



Manufacturing Since 1986



## Self-luminous Safety Signs

- Maintenance Free
- Self Powered •No Wiring
- Energy Efficient •Water Proof
- Vibration Proof •Versatile
- Meets All Safety Codes

Sold In Canada, USA & International Markets

**Used In: Apartment Buildings, Hotels, Hospitals, Industrial Plants, Parking Garages, Office Buildings, Schools, Restaurants, Prisons, Churches and more.**

Licensed by the Canadian Nuclear Safety Commission (CNSC)

Meets All Safety Codes  
cULus Listed to UL924 Standard and  
NFPA Life Safety Code 101

## Who Is Shield Source Incorporated?

SHIELD SOURCE INCORPORATED (SSI) is a manufacturer of self-luminous safety products with worldwide distribution. The company specializes in safety lighting products that do not require maintenance, are bright and easy to see and can last for up to 20 years before being replaced. SSI has been in business as a private Ontario corporation since 1986 and is an integral part of a related group of emergency lighting companies that traces its roots back to 1918. Together these companies represent the world's largest supplier of self-luminous egress and safety signs. The corporation houses a sales team for worldwide marketing and distribution, a research and development team that is constantly developing new products and unique applications in the self-luminous emergency system field as well as a manufacturing team to build the quality products offered.

SSI is registered as a Class 1 (B) Nuclear Substance Processing Facility and regulated by the Canadian Nuclear Safety Commission (CNSC). SSI products are licensed by the CNSC and meet all appropriate approvals and listings such as National Building Code, many Provincial Building Codes, National Fire Protection Agency (NFPA) and Underwriters Laboratories (cULus) codes. Many local agencies and fire marshals have authorized the use of Shield Source Incorporated signs in their districts.



## Where Is SSI Located?

The 3,000 square foot manufacturing facility is located at the Peterborough Airport, south of the City of Peterborough.

## What Does SSI Make?

SSI manufactures tritium gas-filled, (non-electric) self-luminous safety products. These self-luminous products are illuminated with a permanent internal light source. The light source consists of a glass envelope (tube) that is coated internally with phosphor, much like a conventional fluorescent tube. The tubes are filled with tritium gas and secured into each sign.

The operation of the self-luminous tubes (sources) is like a miniature fluorescent tube, with the exception that SSI tubes use a radioactive gas, tritium, rather than an electrically ionized gas.

## What is Tritium?

Tritium (Hydrogen 3) is a colourless, odorless gas, lighter than air, and physically almost identical to ordinary hydrogen gas. However tritium is a low level radioactive gas. It can be man-made, but is also a naturally occurring substance that is produced by cosmic ray action and by the decay in rocks and soil. It is present in air and water all over the earth and is regularly ingested and inhaled by everyone.

The light source in a SSI product consists of borosilicate glass tubes, internally coated with phosphor and energized with tritium gas. The



tritium gas stimulates the phosphor, causing it to emit light. This gas is completely contained within the glass tubes. Therefore, in a normal usage situation, there is absolutely no risk of radiation exposure from an SSI self-luminous sign.

### What are Self-luminous Signs?

Tritium signs do not require electricity or batteries for illumination. These kinds of signs are called "self-luminous," and because they don't require electric wiring, they are being installed in greater numbers in public and private buildings. A self-luminous sign is continuously lit, though you may not detect any illumination during daylight hours or in a bright room. In addition, self-luminous signs will maintain their Sign Illumination day in, day out, for up to twenty years. This maintenance free operation is why many building owners specify self-luminous signs: It saves them money while providing safe and reliable exit location identification. All self-luminous signs work on the same principle. They are powered by tritium gas, a low-level radioactive isotope of hydrogen.



### Are The Products Safe?

The signs are completely safe. SSI signs are designed to take great abuse. They are manufactured by SSI under stringent quality control procedures and meet all requirements of the Canadian Nuclear Safety Commission

and the United States Nuclear Regulatory Commission.

The potential risk to anyone in everyday conditions is very low – while the benefits of total reliability without maintenance or power consumption far outweigh any risk.

### Is The SSI Facility Safe?

Shield Source Incorporated is dedicated to operating a safe, clean work environment. SSI has trained staff using approved procedures and equipment to ensure the safety of the workers and the environment.

SSI's facility operations are fully controlled and regulated by the CNSC. Emissions from the facility are monitored continuously as well as tritium exposure to employees.

SSI operates an Environmental Monitoring Program (EMP) to monitor the effects on the environment. Air, water and vegetation samples are taken from ponds, gardens, fields and farms around the facility. The focus of the EMP is to measure tritium activity in air, water and vegetation at the points where maximum activity is predicted to occur.

### How Is The Environment Affected?

Through environmental monitoring the effects of SSI's emissions on the environment is observed and as a result the exposure or dose to the general public in the immediate vicinity of the facility is calculated.

The results from the 2008 environmental monitoring data results have determined that

doses to the public are broken down into three receptor groups, a 1 year old infant, a 10 year old child and an adult. The annual dose limit for anyone in the public is 1 mSv(milliseivert)/year. Doses at the nearest residence have been calculated to be 0.10 mSv/year for an infant, 0.043 mSv/year for a child and 0.035 mSv/year for an adult. These values are higher than actual doses because the assumptions made regarding the dose calculations are very conservative. This means that the actual doses received by members of the general public would be significantly lower.

### How Do I Find Out More?

Shield Source Incorporated would like to hear your comments or concerns. Please contact SSI at the following:

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