

“Alpha Ionization Innovative Solutions for Static Control”

TECHNICAL DISCUSSION OF THE ASPECTS
OF EMPLOYING POLONIUM 210,
AN ALPHA RADIATION SOURCE
IN THE NEUTRALIZATION OF STATIC

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Alpha Ionization Innovative Solutions for Static Control

Electrostatic discharge is one of the leading causes of industrial production problems. By disrupting production and destroying sensitive materials, static can cost your business huge amounts of time and money. **But there is an answer.** Alpha energy ionization from NRD. It is fast, reliable, and highly effective. Based upon safe alpha technology, our ionizers are powered by their own internal energy source, Polonium-210. This naturally occurring isotope is locked inside a solid foil of gold and silver using NRD's patented encapsulation process, assuring you of a safe, sealed source of alpha ionization. See figure 1.

Alpha energy delivers a balanced cloud of ions that are extremely effective in reducing product damage and yield loss in the electronics, graphics, printing, and converting industries.

NRD's advanced alpha ionization technology has withstood the test of time having over thirty years of field use. All of our products meet

stringent quality and production testing as well as ANSI N542 and ISO 2919 standards.

To maintain peak performance and conform to government regulations, NRD alpha ionizers are available on a one-year lease. The leaseholder is notified prior to lease expiration and provided all the necessary information to obtain a replacement ionizer.

Our in-house Applications Engineers can analyze your specific applications and offer targeted recommendations to solve individual problems. Additionally, our knowledgeable Customer Service Team provides a level of customer support that exceeds expectations.

At NRD, we work hard to establish a strong relationship with our customers. Ultimately, we work as your partner, providing you with solutions for your static control problems. **Expertise. Innovation. Information. That is what you can expect from an industry leader.**

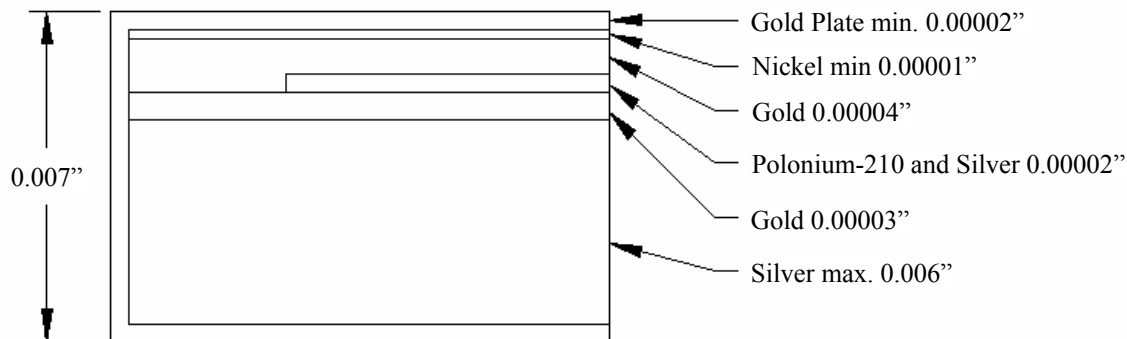


Figure 1

Advanced Ionization Technology

NRD is one of the oldest and largest suppliers of radioactive metallic foils in the world. Specially designed equipment and facilities enable us to mass produce standardized commercial ionization sources and to develop unique single or short run products.

What are the Benefits?

Unlike other ionization technologies, alpha ionizers produce a particulate free, inherently balanced cloud of ions. Therefore, they do not require periodic calibration and maintenance is limited to the annual change-out of the ionizing cell. In addition, because alpha ionizers do not require a high voltage power supply to produce ions, NRD devices can be used in hazardous and solvent-laden environments.

Product Reliability

Since 1969, NRD technology has been employed for static control, smoke detection, security, physics research, space exploration, and instrumentation. All over the world, companies in various industries use NRD products to obtain better quality and higher productivity.

Higher levels of reliability and efficiency are inherent in NRD ionizers due to their uniqueness of design. Our products are simple to install and easy to operate and unlike other technologies, alpha ionizers do not require “feed back” loops to ensure that they are working properly. All NRD devices are designed to withstand the types of environments commonly encountered in industrial settings.

In addition, we use a patented process that locks the radioisotope inside a solid foil of pressure-welded gold and silver, assuring its resistance to oxidation.

How it works

Safely encapsulated inside the static control device, Polonium-210 emits a form of energy known as alpha energy. This energy strips electrons from gas molecules, creating free positive and negative ions. Polonium-210 is a very effective and predictable source, generating a positive ion for every negative ion produced. And since ion production is completely generated by the alpha emission process, no external energy source is required.

