

# WHITE PAPER: Halogen Safety

“Halogen Free” and “Zero Halogen” are applied to material that does not contain halogens. The material does not release halogens into the environment during normal use or exposure to high heat. This is mostly about the toxicity of smoke or invisible vapors released in fire, manufacturing, use and disposal.

Halogens are the 17th Group in the Periodic Table of the Elements, which include fluorine, chlorine, bromine and iodine. These elements are grouped due to a common property, forming salts when exposed to alkaline metals, resulting in the name “halogen,” meaning “salt producing.” These four elements are effective disinfectants in microscopic quantities, sterilizing bacteria and microorganisms. In larger amounts, halogens and their reactive compounds can injure animals and people. Unaware of all dangers, early chemists isolated and experimented with halogens. Experimentation led to use in topical disinfectant, water treatment, refrigerant, pesticide, dough conditioner, glass etching, sedative, bright light bulbs, non-stick coating, solder paste, bleach, fire retardant and durable plastic.

There are two proposed, radioactive and unstable (or short-lived) halogens, astatine and tennessine. Astatine is refined from decayed radioactive isotopes and is used to kill cancer cells in radiation therapy. No use has been published for tennessine (discovered in 2010), which results from a nuclear reaction between existing isotopes.

Naturally occurring halogen compounds, such as sodium chloride (table salt), are necessary for life and health. However, injury, chronic illness and disease are linked to exposure to pure halogens and other, more volatile, compounds. Halogen poisoning results from inattentive use, mixing of common chemicals or industrial accident.

- Chlorine gas displaces oxygen in an area and burns human skin and lungs. Inattentive mixing of cleaners or water treatment can generate this gas.
- Fluorine gas is highly reactive and corrosive, reacting with water to form an acid, so small quantities irritate eyes and lungs. Refrigerants and fluorinated chemicals have affected public health and the environment.
- Bromine, a liquid at room temperature, can displace iodine in the human body, degrading thyroid function. Bromine is highly reactive, generating toxic bromides or bromates.
- Iodine, a solid at room temperature, is necessary in trace amounts for human health. Iodine deficiency is common. Accidental concentration and release are rare. However, dietary supplement overdose may occur.

The deadliness of halogens was proven in war, fire and accidental exposure. Chlorine gas attacks in war were outlawed and regulation of halogen manufacturing increased.

For public health and safety, “Halogen Free” and “Zero Halogen” labels are applied only to ANACONDA SEALTITE® conduit proven to contain no halogen compounds.

For details about testing and certification for cable jackets and sheaths, please see IEC 62821 and [www.UL.com](http://www.UL.com).



Halogens



**ANACONDA SEALTITE®**  
ANAMET ELECTRICAL, INC.

Customer Service: (800) 230-3718  
Fax: (800) 677-2706  
Email: [info@anametelectrical.com](mailto:info@anametelectrical.com)

**ANAMET Electrical, Inc.**  
1000 Broadway Ave. East  
Mattoon, IL 61938