

# Anritsu

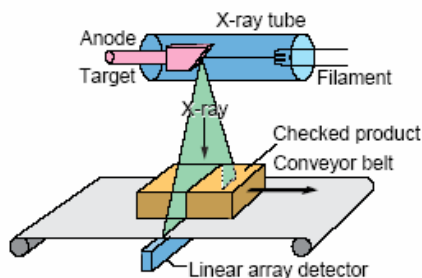
## DETECTION PERFECTION

PROTECT YOUR PRODUCTS, YOUR CUSTOMERS AND YOUR REPUTATION

### VARIOUS MEAT PRODUCTS X-RAY TEST REPORT

- Principle of detection of contaminants by X-ray

X-rays are radiated from X-ray tube at food and chemical products carried in on the conveyor, and the degree of penetration of the X-rays is measured by a linear array detector placed under the conveyor. Using our exclusive image processing technology, highly sensitive analysis of the measured signal is carried out to detect contaminants included.



Anritsu Industrial Solutions' 40 years of experience in designing and manufacturing inspection equipment for the food, pharmaceutical and chemical packaging/processing industries offers high speed, small format X-Ray inspection systems automatically rejecting contaminated or over & under weight products, Checkweighing solutions for detection of under fill and over fill situations and the only metal detector technology with simultaneous dual frequency operation for maximizing detection of all metal contaminants. Anritsu's historical installation base of over 85,000 systems is a testament to the design quality and integrity of the equipment.

We thank you for the opportunity to evaluate your products at our test facility. Following is a summary of the results achieved in our lab and expected to be achieved on your production line.



**Application Summary:** The products tested are various types of pork products in different packaging materials; i. e., plastic, foil, and metalized film.

The products were hand fed into the inspection chamber with the belt running at a speed of 10 to 20 meters per minute, depending on the item to simulate the line piece per minute rate.

The items that were used for detection were sample test cards of: Metal, Glass, PVC Plastic, Dense Rubber, and Teflon; as seen in the images following in this report. From the list of contaminant items requested to be detected in this test that were not detectable or available was Wood and Bone (calcified). Due to the physical make-up of wood in relationship to the product density being tested the X-Ray Inspection System could not see nor detect its presence. This is because of the lack of density that wood is made up of (it is organic and porous). Additionally, I did not have any Bone to use, thus it is not within this report. **Note:** Calcified Bone is less dense than the rubber and Teflon used in this test.

Due to the packaging and characteristics of the entire product line, an Anritsu Industrial Solutions' X-Ray Inspection System is the best solution to maintain the highest quality and product integrity as possible. Furthermore, due to the difference in product densities it will be best that each different type of product be run in batches.

## Summary of Test Result

### Model of X-ray Inspection System used: KD7305AW (800 mm long from in-feet to out-feed)

Maximum opening of the in-feed and out-feed aperture is 330 mm W x 135 mm H. However, the maximum height vs. width of product (as not to miss inspecting edges) is 125 mm H x 150 mm W and 25mm H x 222 mm W.

Product name		Gold 4x6 ½ (5.1Lb)	Gold 4x6 Whole (11.2 Lb)	Water added Clear4x6 (11.2Lb)	Top Value 4x6 Silver (11.2Lb)	Country Kitchen (2.1 lb)
Shape		Rectangular	Rectangular	Rectangular	Rectangular	Rectangular
Product size (L x W x H) L: to flow, W: across belt (inch)		6" x 6" x 4"	12" x 6" x 4"	12" x 6" x 4"	12" x 6" x 4"	5" x 6" x 4"
Detection Sensitivity	SUS 304 & Fe Sphere (mm)	d 0.6 – 0.8mm	d 0.7 – 1.0mm	d 0.7 – 1.0mm	d 0.7 – 1.0mm	d 0.8 – 1.0mm
	SUS 304 & Fe Wire (mm)	d 0.4 x 2 mm	d 0.4 x 2 mm	d 0.4 x 2 mm	d 0.5 x 2 mm	d 0.5 x 2 mm
	Aluminum Sphere (mm)	d 2.0 mm	d 3.0 mm	d 2.0 mm	d 2.0 mm	d 3.0 mm
	Glass Sphere (mm)	d 2.0 mm	d 2.0 mm	d 2.0 mm	d 2.0 mm	d 3.0 mm
	PVC Cube (mm)	d 1.5 mm	d 2.0 mm	d 2.0 mm	d 2.5 mm	d 3.0 mm
	Rubber Sphere (mm)	d 3.0 mm	d 4.0 mm	d 4.0 mm	d 5.0 mm	d 8.0 mm
	Teflon Sphere (mm)	d 5.0 mm	d 4.0 mm	d 4.0 mm	d 6.0 mm	d 7.0 mm

