



## Questions about Tritium Exit Signs

### About Tritium ( Self-Luminous ) Exit Signs

Thank you for your interest in the tritium signs offered by Exit-Signs-R-US. Below you will find answers to the most frequently asked questions.

#### Q How do you turn it on ?

**A** You do not have to do anything to activate it. Your Tritium sign is always on, just take it into a dark room and turn off the lights to view its illumination.

#### Q Why isn't it brighter ?

**A** It doesn't need to be. You will not see the tritium lamps when the normal lighting is on in a building, but the required contrast ratio of the face colors makes the exit sign very visible. When you really need it, when the power has gone out, the sign becomes very visible.

#### Q What maintenance is necessary ?

**A** None. Electrical sign lamps burn out and batteries go bad, so constant maintenance is essential. You hope there's no emergency while the exit is out of service. A Tritium sign by Exit-Signs-R-US lasts up to twenty years, depending on which unit you have purchased, with no maintenance costs.

#### Q Is this sign approved ?

**A** Yes ! It meets the requirements of the National Fire Protection Association ( NFPA ) Life Safety Code 101 which is the bible for most AHJ's.

#### Q What is Tritium ?

**A** Tritium gas is an isotope of the chemical element hydrogen that contains one proton, two neutrons and is naturally present in the atmosphere. Tritium is an unstable isotope, meaning that its molecular structure is subject to decay. Unstable isotopes are referred to as radioactive isotopes. In radioactive isotopes, the nucleus, or center, decays to form a different nucleus and a nuclear particle. The nucleus in Tritium decays by emitting an electron called a beta particle. The rate at which a radioactive element loses its radioactivity (decays) determines its half-life, the time it takes the element to decay to half its original activity level. Tritium has a half life of approximately 12 1/2 years which is very short compared with many isotopes you may have read about in articles on current events or in high school or college science courses.

**Q Is there any radiation from these signs ?**

**A No.** Tritium emits a beta electron which cannot even penetrate a piece of paper. The tubes in the sign containing the tritium are shock-mounted inside a high-impact plastic case designed to be tamper and vandal resistant. A clear high-impact plastic shield across the face of the sign provides additional protection and serves as another barrier against accidental damage.

**Q What if a tube breaks ?**

**A** If the protective shield and case are penetrated and a tube should break, releasing the tritium gas, there is no hazard. Because it is hydrogen and therefore lighter than air, when released, the tritium gas is dispersed rapidly and harmlessly into the atmosphere to join the naturally occurring tritium already dispersed. In the highly improbable event that all of the multiple tubes should fracture, the event is still less than half of that received from naturally occurring radioactive sources during a year, and is similar to the difference between living at sea level and moving to an elevation of 5,000 feet.

**Q How does a Tritium exit sign work ?**

**A** Self-luminous signs use the electron from the tritium to provide illumination without the need for a source of electrical power. The process is very similar to that in your television set picture tube where an electron is used to illuminate the front screen of the tube. The electron from tritium however has only about 1/4 of the energy of the electron in a color TV picture tube. That is why self-luminous signs are not visible in daylight while TV pictures are. Actually, the electron from the tritium has such a low energy that it cannot even penetrate an ordinary sheet of paper. To produce the illumination, the tritium gas is contained within a hermetically sealed glass tube. The inside surfaces of the tube are coated with a phosphor just like the inside surface of a television picture tube. Electrons emitted by the tritium bombard the phosphor causing it to produce illumination.

**Q What is the guarantee ?**

**A** If at any time during the life of the sign it fails to meet the required brightness levels of NFPA, it will be replaced at no cost.

<http://www.exit-signs-r-us.com>

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