Badger Fire Protection
www.badgerfire.com

A UTC Fire & Security Company

TECHNICAL BULLETIN #113-0110

Date: May 2003

Subject: Static Electricity and Carbon Dioxide Extinguishers

This bulletin will attempt to briefly address occasional questions Badger receives regarding the static shock sometimes associated with the discharge of carbon dioxide fire extinguishers. While the static shock sometimes experienced can be startling, it is typically not any more harmful than the shocks experienced in homes during the winter months when walking across a dry carpet and a grounded surface is touched.

The friction of one material being rapidly passed over another insulated material typically generates static electricity. While static electricity can occur over a wide range of atmospheric conditions, dry and cool environments are the most conducive and susceptible for experiencing the build up of static electricity.

Carbon Dioxide extinguishers generate static electricity with the friction created as the high pressure liquid agent quickly passes up the siphon tube, through the valve and out the discharge hose assembly where it releases as a cold gas or snow. Because the rubber hose and insulated nozzle horn are non-conductive material surfaces able to accumulate the buildup of static electricity, these extinguisher components incorporate conductive wires or similar materials to help dissipate most of the static that is generated.

The ANSI/UL-154 Carbon Dioxide Extinguisher Design Standard, as well as NFPA-10 have specific references addressing these issues. Extinguisher service recommendations require annual continuity testing and labeling of these extinguisher components to ensure they remain capable of dissipating static buildup.

When these components are damaged, the fire extinguisher operator carrying and supporting the extinguisher during discharge may experience a static shock, if the static buildup instead grounds itself through the hand and body of the operator. Setting the fire extinguisher cylinder directly onto the ground during discharge can help to reduce or eliminate the buildup of static electricity.

Concerns over fire extinguisher generated static sparks having any potential for ignition of fuel vapors are seldom much of an issue, because extinguishers are typically discharged from upwind positions and while the fuel is already burning.

For any questions or additional information please feel free to visit the Badger web site at **www.badgerfire.com** or contact Badger (434) 964-3200.