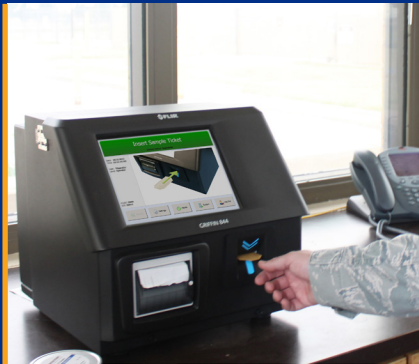


A Closer Look: Mass Spectrometry for Checkpoint Screening



PHYSICAL SECURITY



INTERDICTION

Low operational false alarm rate
Future-proof expandable library
Rapid, reliable clear-down
No lengthy bake-outs
Maximum operational up time



What is checkpoint screening?

Checkpoints are designed to interdict threats before they cause harm. A number of orthogonal techniques such as mechanical sniffers, canines, ion mobility spectrometers (IMS), and x-rays are used in checkpoints. Trace detectors are specifically used for explosives and narcotics screening.

How does a person or item get screened in a checkpoint?

Front line operators collect surface residue from skin or first touch areas on laptops, bags, cell phones, belts, crates, boxes, letters, and other items using a sample ticket. The ticket is inserted into a trace detector that analyzes the residue and presents an all-clear response or threat alarm.

What technology is used for trace detection?

IMS-based desktop trace detectors are widely used to screen for explosives and narcotics due to their speed of detection and sensitivity. In recent years, desktop trace detectors have been introduced with next-generation mass spectrometry (MS) technology to improve detection accuracy.

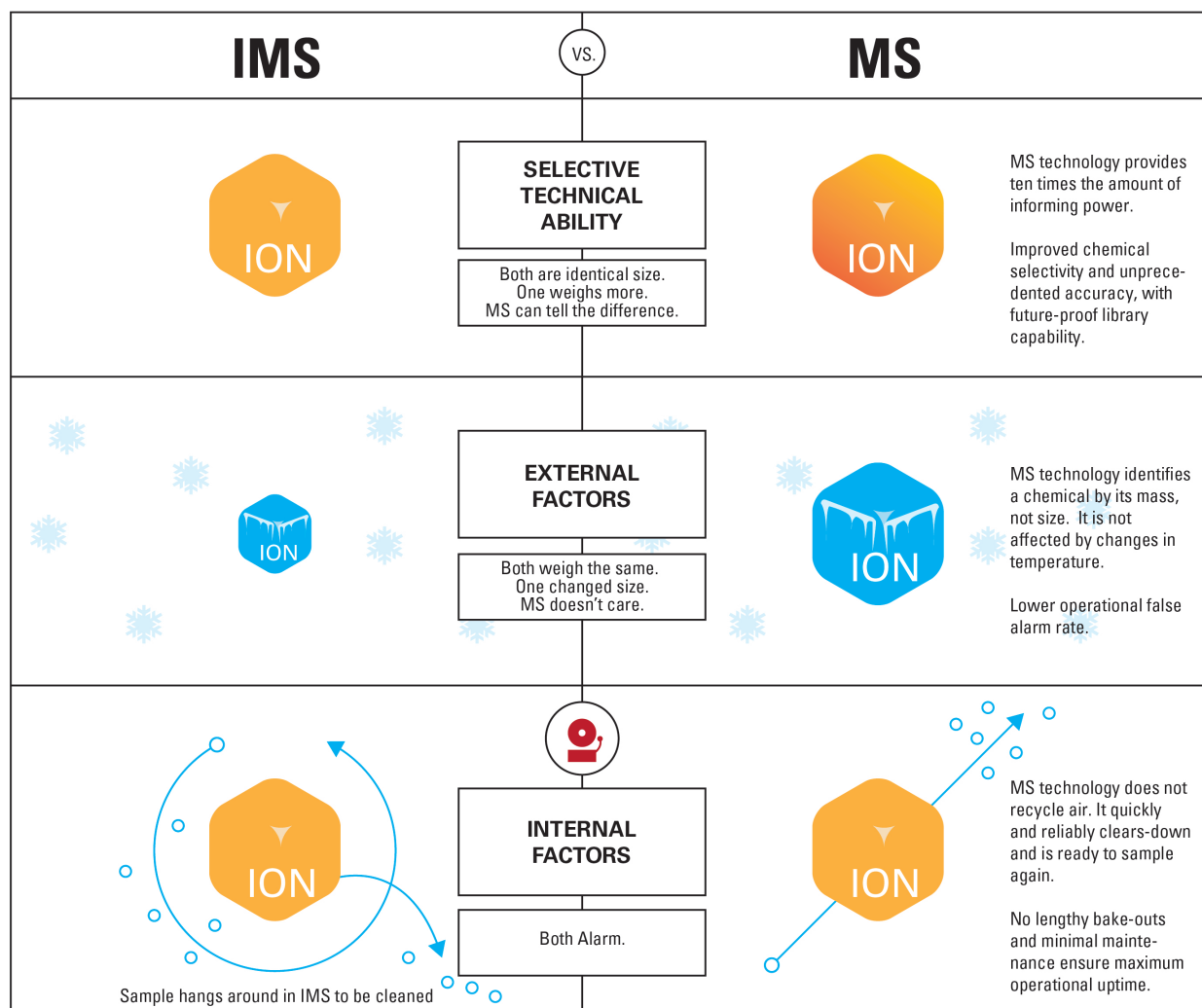
What is mass spectrometry?

Laboratories use mass spectrometry (MS) as their gold-standard technology for identifying chemicals in a sample. It is sensitive and can detect chemicals at very small concentrations (trace level detection). It is also very selective, meaning even in complex operational environments, many chemicals can be separated out and identified with accuracy.

Why use MS for checkpoint screening?

There are a few key reasons why MS technology is an obvious candidate to replace IMS technology in checkpoints.

1. MS technology provides ten times the amount of informing power¹. This higher chemical specificity ultimately improves accuracy. Operational false alarm rates are extremely low and security officers gain confidence that only true explosives and narcotics threats are detected.
2. MS has greater peak capacity so target libraries can expand to include new threats. This flexibility occurs without impacting sensitivity or false alarm rates¹. MS offers a future-proof solution that addresses emerging threats.
3. MS systems provide maximum operational availability with fast, reliable clear-down, no lengthy bake-outs, and simplified, minimal maintenance.
4. MS uses a non-radioactive ionization source to eliminate associated costs and logistics.



¹ Opportunities to Improve Airport Passenger Screening with Mass Spectrometry. Committee on Assessment of Security Technologies for Transportation, National Materials Advisory Board. National Research Council, Washington, D.C., 2004.