

OLED Lighting Resources

Frequently Asked Questions, Glossary, and Links



OLED Lighting Glossary

Electrode: a conductor through which electricity enters or leaves an object, substance, or region. In the OLED light, this takes place when a light switch is turned on, allowing to create electroluminescence.

Electroluminescence: luminescence (visual light emission) produced by electrical stimulation.

Homogeneous: In OLED lighting, this means that there are no visual differences in light throughout the OLED light. The entire light produces the same brightness and color across its surface without localized hotspots, creating a crisp and clear light.

Human-centric OLED Lighting: Focusing on human beings and the advancements that directly correlate to their well-being.

Lumen: The measurement of light emission from a source per second.

OLED (Organic Light Emitting Diode): thin carbon-based organic layers sandwiched between two electrodes. When DC current is applied, holes and electrons are injected from the anode and cathode into the organic layers. This creates electroluminescence stimulation.

Substrate: base material or device on which an OLED light is built on. Glass is a common substrate for optics. Different substrates can yield different looks, colors, and designs.

Wavelength: the distance between two peaks of a light wave. Different wavelengths of light appear to our eyes as different colors. Shorter wavelengths appear blue in nature while longer wavelengths appear red in nature.

OLED Lighting Frequently Asked Questions

What is OLED lighting? OLED light stands for Organic Light Emitting Diode and is a form of solid-state lighting. OLED lighting's current primary uses are across the general lighting and automotive industries. It is favorable because of its homogeneous light emission, ultra-thin, lightweight form factor, and sustainable and healthy attributes. It also is a lighting solution that has a broad emission spectrum and even emission of lighting.

How does OLED lighting work? OLED lighting is composed of thin carbon-based organic layers that are between two electrodes. When electricity is applied, the organic layers produce light, known as electroluminescence. This electroluminescence provides excellent light with crisp and even illumination.

OLED Lighting Resources

Frequently Asked Questions, Glossary, and Links



OLED Lighting Frequently Asked Questions

What do OLED lighting panels offer the lighting industry? OLED lighting is thin, lightweight organic based light with very few parts. Other sources, like inorganic LEDs, halogens and incandescent require several bulky layers of mechanical parts, not found in OLED fixtures. OLED light panels are made of non-toxic materials that can be recycled or safely sent to a landfill.

What current and emerging markets can benefit from OLED lighting and who is currently implementing OLED light technology? General lighting and transportation are the main markets that are adopting OLED lighting technology, due to its unique structure and design. These two markets are currently using OLED lighting in various applications, such as tail lighting in automotive vehicles and better lighting in hospitality. OLED lighting also brings design, sustainable, and healthy lighting to industries like automation, healthcare, appliances, and agriculture. Industry giants like Audi and Fincantieri, as well as small and medium businesses like HagenHinderdael, have adopted OLED lighting into their products.

What is the difference between OLED display and OLED lighting? In the simplest explanation of their difference, OLED light is used to illuminate an environment, while OLED display is used to show images through pixels. A key difference is an OLED display has a patterned color array. Red, green, and blue colored pixels are patterned next to each other across the entire display, and each color is electrically addressed separately.

In an OLED lighting, the dopants used to build up the emission spectra are integrated together in the same vertical stack, which is coated over the entire surface area of the panel. The combined red, green, and blue emission from the OLED stack creates white light.

How is OLED Lighting Technology used in OLED Microdisplay? Firstly, a microdisplay is a small display used across near eye applications like virtual reality, augmented reality, or a Head-up-display (HUD) in an aircraft. Combining the highly efficient OLED lighting stack with an electronic backplane and color filter arrays, to create the colored pixels, a microdisplay with higher brightness can be realized.

Can OLED lights emit a range of colors? Yes. OLED lighting technology can produce a variety of colors, depending on the dopants used in the device structure. Some common examples of various color offerings include red for automobile tail lighting and machine vision, amber for evening and nighttime settings, and white for general lighting.

OLED Lighting Resources

Frequently Asked Questions, Glossary, and Links



OLED Lighting Frequently Asked Questions

Can OLED lights be dimmed? Yes. Because OLED are a current controlled device, they can be used with standard SSL control systems such as occupancy sensors, daylight systems, and dimmers. The dimming light controls allow utilization of artificial and daylight for more effective management of building energy consumption. For example, the more (or less) electrical current sent to the panel, the brightness of the light changes, respectively. The panels can be dimmed as long as the driver has dimming options.

Why are OLEDs known for their health and wellbeing benefits? OLED light technology mirrors natural sunlight with the added benefit of no UV light. The absence of UV light means that there is no risk to your eyes or skin. Additionally, OLED lighting can produce a low-glare and low-contrast illumination for light that improves eye comfort. OLED light technology has a perfect balance of red, green, and blue colors across the visible spectrum to provide excellent color rendering.

Are OLEDs considered a sustainable light source? OLED lights consist of 85% glass, with the balance organics and non-toxic metals. The panels have very few parts and a compartmentalized design, and. OLED lighting panels have long lifetimes and should last the entire usage of the fixture. When applied to automotive vehicles, OLEDs have proven to reduce vehicle weight and promote greater fuel efficiency and lower carbon emissions.

Do OLED lights produce heat like other types of lights? No, OLED lighting creates very little heat compared to other types of sources such as inorganic LEDs and incandescent bulbs. OLED lighting technology is created in a way that the entire emission surface lights up homogeneously, without localized hot spots. The heat that is produced is evenly spread over the surface and does not result in the dispersal of excess heat into the environment. This allows for creative uses in areas that are sensitive to heat, such as research environments, art exhibits, and server farms.

Resourceful Links

[OLEDLight.org Blog](https://oledlight.org/blog) | oledlight.org/discover

[OLED Light Ambassador and Industry Influencer Programs](https://oledlight.org/contributor) - | oledlight.org/contributor

[OLED LIGHT Magazine e-Edition](https://oledlight.org/oledlightmagazine/issue-1) | oledlight.org/oledlightmagazine/issue-1

[Facebook](https://www.facebook.com/OLEDLightOfficial) | [OLEDLightOfficial](https://www.facebook.com/OLEDLightOfficial) [Instagram](https://www.instagram.com/oledlightofficial) | [@oledlightofficial](https://www.instagram.com/oledlightofficial) [LinkedIn](https://www.linkedin.com/company/oledlightofficial) | [oledlightofficial](https://www.linkedin.com/company/oledlightofficial)