January 24, 2024
KANEKA CORPORATION

Japan's First Application of Kaneka OLED Lighting in Condominium
– Kaneka Starts Project with Haseko Corporation to Enhance Quality of Sleep –

Kaneka Corporation (Headquarters: Minato-ku, Tokyo; President: Minoru Tanaka) and Haseko Corporation (Headquarters: Minato-ku, Tokyo; President: Kazuo Ikegami; hereinafter "Haseko") have jointly started to verify the effects of using Kaneka OLED lighting (referred to below as "Kaneka OLED") in the rental apartment project "Sustainabranche Hongyotoku" (Ichikawa-city, Chiba) on falling asleep and reducing fatigue. This will be the first application of Kaneka OLED in a condominium in Japan.

Haseko has been verifying the possibility of improving the quality of sleep and relaxation from the perspective of wellbeing at Sustainabranche Hongyotoku by setting up residential test units such as the "House for Good Sleep" and "Virtual Forest Bathing". In this project, Haseko and Kaneka consider the "lighting environment" in the residence as an important factor for wellbeing, and we will install Kaneka OLED, which is expected to have a relaxing effect, in the living room, kitchen, and bedroom of the test unit. This setting will help measure brain waves and melatonin*1 secretion during sleep to verify sleep quality and fatigue reduction. In addition to the surface-emitting light source of Kaneka OLED that gives off a gentle light and high visibility, the results of OLED lighting having effects on a good night's sleep and fatigue reduction will promote wellbeing through the lighting environment and expansion of OLED usage in condominium units.

Based on our mission of "Kaneka thinks 'Wellness First'." Kaneka will contribute to the realization of healthy and affluent lifestyles through delivering this experiment results not only to condominiums, but also to houses, hotel rooms, hospitals, and geriatric health service facilities.

*1. Melatonin secretion activates and improves the parasympathetic nervous system, putting the body and brain in a relaxed state. Melatonin is an essential substance for ensuring a good night's sleep. It is also called the sleep hormone.

Kaneka OLED installed in the residential test unit at Sustainabranche Hongyotoku

【Features of Kaneka OLED】

・Light is emitted evenly from a wide area and diffused over the surrounding area, avoiding glare.

・Letters and objects can be easily distinguished and are highly visible regardless of the low illumination.

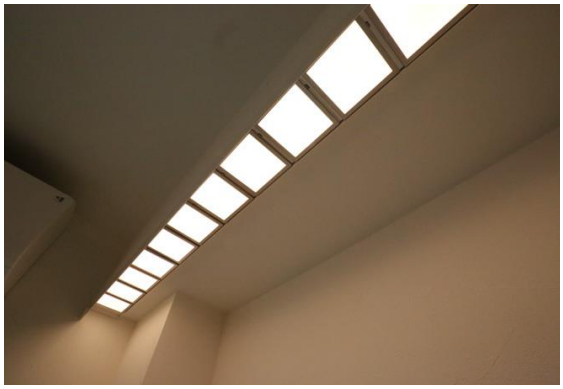
・Light diffusion prevents the creation of strong shadows.

・Low color temperature light activates the parasympathetic nervous system, and a relaxing effect can be expected.

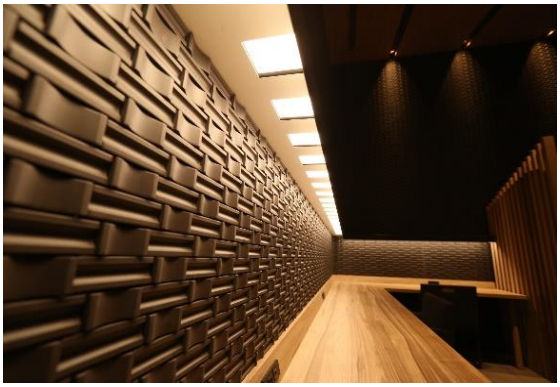
・Thin and light, with a thickness of only 1.1mm*2.

*2. Does not include the thickness of the connector.

【Application in Residential / Common Areas】



Living room



Co-working space in the entrance

Taking advantage of the shadow-less and high-visibility features of Kaneka OLED, we will also verify the workability and energy-saving effects in the co-working space in the living rooms and common areas.

（About Sustainabranche Hongyotoku）

Location	5-16 Hongyotoku, Ichikawa-city, Chiba
Access	6 min. walk from Myoden Station (Tokyo Metro)
Site area	1,651.83 m²
Total floor space	3,071.06 m²
Structure・Residences / 36 residences	Reinforced concrete / 5 stories
Existing building	February 1990
Completion	September 2023
Owner of the project	Haseko Corporation
Design / Construction	Haseko Reform Inc.

