COSINE DEVELOPMENTS
LEADERS IN LIGHTING TECHNOLOGY

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Photo-luminescent exit signs and why they may not be compliant

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Exit signs have formed part of the standard mandatory emergency equipment within buildings. With the large variety to choose from, customers have a vast range of different technologies to use. Some of these technologies however are not sufficient and do not abide by the specifications most of the time and/or carry risks.

1. SABS Requirements

1.1. SANS 1186 Part 3 (Symbolic Safety Signs)

Please see below extracts from the SANS 1186-3 Symbolic safety signs, Part 3: Internally lit safety signs:

4.3.2. Level and uniformity of luminance
4.3.2.3.... the most suitable level of luminance is ... between 17 and 34 cd/m$^{2.}$

This is quite a bright level and most luminescent exit signs do not comply.

1.2. SABS 0400 (National Building Regulations)

"*TT29.3 a) When any building is occupied any mark or sign contemplated in TT29.1(a) shall be illuminated to an intensity of not less than 50 lux.*"

TRUSTEES: R. Marais | S. V. Marais | K. M. Pillay | R. J. Longford

DURBAN: T: 031 579 2172/3/5 | F: 031 579 2176 | P.O. Box 74274 | Rochdale Park | 4034 | South Africa
24 Ashfield Avenue | Springfield Park | Durban | 4056 | South Africa

JOHANNESBURG: T: 011 7910814/5546 | F: 086 574 1506 | 24 Graphite Industrial Park | Fabriek Street | Strijdom Park | Randburg

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This requirement enables the public to become familiar with exit signage during normal lighting levels.

2. Photo-luminescent exit sign types

1.1. PHOTO-LUMINESCENT EXIT SIGNS

These exit signs are non-electrical and utilize a glow-in-the-dark pigment material which absorbs ambient light in the area. This method thus requires sufficient ambient light to charge the pigment which therefore is not suitable when used in dark areas such as that of movie theatres and store rooms etc. This exit sign is not self-sufficient as it requires an external source in which to 'charge' its pigment. These exit signs often do not meet the required luminance.

1.2. SELF LUMINOUS TRITIUM EXIT SIGNAGE

The Tritium exit sign is the only self-sufficient exit sign in existence so far. It functions from the use of tritium, which is a radioactive hydrogen gas sealed tightly in packed vacuum tubes. The tubes are then arranged to form the word 'Exit". The half-life of these exit signs are about 10 years and do not require any external source of functioning and are self-illuminating. This form of exit sign carries serious downsides in that is has radioactive materials and this is highly regulated by the Nuclear Regulatory Commission (NRC).

All signs must be strictly monitored and disposed of by licensed disposal brokers.

2. Summary

Clearly, the following details must be supported by any luminescent sign:

- Does its luminescence attain the SANS levels?
- Photoluminescence requires exposure to light to 'charge'. This will not work in a cinema or any possibly dark place.
- Tritium self-luminous signs are radioactive and hence require special permits and disposal.