

June 2019

Supersedes 18-01-FL

Electrical Safety Authority Warns of Unsafe Use of Electrical Equipment to Manufacture Lichtenberg Generators

A serious injury and fatality reported to ESA as a result of hobbyists using high voltage to pattern wood, other materials.

The Electrical Safety Authority (ESA) is warning against using high voltage energy sources such as microwave oven transformers or similar components to manufacture Lichtenberg generators. These generators are used to create art and abstract objects by burning fractal patterns into various materials such as wood and acrylic.

Do not attempt to assemble or use a Lichtenberg generator for any purpose. They are extremely dangerous, contain live accessible wiring and components, and are unsafe for any use or handling. Both homemade and pre-built Lichtenberg generators are considered to have the potential to seriously injure and / or kill the user.

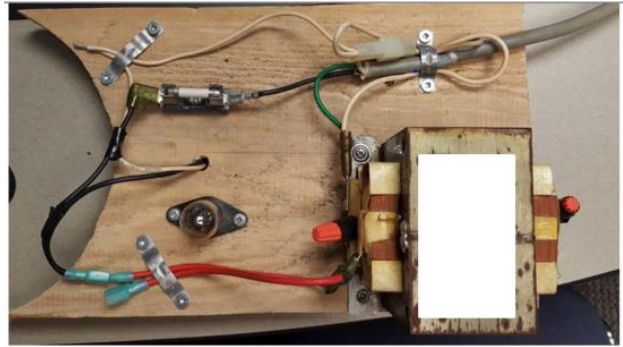
- ESA is aware of two incidents in Ontario involving these generators that were used in an unsafe manner:
 - One incident resulted in a fatality
 - One incident resulted in life threatening critical injuries
- All of these generators, whether homemade or purchased, are unapproved by Certification Bodies / Inspection Bodies, have not been evaluated or tested to any Canadian safety standards and do not bear any recognized Canadian electrical safety certification marks.
- These generators are reportedly homemade, using instructions on the internet, and are assembled with parts and components that are obtained from a variety of sources and are not approved for this type of use.
- Some of these generators are marketed as complete products and indicate that they are built with approved/certified components. However, the overall product has not been evaluated to any known electrical safety standard(s) for this type of product, as applicable to Canadian consumers and marketplace.
 - The risks associated with building and using a Lichtenberg Generator include:
 - Potentially unsafe construction and assembly methods
 - Both short and long term degradation of the product and components
 - Physiological effects of exposure to high voltage / high frequency energy sources
 - Lack of quality control processes and procedures
 - Inadequate instructions pertaining to usage, storage, maintenance, required type(s) of personal protective equipment, etc.

Picture 1 - Critical Hand Injury



- The critical hand injury shown above (which was not the only injury that this hobbyist received) could have resulted in a fatality by electrocution had a resuscitation not been performed on the victim. Others in the immediate vicinity could have been killed or received a shock or serious injury.

Pictures 2 and 3 - Examples Of Homemade Lichtenberg Generators



- The combination of incorrect and/or unsuitable parts, dangerous assembly methods, and use of the finished product are considered to be major contributing factors resulting in the reported serious injury and fatality.

How to Report Unsafe Electrical Products

- ESA is aware that generators exist in the marketplace and are offered for sale. When reported, suppliers within ESA's jurisdiction will be contacted. Consumers / hobbyists are encouraged to contact ESA at 1-877-ESA-SAFE or complete the online [Product Safety Reporting Form](#).
- Lichtenberg generators may have counterfeit electrical safety approval labels applied to them to falsely indicate that they are safe. Should you find a generator that appears to have a certification or approval mark do not purchase or use it and please contact ESA or Health Canada immediately with the supplier details.

The disassembling of products such as a microwave oven and / or similar devices or appliances with the purpose of removing the high voltage transformer and other parts to build these generators are in breach of Ontario Regulation 438/07 Product Safety and 164/99 Ontario Electrical Safety Code. Please be advised that a person or company in Ontario that contravenes the foregoing Regulation may be prosecuted and upon conviction subject to fines up to \$50,000 and / or one year imprisonment.