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Smartkem

# Smartkem Completes First Sale of its TRUFLEX® Semiconductor Materials to Chip Foundation under their Co-Development Agreement

*Sales under the Chip Foundation co-development agreement are expected to continue throughout 2025*

MANCHESTER, England, Jan. 16, 2025 /PRNewswire/ -- Smartkem (Nasdaq: SMTK), which is seeking to change the world of electronics using its disruptive organic thin-film transistors (OTFTs), announced that it has completed the first sale of its TRUFLEX® semiconductor materials to its joint development partner, Shanghai Chip Foundation Semiconductor Technology Co., Ltd. ("Chip Foundation"), a manufacturer of semiconductor and integrated circuit devices, for use by Chip Foundation in the co-development of a new generation of microLED-based backlight technology for Liquid Crystal Displays.

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Smartkem Chairman and CEO, Ian Jenks, comments, "The first sale of our single layer dielectric materials marks a significant development milestone in our path to establish the commercial viability of our advanced materials in both the display industry and within other applications."

Smartkem is supplying its proprietary organic dielectric single layer material, or Redistribution Layer (RDL), to Chip Foundation to combine with its own microLED devices, for the joint development of microLED based device structures. The resulting manufactured chip is expected to have the properties of high brightness coupled with high current efficiency, reducing power losses in driving backlights and improving uniformity of illumination. Additional sales of RDL materials to Chip Foundation are expected to continue throughout 2025.

Dr. Maosheng Hao, Chairman of Chip Foundation, comments, "We are excited to collaborate with Smartkem and integrate their TRUFLEX® materials into our microLED devices. This partnership marks a significant step forward in advancing high-performance backlight solutions for LCDs, combining innovation and efficiency to meet the evolving demands of the display industry."

## About Smartkem

Smartkem is seeking to reshape the world of electronics with its disruptive organic thin-film transistors (OTFTs) that have the potential to revolutionize the display industry. Smartkem's patented TRUFLEX® liquid semiconductor polymers can be used to make a new type of

transistor that can be used in a number of display technologies, including next generation microLED displays. Smartkem's organic inks enable low temperature printing processes that are compatible with existing manufacturing infrastructure to deliver low-cost displays that outperform existing technology.

Smartkem develops its materials at its research and development facility in Manchester, UK and provides prototyping services at the Centre for Process Innovation (CPI) at Sedgefield, UK. It has a field application office in Taiwan. The company has an extensive IP portfolio including 138 granted patents across 18 patent families and 40 codified trade secrets. For more information, visit our [website](#) or follow us on [LinkedIn](#).

### **About Shanghai Chip Foundation Semiconductor Technology Co., Ltd.**

Shanghai Chip Foundation Semiconductor Technology Co., Ltd. has developed a comprehensive Chemical Lift-off (CLO) technology for Gallium Nitride (GaN) growth substrates through years of continuous research and practice, achieving mass production. The substrate, as the core support for GaN materials and chips, plays a crucial role. Chip Foundation have successfully developed a new type of composite patterned sapphire substrate, namely Dielectric Patterned Sapphire Substrate (DPSS), which is significantly different from the industry-standard Patterned Sapphire Substrate (PSS). Utilizing precise facet controlled epitaxial lateral over growth technology, Chip Foundation can reduce the dislocation density of the GaN epitaxial layer on the DPSS substrate to the level of  $10^7/\text{cm}^2$ . For large-size LED chips, the effect of dislocations can be ignored, but for Micro LED chips, the negative effects of dislocations will become increasingly prominent. Relying on the DPSS substrate, Chip Foundation have further innovated the processing technology of chemical lift-off growth substrates. Compared with the traditional laser lift-off method, chemical lift-off shows superior performance in cost-effectiveness and product yield. The laser lift-off process has an adverse effect on the leakage performance of the chip, while the chemical lift-off process can effectively improve the leakage performance of the chip, a conclusion that has been experimentally verified and its physical mechanism clearly explained.

These technologies can effectively promote the mass production of Micro LED chips and can be used to produce Mini Thin-film Flip-chip LED chips. Due to the omission of substrate thinning, laser scribing, and cracking processes, and the fact that almost no scribe channels are needed between chips, the cost advantage is very significant. Chip Foundation have developed wafer-level packaging technology based on thin-film chips and Mini LED backlight technology that can fully leverage the superior performance of thin-film chips.

The advantages of GaN materials in electronic power and radio frequency chips are also unparalleled. Our core technologies (DPSS substrate, lateral epitaxial growth technology, chemical lift-off substrate technology) can effectively solve the reliability and heat dissipation issues of electronic power and radio frequency chips, and Chip Foundation look forward to cooperating with various parties in these fields in various forms.

### **Forward-Looking Statements**

All statements in this press release that are not historical are forward-looking statements, including, among other things, its market position and market opportunity, expectations and plans as to its product development, manufacturing and sales, and relations with its partners

and investors. These statements are not historical facts but rather are based on Smartkem, Inc.'s current expectations, estimates, and projections regarding its business, operations and other similar or related factors. Words such as "may," "will," "could," "would," "should," "anticipate," "predict," "potential," "continue," "expect," "intend," "plan," "project," "believe," "estimate," and other similar or related expressions are used to identify these forward-looking statements, although not all forward-looking statements contain these words. You should not place undue reliance on forward-looking statements because they involve known and unknown risks, uncertainties, and assumptions that are difficult or impossible to predict and, in some cases, beyond the Company's control. Actual results may differ materially from those in the forward-looking statements as a result of a number of factors, including those described in the Company's filings with the Securities and Exchange Commission. The Company undertakes no obligation to revise or update information in this release to reflect events or circumstances in the future, even if new information becomes available.

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