INVESTMENT OFFER

TechInCom

Russia, St. Petersburg

Summary

1. **Volume of investments required – $ 826 thousand.**
2. **Production –** electronics.
3. **Trade marks –** none.

Company profile

Date of establishment – June 2006.
Signs of public recognition – winner of the Russian Innovation Competition 2006; Certificate of Daimler Chrysler AG Research and Technological Center 2006; publication in Russian Gazette of 04.07.2007.
Number of employees – 4 persons.

Team

***Aleshin Andrey* –** Scientific leader, 50 y.o. The head and participant of number successful R&D projects on polymer electronics.
***Snegurov Sergey* –** Director, 51 y.o. Has a strong experience in business.

Products characteristics

Wouldn't you like to be able to read off the screen of your laptop in direct sunlight? Or your next flat screen TV to be less expensive, much flatter, and even flexible? Thanks to a breakthrough technology called Organic Displays, this could soon be reality. Although the technology behind **organic light-emitting diodes** (OLED) displays is pure chemistry, the applications are much more everyday – mobile telephone and television screens, laptop and stereo displays, car navigation systems, or even billboards.

This OLED technology is based on a revolutionary discovery that light-emitting, fast switching diodes could be made from polymers as well as from semiconductors. Starting from a standard LCD glass covered with structured ITO (Indium-Tin-Oxide), the polymer materials are applied by precision ink jet printing. Using this technology, pixels of red, green, and blue material are available. After the patterned cathode has been applied via metal evaporation, the cell is sealed. Not only can they provide brighter, better images at a lower cost, but best of all: Organic Displays use a material with self-luminous properties that eliminates the need for a backlight. While backlighting is a crucial component to improving brightness in LCDs, it also adds significant cost as well as requiring extra power – which, for instance, translates into the heavy batteries in your laptop. With an organic display, your laptop might be less heavy to carry around, or your battery lasts much longer compared to a laptop equipped with a traditional LCD screen. **Polymer LEDs** have several **inherent properties** that afford unique possibilities, such as: 1) All colors of the visible spectrum are available, 2) High brightness is achieved at low drive voltages/current densities, 3) No viewing angle dependence, 4) Operating lifetime exceeding 10,000 hours, 5) High response speeds allow display of high quality video, 6) Working temperatures are from –40 up to +70 C. One big advantage of plastic electronics is that there is virtually **no restriction on size**. Conventional semiconductor components have become smaller and smaller over the course of time. Silicon is the base material of all microelectronics and is eminently suited for this purpose. However, the making of larger components is difficult and therefore costly. Plastic does not have any of these problems, so that semi-conducting plastics are paving the way for larger semiconductor components.

With the increasing popularity of LCD screens to replace the conventional picture (cathode ray) tube, PolyLED should emerge as another suitable candidate. A screen based on PolyLEDs has obvious advantages: the screen is lightweight and flexible, so that it can be rolled up. With plastic chips you can ensure that the electronics driving the screen are integrated in the screen itself. Other applications of the PolyLED are luminous information screens of almost unlimited size, for example alongside motorways or at train stations. One of the most important applications of OLEDs is general and specific illumination.

It is worth noting that most conventional OLEDs consist of optically active polymer materials. It was found recently, that the integration of organic and inorganic materials at the nanometer scale into hybrid optoelectronic structures enables active devices that combine the diversity of organic materials with the high performance electronic and optical properties of inorganic nanocrystals. Such an integration results in the increase of efficiency of OLEDs with white emission color in particular. This is the **basic idea of our product**. At present we have developed some practical approaches to make composite OLEDs with white emission color. The results might be applied in regular and flexible OLEDs displays as well as in white color light sources. The key question to succeed in this area is the right choice of polymers and inorganic nanoparticles for composite OLEDs. The activity aiming to clarify the best polmer/inorganic nanoparticles materials for white OLEDs is currently on the way world. The leaders in the field are **Kodak-Sanyo, DuPont Displays, Cambridge Display Technology, Philips, Sony, Samsung, LG,** etc**.**

Our product is the developing of new industrial technology for composite: polymer – inorganic nanoparticles active layers for organic LEDs with white emission color. Composite active layers for OLEDS is a combination of 3D polymer and 1D inorganic nanoparticles technologies where both components are working together. Emission color depends on the polymer/nanoparticle composition (size). Our technology is an example of low cost fabrication, because it is possible to use inkjet deposition method for OLEDs production. Moreover one can utilize most of

technologies used for conventional OLEDs production. The market for our product related to the market of solid state white light sources based on white OLEDs as well as to OLEDs displays on their basis. This market is growing rapidly these days.

Current state
Developing the technology for the working sample.

Development strategy

Use of funds: R&D – 100%.

Prospective outcome of investment
We are going to develop the industrial technology for organic white emitters, as well as to obtain the working sample.

Marketing & Markets
The market value in 2006 was $ 4.1 bln per year. In case of white emitters with brightness >250 Lm/W, the market value will increase up to $ 10.8 bln per year.

Interaction with investor
We are ready to provide 51%, payback time – 3 year, guarantee – know-how.