AID, Acoustic Inspection Device, for Homeland Security

The Acoustic Inspection Device, or AID, is a hand-held system that enables inspectors to "see" inside sealed containers.

The AID addresses economic, domestic policy, foreign policy, homeland defense and national security concerns:

- *Revenue Collection*
- *Regulatory Enforcement*
- *Contraband Detection*
- *Detection of Weapons of Mass Destruction*

Rapid inspection of sealed containers is a critical task for personnel charged with enforcing government policies, maintaining public safety, and ensuring national security. The Pacific Northwest National Laboratory invented a portable, hand-held system for rapid non-intrusive detection and identification of sealed container contents. The Acoustic Inspection Device, or AID, can examine containers ranging in size from approximately 6 inches to more than 96 inches in diameter. The AID will identify a wide variety of specific fluids and bulk solids within certain temperature ranges. Among these, the AID can identify 11 specific chemical warfare agents. The AID will detect contraband in the form of submerged packages and concealed compartments in liquid-filled containers and solid-form materials. The AID will determine fill level of containers, and is designed to allow inspectors to quickly interrogate outwardly innocuous commodity items such as shipping barrels, tanker trucks, railroad tanker cars, and metal ingots. The AID allows an inspector to sort liquid types into groups of like and unlike and thus is a powerful tool with which to discover corrupted materials or incorrectly marked containers co-mingled in large shipments.

Rapid, Risk-Free Discovery and Monitoring

A primary benefit of the AID is that it allows determinations to be made without the need to open the container, thereby reducing health and safety risks associated with intrusive inspections.

Many Advantages in System Design

- Non-invasively, rapidly and reliably locates hidden packages and cavities and determines the contents of sealed containers.
- Field screening identification of liquid fills, including fuels, food products, and materials associated with weapons of mass destruction.
- Augments on-site material interrogation efforts that use the expensive and time consuming processes of direct sampling and laboratory analysis techniques.
- The PC-based design permits timely and cost efficient field upgrades and database exchanges with other inspection sites.
- Superior signal-to-noise design and extended low-end operating frequencies ideal for commodities inspection.

System Deployed World Wide

- U.S. Customs Service, Department of Defense and Department of State deploying at international borders, including Kazakhstan, Russia, Georgia, Poland, Lithuania, Azerbaijan, and Uzbekistan, Cyprus, and Malta.
- U.S. law enforcement community has used the AID technology in drug interdiction operations.
- Department of Energy uses the AID in controlling the excess of surplus materials.
- Candidate item on equipment list for Chemical Weapons Convention.
- Used for chemical weapons (CW) inspections by United Nations inspectors in Iraq and by On-Site Inspection Agency inspectors for U.S.-Russian Bilateral Treaty verification activities.

Commercially Available

PNNL has executed a successful commercialization program with Mehl, Griffin & Bartek, Ltd., of Arlington, Virginia. The product now is commercially available and includes a 90-day warranty, technical documentation, and initial factory training. An extended maintenance program also is available.

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