Product name		Royale Honey Ham 1.8 lb	WF Back Bacon 6oz	ML Back Bacon 1.5 lb	Uncured Tender Tip 3.8 lb
Shape		Rectangular	Rectangular	Rectangular	Rectangular
Product size (L x W x H) L: to flow, W: across belt (inch)		5" x 6" x 4"	8" x 5" x 1.5"	113" x 8" x 1"	10" x 7" x 2.5"
Detection Sensitivity	SUS 304 & Fe Sphere (mm)	d 0.7 – 1.0mm	d 0.6 – 0.8mm	d 0.6 – 0.8mm	d 0.7 – 1.0mm
	SUS 304 & Fe Wire (mm)	d 0.4 x 2 mm	d 0.2 x 2 mm	d 0.2 x 2 mm	d 0.4 x 2 mm
	Aluminum Sphere (mm)	d 2.0 mm	d 2.0 mm	d 2.0 mm	d 2.0 mm
	Glass Sphere (mm)	d 3.0 mm	d 2.0 mm	d 2.0 mm	d 2.0 mm
	PVC Cube (mm)	d 2.5 mm	d 1.0 mm	d 1.0 mm	d 1.5 mm
	Rubber Sphere (mm)	d 6.0 mm	d 3.0 mm	d 3.0 mm	d 6.0 mm
	Teflon Sphere (mm)	d 5.0 mm	d 3.2 mm	d 3.2 mm	d 6.0 mm

Example 1: d A - B

\_\_\_\_\_ Can detect contaminants of B mm dia. in all area of product  
 \_\_\_\_\_ Can detect contaminants of A mm dia. in some area of product

Example 2:

|d C \_\_\_\_\_ Can detect contaminants of C mm dia. or more in all area of product