Static charges are neutralized right at the source, with the ionization process remaining in constant balance. See figure 2

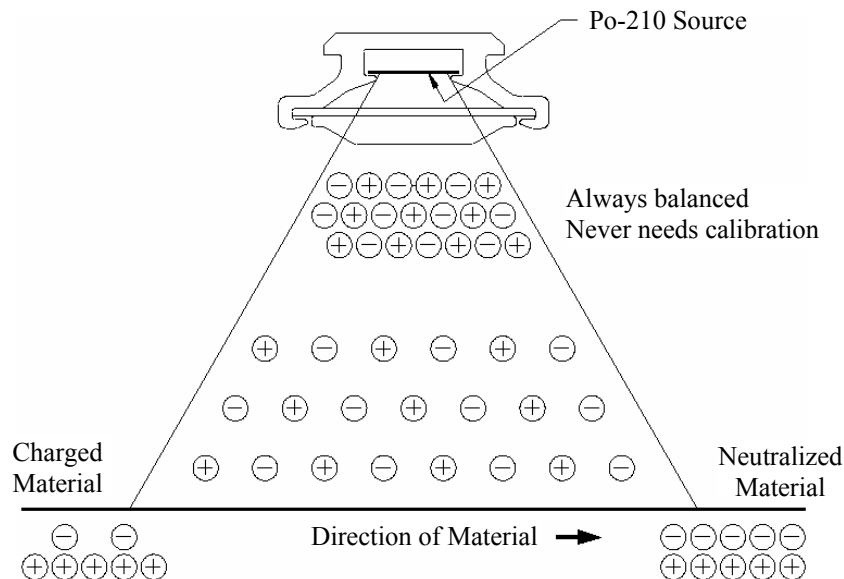


Figure 2

Product Features

Here are a few other facts about alpha ionizers that may interest you:

- They require no outside power source to produce ionization.
- They require no calibration, because they provide constantly balanced ionization down to zero volts.
- They are safe to use even in volatile or solvent-laden environments.
- There is no risk of electrical shock.
- Maintenance is limited to a “once-per-year” replacement of the ionization source.

Curious about isotopes and radiation?

Did you know that...

Many everyday products, materials and activities can produce minute, yet measurable exposures, including:

- Clocks
- Televisions
- Medical X-rays
- Bricks and masonry

See figure 3

Our static control products have been used for many years throughout the world to eliminate static.

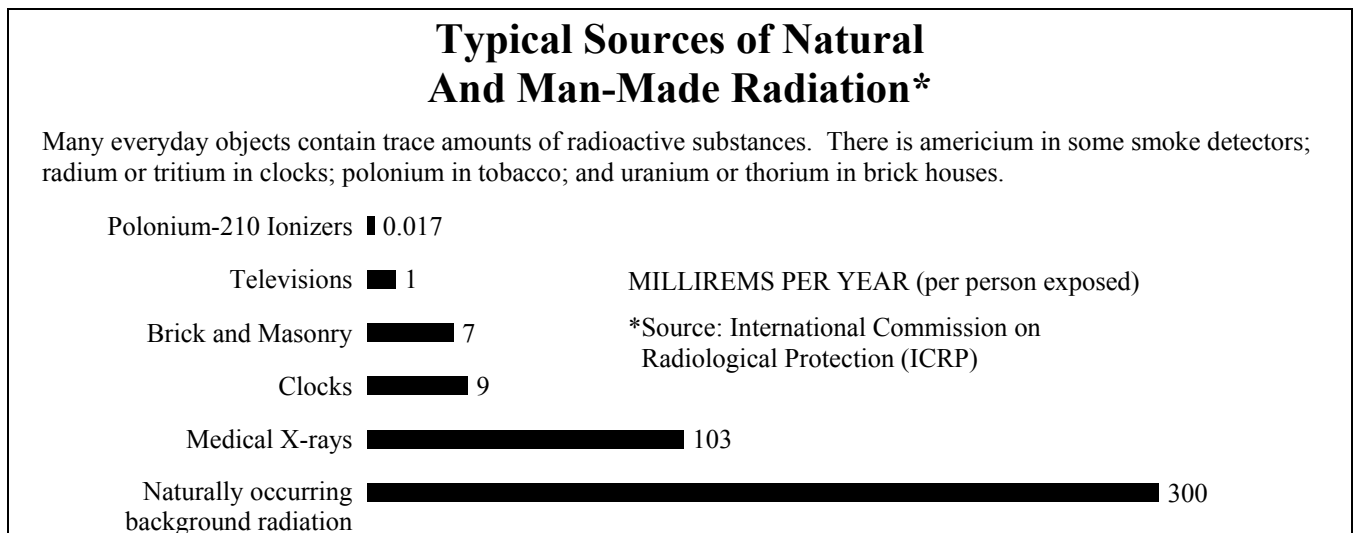


Figure 3