

8-COLOR IMAGING

When Z-Number Discrimination Is Critical

Astrophysics, Inc.'s 8-color Imaging is a breakthrough in the x-ray security industry and marks a significant step forward in threat discrimination and material identification.

The introduction of 8-color, rather than the conventional 3-color palette allows operators to more efficiently recognize objects and isolate security threats. As a result, 8-color Imaging not only increases precision screening, but also greatly improves throughput.

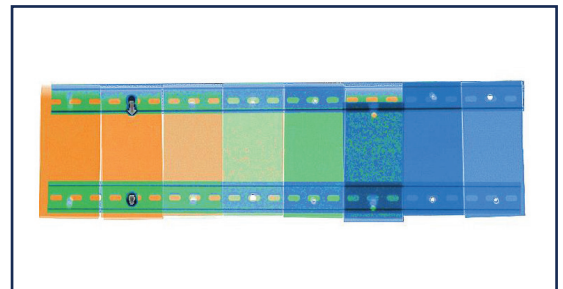
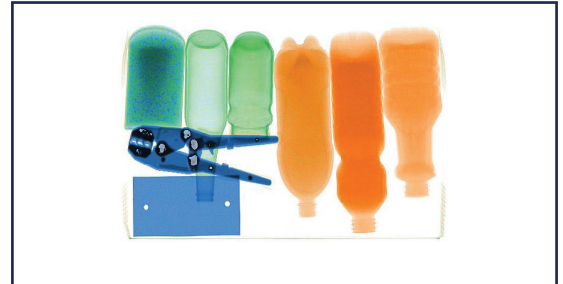
The commonly used 3-color Imaging was established over 20 years ago and has a limited color coding that makes it difficult to discriminate between similar materials. 3-color Imaging simply does not provide the operator with enough information.

In contrast, 8-color Imaging utilizes extended color categorizing through **Atomic Z-Number Measurement**. Each screened object appears in one of the 8-colors based upon a specific range of atomic numbers.

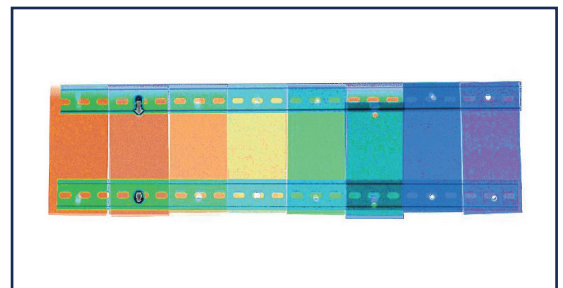
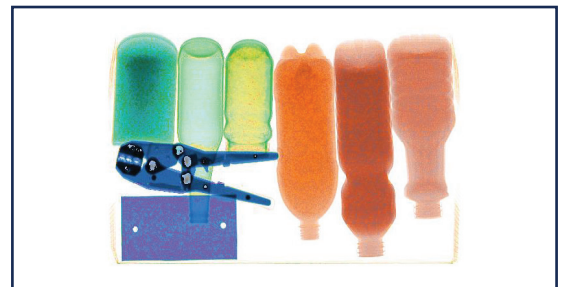
8-color distinguishes between objects that only utilizing 3-color cannot, dramatically improving an operator's material identification. 8-color provides the operator with more information in order to decipher between threat and non-threat items, therefore the operator is able to interpret the x-ray image quicker and isolate threats with precision. This increases both throughput and detection accuracy.

The two images above feature identical objects processed using industry standard 3-color, and Astrophysics, Inc.'s 8-color Imaging software. In comparison, 8-color Imaging clearly displays greater material separation of objects screened. As an operator, the evident distinctions between materials allows for faster and more precise object identification, as well as fewer opened parcels, and increased efficiency.

Astrophysics, Inc.'s exclusive 8-color Imaging is an optional feature on all Astrophysics x-ray inspection systems, with industry leading penetration and software.



CONVENTIONAL - 3-COLOR IMAGING



ASTROPHYSICS - 8-COLOR IMAGING

THE 8-COLOR INDUSTRY ADVANTAGE

Advantages of 8-color Imaging versus 3-color are numerous and may vary by industry. The utilization of 8-color Imaging enables high security threats to be more easily identified by operators; including illicit goods, explosives, sharpened implements, and other weapons or contraband.

DRUG CONTRABAND

Chlorinated narcotic compounds can be discriminated from many common low organic materials and will appear in brown and allows for further color separation.

EXPLOSIVES DETECTION

Benign organic and high organic materials can be distinguished from military explosives which are displayed in rust and orange, thus reducing false alert rates.

PROPELLANTS

Glass bottles and containers which may contain liquor or suspicious liquids will be more readily differentiated from other low inorganic and light metallic materials and appear in yellow.

DEVICE DETECTION

Complex circuitry and detonating devices differentiation in green allows trained personnel to safely disable and remove IEDs.

COMPOSITES

Material made from two or more constituent materials with significantly different physical mixture, solid solution and chemical dangerous properties.

WEAPON DETECTION

Guns, knives, and other associated weaponry are differentiated in blue and can be recognized based on their shape and their construction material.

PRECIOUS METAL INDUSTRY

8-color Imaging differentiates gold, silver and platinum in violet while steel and iron appear in blue. Separating such precious metals allows for easier and more immediate object recognition.

Z-NUMBER	MATERIAL TYPE	3-COLOR	8-COLOR	EXAMPLES	POSSIBLE THREATS
0-7	Low Organic	Orange	Brown	Oil	Cocaine, Fentanyl
7-8.5	Organic	Orange	Rust	Sugar, Water	C4, TNT
8.5-10	High Organic	Orange	Orange	Paper	Dynamite
10-13	Low Inorganic	Green	Yellow	Glass	Gunpowder, Propellants
13-17	High Inorganic	Green	Green	Aluminum, Silicon, Salt	Triggering Devices
17-21	Light Metals	Blue	Cyan	Bone, Composites	Dense Triggering Devices
21-29	Metals	Blue	Blue	Iron, Steel, Copper	Guns, Bullets, Knives
29+	Dense Metals	Blue	Violet	Gold, Silver	High Value Contraband
-	Impenetrable	Black	Black	Lead	Shielding for Above Threats



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