

FOR IMMEDIATE RELEASE

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## **LUNATONE Ultra-low Temperature Fixable Toner Given 53rd JCIA Technology Award Environmental Technology Prize**

Kao Corporation (President: Yoshihiro Hasebe) was honored to receive the 53<sup>rd</sup> Technology Award Environmental Technology Prize from the Japan Chemical Industry Association (JCIA) (2020). These awards recognize distinguished achievements that contribute to progress in the chemical industry, as well as the economy and society through development and industrialization of excellent chemical technologies. Among them, the Environmental Technology Prize recognizes outstanding technologies or improvements that are remarkably effective for reducing environmental impact, and is awarded to companies and organizations that have contributed to progress in scientific technology. This is the fourth time for Kao to win such an award.

### **Background and Outline of Prize-winning Research**

Kao has successfully developed an ultra-low temperature fixable toner, LUNATONE, for use in laser printers.

For laser printing, the toner is fused by heat or pressure, and fixed onto the paper surface. Toner fixation expends a large amount of energy, thus from the perspective of reducing environmental impact, low-temperature fixation technology has been sought. However, conventional low-temperature fixable toners do not have heat-resistant preservability, as the particles coagulate and become fused by heat during transit or storage.

By applying our unique technologies for polyester design and interface control, Kao has succeeded in establishing ultra-low-temperature fixation<sup>\*1</sup> at 100°C or lower, 40°C lower than that of our conventional toners. At the same time, heat-resistant preservability has been maintained. As a result, printing on heat-sensitive films such as labels and packages, previously quite difficult with conventional laser toner, has become a reality. Furthermore, as this new toner has a quicker thermal response than the normal type, it instantly spreads in a wet form over the printed surface. This results in printing at the same density with less toner use, leading to a significant reduction in toner consumption.

\*1 For the evaluation, an external fixing device in the possession of Kao was used. Toner volume was 0.45 mg/cm<sup>2</sup>.

A4-sized sheets were printed in portrait orientation at a speed of 35 ppm.

### **Characteristics of LUNATONE**

1. Polyester core shell-type toner with high crystalline polyester content
2. Ultra-low temperature fixation<sup>\*1</sup> at 100°C or lower, heat-resistant preservability, and significantly lower toner consumption
3. Toner-derived CO<sup>2</sup> emissions<sup>\*2</sup> reduced by 40% as compared to conventional toners
4. Enables printing on heat-sensitive films, difficult to accomplish with existing standard toners

\*2 Evaluation by LCA as compared to Kao conventional toners.

With LUNATONE, Kao will contribute to reductions in environmental impact in the entire printing market, including office and industrial settings. For realization of an affluent lifestyle while contributing to social sustainability of society, we will continue to seek development of products with functionality and lower environmental impact based on fundamental studies by combining and fusing research findings.

### **Reference: Kao JCIA Technology Award Environmental Technology Prize history**

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|-------------|--|
| 37th (2004) | Clean ether from alcohol and carbonyl compounds using Pd/C catalyst<br>Development of manufacturing method |
| 41st (2008) | Development of casting runner “EG Runner”  |
| 45th (2012) | Development of “Attack Neo”, ultra-concentrated liquid detergent for clothing                              |

### **About Kao**

Kao creates high-value-added products that enrich the lives of consumers around the world. Through its portfolio of over 20 leading brands such as *Attack*, *Bioré*, *Goldwell*, *Jergens*, *John Frieda*, *Kanebo*, *Laurier*, *Merries*, and *Molton Brown*, Kao is part of the everyday lives of people in Asia, Oceania, North America, and Europe. Combined with its chemical division, which contributes to a wide range of industries, Kao generates about 1,400 billion yen in annual sales. Kao employs about 33,000 people worldwide and has 130 years of history in innovation. Please visit the Kao Group website for updated information.

<https://www.kao.com/global/en/>

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