

Innovation in Radiation

Company Overview

Bubble Technology Industries (BTI) is a dynamic company with world-renowned expertise in the field of radiation and explosives detection. With a track record of over twenty-five years of innovation, BTI combines scientific, engineering, and manufacturing expertise to yield advanced solutions to complex radiation-related issues. BTI provides commercial products, radiation services, consulting, and contract research and development to a wide range of prominent clients, including law enforcement and first-responder organizations, defense and space agencies, regulatory and international standards groups, research institutions, and national security agencies. Innovative technology, customer-driven solutions, and an uncompromising standard of integrity have enabled BTI to become a trusted resource for clients around the world.

Personal Radiation Detectors and Dosimeters



BTI's unique neutron **bubble detectors** are the world's most sensitive and accurate neutron dosimeters. They have been used by nuclear facilities, hospitals, military groups, and space agencies for neutron measurements and **personal neutron dosimetry** for over twenty-five years.

These rugged and convenient detectors consist of a pocket-sized tube filled with a transparent gel. The gel contains tiny droplets of superheated liquid. When neutron radiation strikes a droplet, the liquid vaporizes and forms a visible gas bubble that is trapped inside the gel. The bubbles provide an immediate, real-time, quantitative measurement of neutron radiation dose.



Bubble detectors (**BD-PND™**, **BDT™**) are reusable, have zero gamma sensitivity, require no power, and have an isotropic angular response. Detectors can be provided in a wide range of sensitivities and energy thresholds. Automatic bubble detector readers (**BDR-III™**) and accessories are available.

Radiation Detection Systems



BTI provides a wide range of handheld, portable, mobile, and fixed-location radiation detection systems. These systems include radiation counters, advanced radiation spectrometers, and directional detectors to localize radioactive sources.

BTI's **Microspec™** product line includes portable and mobile radiation spectrometers. BTI is the only company in the world with a complete suite of **spectroscopic gamma, neutron, X-ray and beta probes**. All **Microspec™** spectrometers provide radiation dose, dose rate, and isotope identification. The **Microspec-6™** and **Mobile Microspec™** include a GPS-based radiation mapping capability.



The **FlexSpec™ Mobile** is a state-of-the-art mobile radiation detection system that provides **high-sensitivity gamma detection, isotope identification and neutron detection, with left versus right directionality** for source localization. The rugged, slim-lined sensor kit can be procured as a standalone kit, which can be easily moved from one vehicle to another, or as an integrated system with a vehicle. The system provides rapid and reliable isotope identification and alarm categorization using field-proven analysis software. An integrated GPS provides real-time mapping of alarms.



BTI also offers a wide range of other radiation detection systems—for **land, sea, and airborne platforms**—to address law enforcement, first-responder, defense, health physics, and environmental survey applications. Custom systems are also available.

Innovation in Radiation

Advanced Radiation Instrumentation



BTI develops a wide range of advanced radiation instrumentation, including a variety of high-performance neutron spectrometers. One example is the **ROSPECT™**, a unique rotating neutron spectrometer that is recognized by NATO as a standard for neutron spectrometry. It has been extensively tested by various standards laboratories, including NIST. The system provides **highly-accurate spectral and dosimetric neutron measurements** from thermal neutrons up to 4.5 MeV. An optional scintillation system extends the measurements to 16 MeV. **ROSPECT™** is used as a standard at preeminent research institutes, standards laboratories, nuclear facilities, and defense laboratories around the world.

Analytical Services & Consulting



Equipped with a **secure, classified, ISO-registered laboratory**, BTI provides a wide range of radioanalytical services. BTI's skilled services personnel perform survey meter calibrations, source leak testing, radiological sample analysis, and radon monitoring quickly and cost-effectively. Unique sample processing techniques and expert consultations on radiation-related activities are available. Consultations for dosimetry applications, environmental monitoring, radiation surveys and MARSSIM-based decommissioning activities are also offered.

Contract R&D



BTI provides **advanced commercial and defense solutions** in the areas of radiation detection and explosives detection. The company is internationally recognized for its unique expertise in nuclear physics and its innovative solutions to some of the world's most complex radiation-related challenges. BTI's technologies have been successfully deployed at important venues including major multi-national sporting events, global political summits, critical infrastructure locations, and on over a dozen space missions.



BTI's expertise has supported the important missions of clients such as the Canadian Department of Defence, the U.S. Department of Homeland Security, the U.S. Department of Energy, NATO, NASA, and many other well-known government agencies and research groups. With multi-disciplinary skills in **physics, chemistry, electronics, mechanical design and algorithm/software simulations and development**, BTI has emerged as a technology leader in radiation measurement and explosives detection.



BTI's experts also advise and consult for major regulatory and standards agencies, including the International Atomic Energy Agency (**IAEA**), International Organization for Standards (**ISO**), American National Standards Institute (**ANSI**) and the International Electrotechnical Commission (**IEC**). The company's strengths in technological innovation, robust engineering, high-quality manufacturing, and responsive customer support ensure that BTI can execute all aspects of your critical program from concept to successful field deployment.

Contact Us



For more information on Bubble Technology Industries, please visit us on the web at www.bubbletech.ca or contact us directly at:



Bubble Technology Industries
31278 Highway 17, P.O. Box 100
Chalk River, Ontario
Canada
K0J 1J0

Telephone: 613-589-2456
Fax: 613-589-2763
Email: info@bubbletech.ca



FM 502976