problems such as lower adhesion to polymeric materials and lower elasticity, which can lead to defect formation (cracking and peeling of the varnish layer) during subsequent processing of prints (bending, cutting, grooving, etc.). Although the use of varnishes cured by UV LED brings many advantages, varnishes cured by mercury lamp still dominate the market.

Description

The developed varnish cured by UV LED is suitable especially for digital inkjet varnishing machines utilized for printing of various materials (e.g. papers, cardboards, polymer foils). Varnish composition was optimized in terms of mechanical, optical and printing properties. Benefits of using inkjet varnish cured by UV LED - electricity savings up to 75 % (against curing by mercury lamps) and related lower costs - elimination of ozone formation - possibility of immediate turning off/on the UV LED source - higher adhesion and elasticity in comparison with commonly utilized varnishes - creation of special varnish effects (3D structures, etc.). Monitored parameters during varnish composition optimization - elasticity and adhesion of the varnish layer - speed of curing/printing - printing properties - color after curing (yellowness) - long-term stability - viscosity - surface tension

Commercial opportunity

The developed varnish is suitable especially for digital inkjet varnishing machines. End customers are all the companies engaged in outdoor advertising, label printing, small-format product printing (replacing pad printing or screen printing), printing on book covers, textile printing, 3D printing, etc.