Permalight - The Technology

Permalight AG, a German company, is the world leader in developing the brightest and longest lasting pigments for use in professional escape route products. Permalight utilizes zinc sulfide which is inert, non-radioactive and non-toxic. The zinc sulfide is processed into crystals in a glass-like shell. The crystals are then encased in flexible or rigid sheet materials. A light source "excites" (charges) the crystals which "store" light. When the light goes out, the excited crystals give off light. Ultraviolet (sunlight), fluorescent or incandescent lights charge the crystals. Sodium vapour or mercury vapour lights will not activate the crystals. Zinc sulfide crystals may be charged indefinitely.

Luminance

Luminance is the measure for the impression of brightness of an illuminated area or a light source to which the human eye responds. The luminance of photoluminescent products can be measured for initial brightness and longevity. Lumination measurements are made to specific detailed instructions as defined by DIN standards. All Toronto Stamp Photoluminescent Signs featuring Permalight technology meet and exceed the DIN standard. No other technology utilizing photoluminescent zinc sulfide crystals pass the strict DIN standards. The time Toronto Stamp products give off bright enough light to meet DIN standards varies from about 4 hours to 10 hours. All measurements of the longevity of the light are made down to 100 times the perception of light by the human eye when fully adapted to darkness. This builds in a safety factor.

Decay Period vs. Eye's Adaption to Darkness

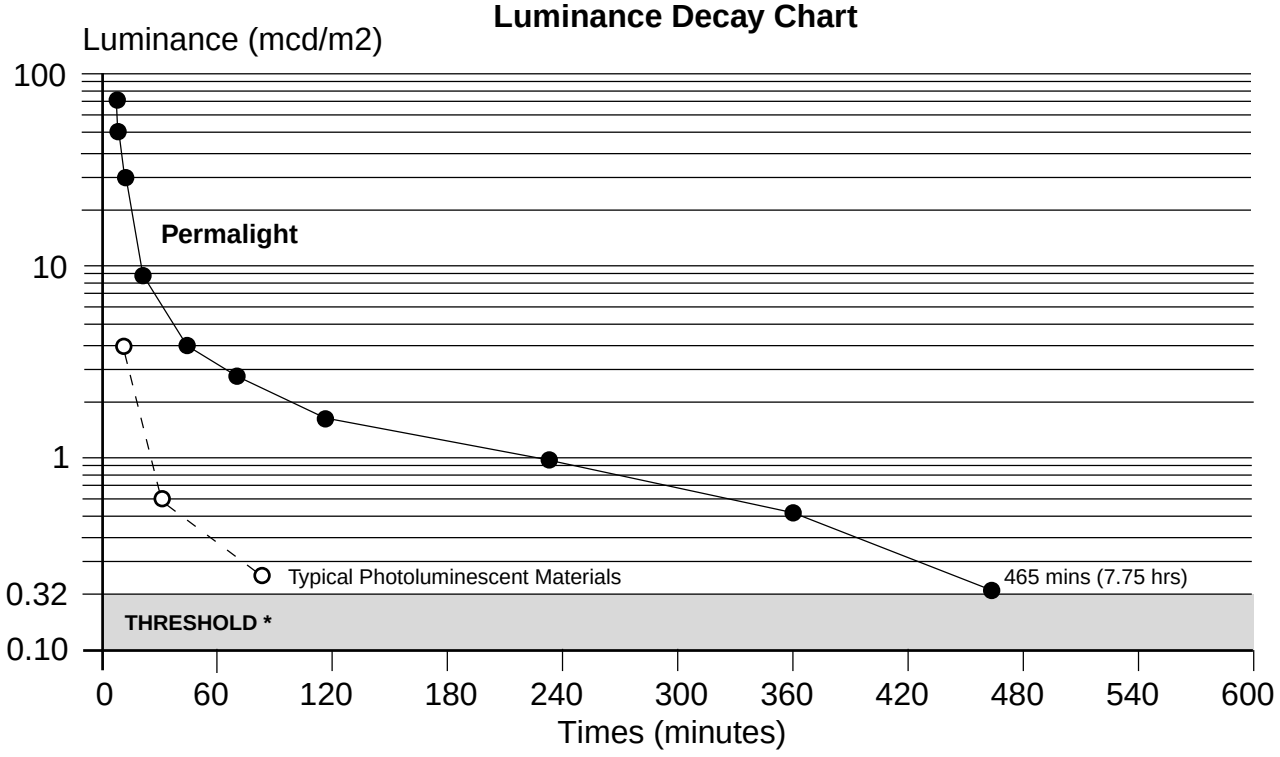
The relationship between the light from the crystals and the eyes is an important part of their function. The eye's sensitivity is the greatest to yellow-green light (10 times greater than red or blue). The human eye has considerable adaption to dark conditions over time.

- 10 times in the first 2 minutes *
- 100 times after 6 minutes *
- 1,000 times after 12 minutes *
- 10,000 times after 20 minutes *
- 100,000 times after 10 hours *

* over time of first darkness

The increase in the sensitivity of the eyes to darkness compensates for the loss in light intensity of the crystals over time.

Luminance Decay Chart



***** DIN 67510 minimum threshold value which is at 100 times the human eye's ability to see light when totally adapted to darkness.

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