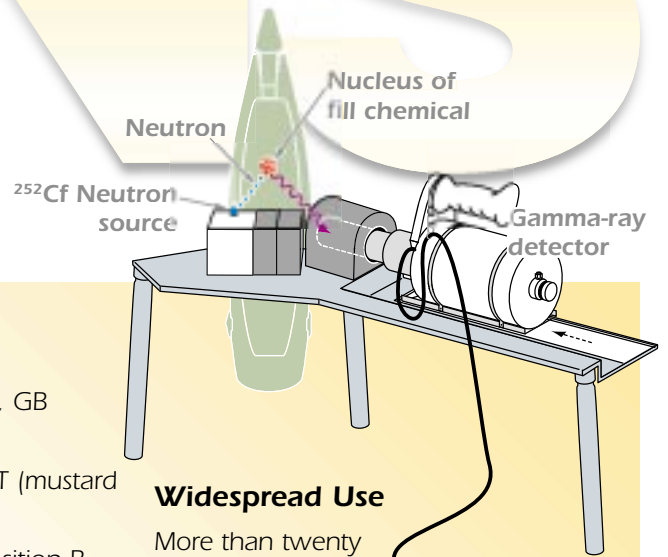


PINS

portable isotopic neutron spectroscopy



The PINS Chemical Assay System

is a field non-destructive evaluation tool to identify the contents of munitions and chemical storage containers safely and reliably. Typical assay times range from 100 to 1000 seconds.

PINS employs neutron radiation from a small radioisotopic source as a probe of an item's fill. The chemical elements inside the item are revealed by their characteristic gamma-ray signature, measured by a high-resolution HPGe spectrometer. The system computer then infers the fill compound or mixture from the elemental data.

Testing and Reliability

PINS reliably identifies:

- Nerve agents: GA (tabun), GB (sarin), GD (soman), VX
- Blister agents: HD, HN, HT (mustard gases), L (lewisite)
- Explosives: ANFO, Composition B, RDX, smokeless powder, TNT
- Military screening smokes: FM, FS, HC, WP
- Compressed gases: acetylene, ammonia, arsine, carbon dioxide, chlorine, Freon, HFC refrigerants, hydrogen chloride, hydrogen fluoride, nitrogen, phosgene, phosphine, silane
- Other HazMat: mercury and PCBs

Field Application

Since 1992, PINS has been used to identify thousands of recovered munitions, stockpile items, and other suspected hazards. U.S. agencies that have used PINS include:

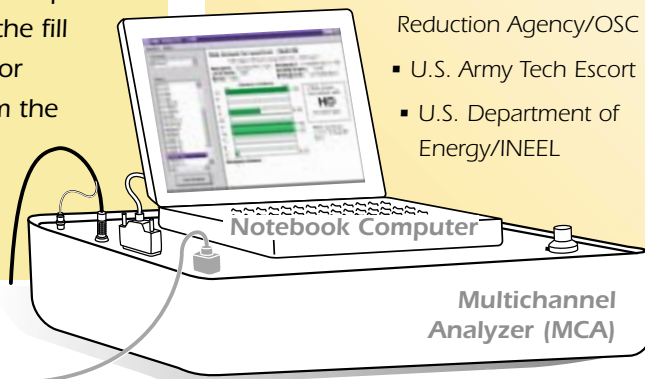
- Defense Threat Reduction Agency/OSC
- U.S. Army Tech Escort
- U.S. Department of Energy/INEEL

Widespread Use

More than twenty PINS systems are currently in use around the globe, including systems in Australia, Egypt, Greece, Japan, and the United Kingdom. In the United States alone, PINS has been used extensively at over 40 sites.

Equipment Features

The PINS system is designed to be portable and rugged. Its components include a small radioactive californium source; a detector cooled by liquid nitrogen; a stand and shielding for the detector; a multichannel analyzer that sorts and stores the data; and a notebook computer for user interface. Customized software displays the data as it is gathered and offers powerful options for monitoring and analysis.



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