

Technical Information

Electroluminescence is a discovery attributed to George Destrian in 1936. It is usually referred to as EL and has a growing number of interesting uses.

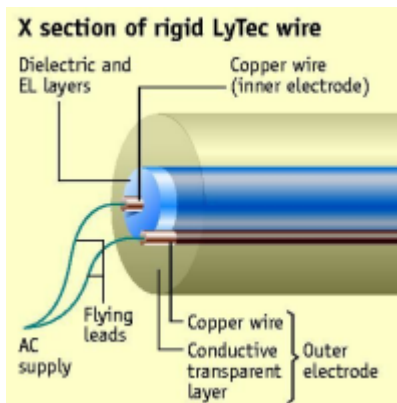
There are two basic types of EL:

- EL Wire
- EL Sheets (in panel or strip form)

EL Sheets are available in a range of sizes:

- Strips from 3mm – 760mm wide
- Panels from A4 – A0

EL LyTec wire is available in diameters from Ø1.2mm – Ø5.0mm and is also available in a range of colours.



EL LyTec wire

The simplest technical description of EL wire is “a linear light emitting capacitors which are given their electroluminescence by being sandwiched between two conductive electrodes”.

Its cross section resembles a multi-layer coaxial cable with a dielectric layer made of EL phosphor particles, covered by a transparent electrode.

Properties

EL wire:

- Can be cut to any length
- Is cool to the touch
- UV resistant
- Splash-proof

Colour

The wires are available in a multitude of colours including: Aqua, Blue, Gold, Green, Lime, Orange, Pink, Purple, Red and White.

Useful Life

The life varies by application and is dependant on brightness, duty cycle and ambient temperature.

Unlike other light sources, LyTec never burns out completely; the wire slowly loses brightness over time.

It is recommended for most applications, that the wire is replaced every 3,000 hours, to enjoy the full utility of the product. In aisle lighting applications, the lamp is generally effective in excess of 20,000 hours.

Grades

A range of grades are available for indoor and outdoor use, and also for more extreme conditions such as marine applications. Wires can also be 'twinned' to produce brighter outputs.

Humidity and moisture will degrade EL so careful consideration has to be given to the choice of grade required.

Energy efficient

1km of Surelight fibre consumes the same amount of power as a 100W light bulb connected to the mains, so power considerations should also be addressed. Wire can be driven from the mains or via a battery using an inverter to generate the AC signal.

EL Wire Technical Limits

Current limit 0.1 A

Reason: When a higher current is applied, heat may build up causing the spirally wound wires or the transparent conductive layer to melt.

Voltage limit 130 V

Reason: When voltage exceeding this value is applied, a breakdown of the internal layers of the capacitor may occur.

EL Wire Mechanical Limits

Bending diameter

At least 5 times the fiber diameter.

Twisting angle

30 degrees per metre.

Force

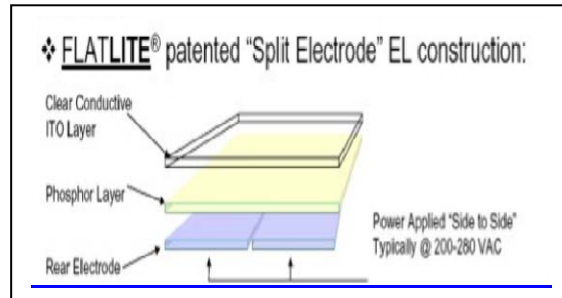
Maximum permissible load is 1 kg.

EL Sheet

Flatlite

Flat Sheet is a paper-thin electro-luminescent lamp material that emits light when connected to an AC high frequency supply.

To change the intensity of Surelight Flat Sheet, the voltage and frequency of the power supply output is varied. There is no appreciable change in the temperature of the lamp when operating.



Useful Life

The useful life of the EL Flatlite Sheet lamp varies by application and is dependant on brightness, duty cycle and ambient temperature.

Unlike other light sources, EL Sheet never burns out completely; the lamp slowly loses brightness over time.

It is recommended for most common applications, that the lamp is replaced every 5,000 - 10,000 hours to enjoy the full utility of the product. In aisle lighting applications, the lamp is generally effective well in excess of 20,000 hours.

Environment Considerations

EL Sheet with an all-purpose laminate is suitable for outdoor, damp or humid installations with an ambient temperature between 5°C and 60°C.

Special laminates are available to permit use of the Surelight Flat Sheet under water.

<u>Light Emitting Characteristics</u>	<u>Electrical Characteristics</u>
<p>At full brightness:</p> <p>* Aqua Flatlite EL Sheet lamp has an average luminance of 80 cd/m²</p> <p>* White Flatlite Sheet lamp has an average luminance of 68 cd/m².</p> <p>Unlike traditional lamps, Surelight EL Sheets – Panel or Strip - does not emit light as a point source. The nature of this lamp creates three important performance features:</p> <ul style="list-style-type: none"> • No impact on night vision after looking directly at the lamp; • The eye is able to discern changes in width when approaching the lamp. • The lamp is visible from a greater distance in fog or smoke than any other type of light source. 	<p>Electro-luminescent lamps must be illuminated with alternating current. Olmec Power Supply Units have been specifically developed to power Surelight Flat Sheet lamps at the most efficient ratings and must be used for proper operation of the product.</p> <p>High Brightness</p> <p>At the nominal recommended operating parameters for high brightness applications, the lamp is driven with 280VAC at 650 Hz. The current draw at this brightness is 0.05 mA/cm² of illuminated surface.</p> <p>Lower brightness/Long Life</p> <p>For lower required brightness applications, the voltage and frequency may be reduced to the point where 120VAC at 60Hz is all that is necessary to light the product for night light installations.</p>

Colour Options

Surelight Flat Sheet is produced in two stock colours: Aqua and White. The white lamp has a pink hue when not illuminated; the aqua lamp is off-white when not illuminated.

Overlays may be incorporated to produce almost any colour.

Encapsulation

Surelight EL Sheet lamps are encapsulated in laminate. This process provides for electrical insulation and protection from moisture. The standard all-purpose laminate is appropriate for use in most applications, including damp or humid locations.