

XTPL NEWSLETTER

PATENT CLOUD DEVELOPMENT

The patent cloud development is a factor that increases the Company's value. For this reason, intellectual property protection is one of XTPL's priorities. The Company is gradually increasing its competitive edge by filing further patent applications. In May 2020, another two patent applications were submitted, covering further layers of intellectual property protection in the area of precise printing. Both applications were filed with the United States Patent and Trademark Office. One of the two applications relates to the design of the improved printing head used in the Ultra-Precise Deposition (UPD) process, while the other application concerns the formulation of high-viscosity ink, compatible with the UPD method. This unique combination of the high-viscosity ink and the printing head that enables its precise deposition (with the width of printed features ranging from 1 to 10 micrometers) makes it possible to print in a very high resolution on complex substrates, including on materials with very different wetting properties, junctions, and vertical steps. With this capability, the UPD technology enables, e.g. rapid prototyping of new generation electronic devices, including organic light-emitting diodes and printed circuit boards. In total, we have registered 15 applications so far. The XTPL team is intensively working on further patent applications.

EXTENSION OF THE PATENT CLOUD



FURTHER TECHNOLOGICAL MILESTONES ACHIEVED

The main competitive advantage of the XTPL additive solution is unprecedented precision that cannot be replicated by any other printing method in the world. XTPL development works are continued and proceeding as planned. What makes our Ultra-Precise Deposition (UPD) method unique is that it allows high-resolution printing on complex substrates: materials with very different wetting properties, junctions, and vertical steps. This is achieved thanks to the proper combination of our high-viscosity silver and copper inks (even 85% wt. of metal content, viscosity 10'000 to 1'000'000 cP) and fine printed features, typically from 1 to 10 um width. Moreover, contrary to photolithography techniques, the printing is done without a mask, which significantly simplifies the whole process.

How this technology works in practice can be seen in the microscope (SEM) images below. There is a junction of aluminum (Al, conductor) which was evaporated and structured onto a Plasma Enhanced Chemical Vapour Deposition (PECVD) silicon nitride (SiNx, insulator) with a vertical step of 0.37 um height between the two materials. On this substrate we printed a set of parallel silver lines with the line width of 2 um and the line height of 350 nm. Wetting properties of Al and SiNx are significantly different, yet we can clearly see that the lines are uniform on both materials. Moreover, there is a smooth transition from one material to the other, and the printed structures cover the step without any discontinuities. Finally, after the proper sintering process we ensure a full adhesion of the printed structures to the substrate on both materials.

Complex substrate topographies are frequent in novel electronic devices. Therefore, the UPD method can be particularly useful for rapid-prototyping of advanced metallization schemes for next-generation light-emitting diodes, transistors and flat panel displays, as well as MEMS devices and various sensors, to give just a few examples.

In the next newsletter, we will present, among others, the latest results obtained on the samples from the automotive industry clients, which is the part of XTPL technology evaluation.

Fig. 1. Silver conductive lines printed using XTPL printer and XTPL Ag nanoink



CONTINUED DEVELOPMENT DURING THE PANDEMIC

It has been more than two months since the coronavirus outbreak began. At that time, XTPL employees had to come to terms with the new reality, while maintaining work continuity. The Company is well prepared for remote work. The XTPL team is provided with laptops and company phones with internet access. They can use the Gsuite apps to smoothly continue work from home. We also use the previously implemented teamwork tools to ensure work efficiency during these unprecedented circumstances. Technological work is continued at the company's headquarters while maintaining all the standards announced by state institutions. Some technology staff are involved in the development of new grant and patent applications, and therefore also partly work from home.

All contacts and business meetings with partners are held in the form of teleconferences. The planned actions (e.g. shipping the ink to buyers, and preparation and dispatch of samples under the technology evaluation agreements) are continued and are on track. At the same time, the technology and business department is intensively working on acquiring new customers.

To sum up, so far the cooperation within the company and with external partners has been running without any major disruptions. It should be noted that the XTPL business model is not based on operations in the sectors most exposed to the adverse impact of the epidemic and the global crisis. We are monitoring the situation on an ongoing basis, remaining in constant contact with our partners.

CHANGE OF CONFERENCE DATES

The global situation related to the coronavirus pandemic has affected not only our internal work system, but also our activities outside the organization. The events planned for the first half of the year in which XTPL was to take active part have been postponed or canceled. Due to current limitations and logistic restrictions, we decided to postpone our participation in the Display Week 2020 conference. We will be back for the 2021 edition. Display Week is the most important event dedicated to display manufacturers. Its high profile is confirmed by such leading brands as LG Display, BOE and VISIONOX, which present themselves at the conference every year. XTPL's participation in the previous editions of the event resulted in numerous meetings with technology giants from the industry. The contacts acquired at the event led to specific business talks, and in some cases technology evaluation agreements were signed. Another event in which we will participate, and whose date is the German Spring Conference – an event for investors taking place in Frankfurt. This is an opportunity for companies to present selected investors, analysts, financial journalists and other participants with their latest business data and forecasts for the coming period. XTPL will take part in the autumn edition of the event (German Fall Conference 1–3 September 2020). Due to Covid-19, other industry events have also been canceled, including IDtechEx in Berlin, in which we actively participated every year. No new date of the event is known yet. We also plan to organize the next edition of the Investor Day at the company's headquarters. For obvious reasons, we are not able to provide a specific date of the event. We will keep you updated on all events planned.

CALLING THE EXTRAORDINARY GENERAL MEETING

Taking into account further development plans of XTPL and the related financial needs, a decision has been made to take steps aimed at raising new financing.

Neither the issue of shares or the bonds will require a prospectus or information memorandum to be drawn up within the meaning of the Act on public offering, conditions governing the introduction of financial instruments to organized trading and public companies. Detailed conditions for the issue of shares and bonds will be presented by the Management Board in draft resolutions of the General Meeting, which the management board has called for 8 June 2020 to obtain the consent of the Company's shareholders to raise the proposed financing.

SHARES

81.40 PLN
26/05/2020

RESULTS

ANNUAL REPORT FOR 2019

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RESULTS PRESENTATION FOR 2019

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INVESTOR CALENDAR

27
MAY
WEDNESDAY

Publication of the quarterly report
For Q1 2020

1
SEPTEMBER
TUEASDAY

German Fall Conference 2020

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[✉ investors@xtpl.com](mailto:investors@xtpl.com)

[☎ +48 71 707 22 04](tel:+48717072204)

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