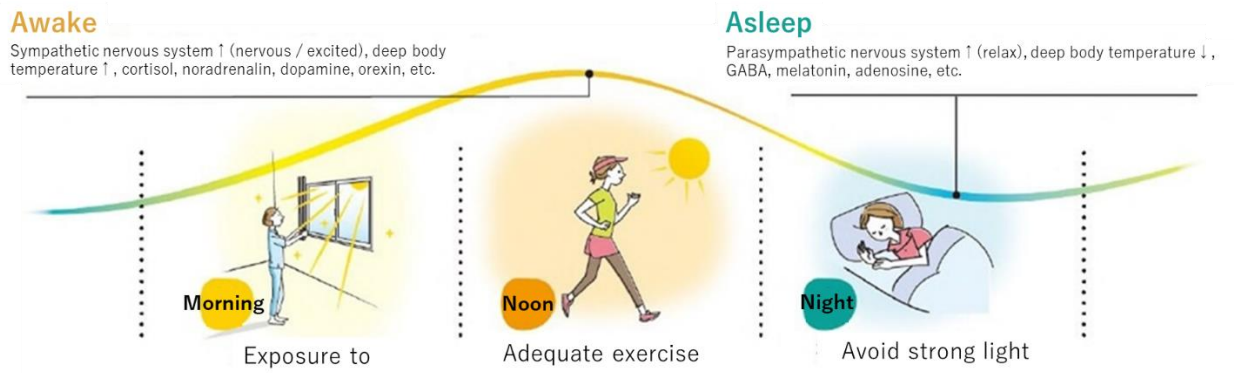
Website https://www.haseko.co.jp/sustainabranche/

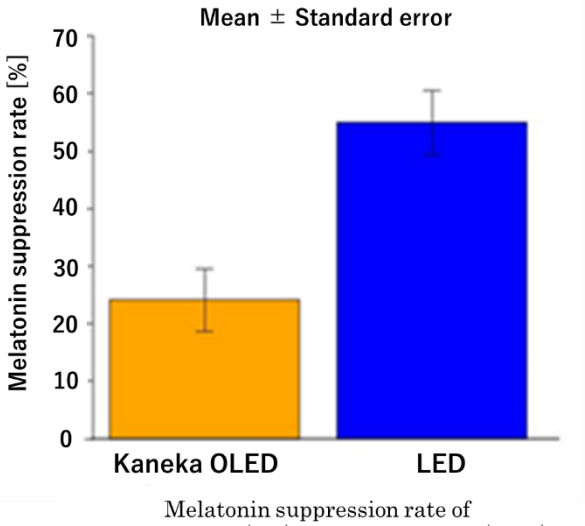
＜Reference＞

【Effects to Biological Rhythms】

Among the "biological rhythms" that cause fluctuations in the body's environment in response to changes day and night, the circadian rhythm, which is closely related to lifestyle and health, has a 24-hour cycle, while the human body clock cycle is said to be about 25 hours. To breach this one-hour gap, it is said to be good to go to bed in the evening or late at night when one should be resting, and to be exposed to sunlight the next morning.

Melatonin, which is closely related to circadian rhythms, is secreted less during the daytime and more than tenfold at night. Kaneka OLED, less likely to suppress the secretion of melatonin, is expected to improve the quality of sleep and regulate circadian rhythms.





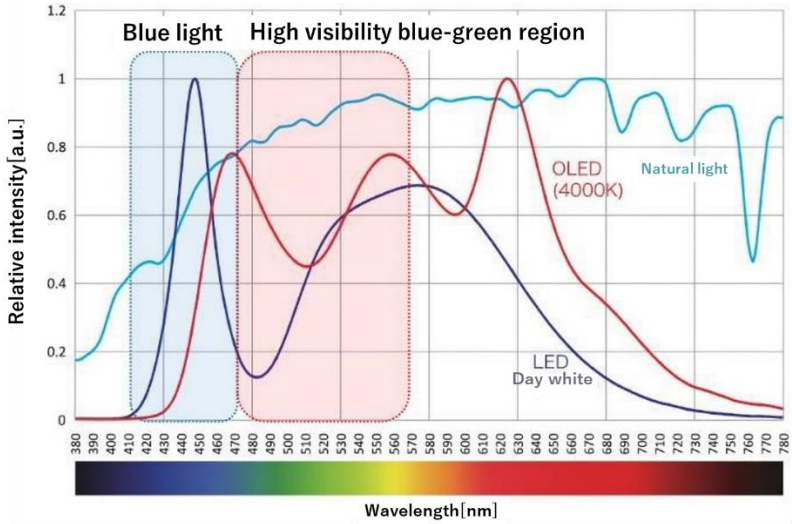
Melatonin suppression rate of
Kaneka OLED (left) and LED lighting (right)

In a comparison test between Kaneka OLED and LED lighting, Kaneka OLED showed a 30.8% lower melatonin suppression rate. This is the result of joint research*3 by Kaneka and Research Associate Professor Kenji Obayashi of the Department of Epidemiology, Nara Medical University School of Medicine.

*3 Presented at the joint congress of the 45th Annual Meeting of the Japanese Society of Sleep Research, the 30th Annual Meeting of the Japanese Society for Chronobiology

【Illumination of OLED lightings】

Kaneka OLED lighting has many optic elements in the blue-green region (480-570nm), which has high visual sensitivity to the human eye, making it easy to distinguish letters and other objects and providing high visibility even under low illumination. Kaneka has registered a patent for a surface emitting light with over a certain number of optic elements in the wavelength range, a unique spectrum*4 that only Kaneka can provide. Also, since it is a diffused light, it is less likely to cast shadows on the object under direct light, which can be expected to improve concentration during work or study.



Spectral distribution of Kaneka OLED (According to our research)

*4. Ordered according to the wavelength, mass, energy level, or other characteristic quantity of a component