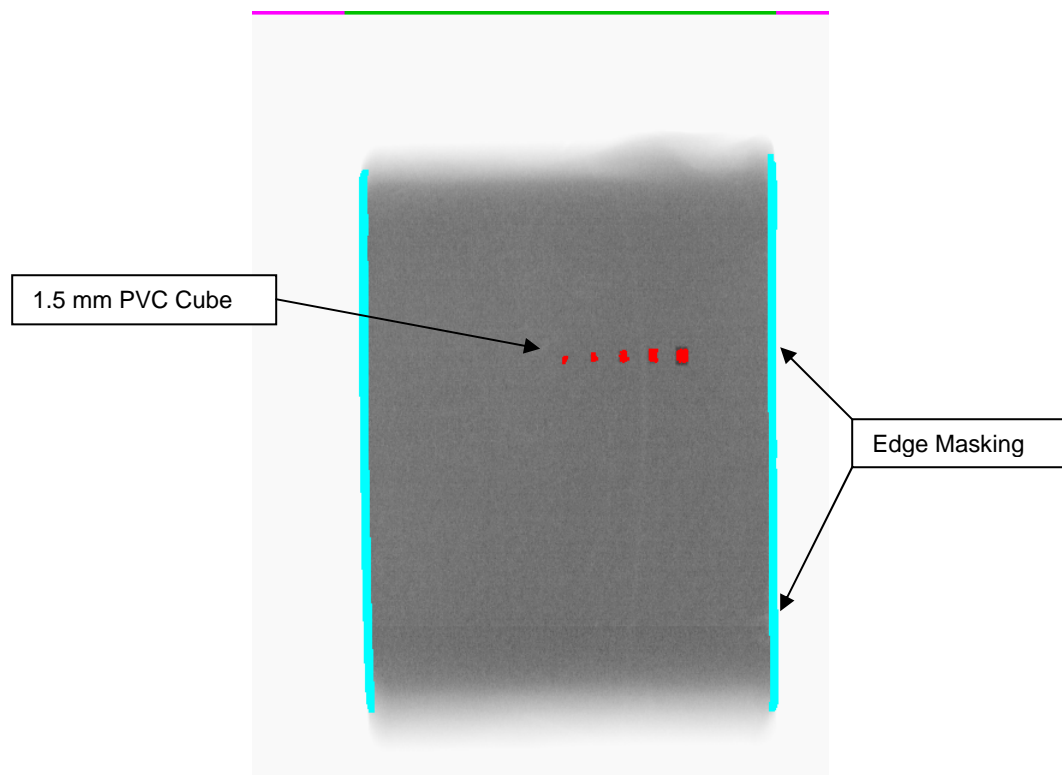
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**Detection Comments:** Although, the sample test was performed on the KD7305AW; Anritsu Industrial Solutions USA, Inc. recommends the KD7316AW type X-Ray Inspection System (with extended shielding covers for the in-feed and out-feed of the system to meet Canadian Regulations). The recommendation of the larger format X-Ray Inspection System is due to the various heights and widths of the products which are right on the border line for maximum height vs. width product parameters.

**Detection and Test Result Notes:** The Anritsu X-ray Inspection Technology detects contaminants by processing X-Ray transit doses in relation to product density, contaminant density, and image processing algorithms. This report summarizes the test results when the X-Ray Inspection System in Anritsu Industrial Solutions' USA test lab inspects the sample products. The result is not guaranteed in an actual production line because on-line results may differ depending on the product variation, contaminant size of orientation, installation environment, etc. that may not be duplicated in the lab environment.

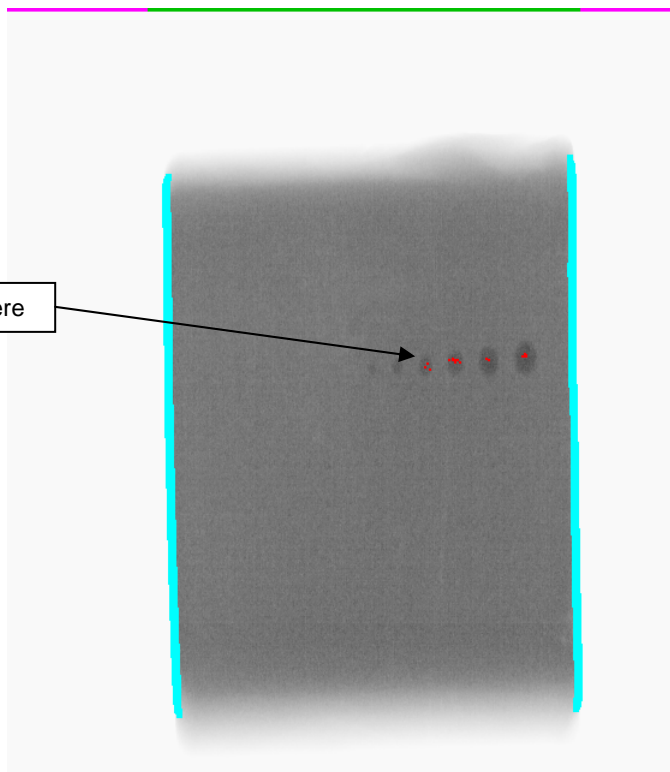
Furthermore, aluminum is not normally a part of the metal detection specification under Non-Ferrous test pieces; as its inherent density is significantly lower making it harder to detect without risking a high false reject rate. The system was set up to minimize the false reject rate and maximize detectability.

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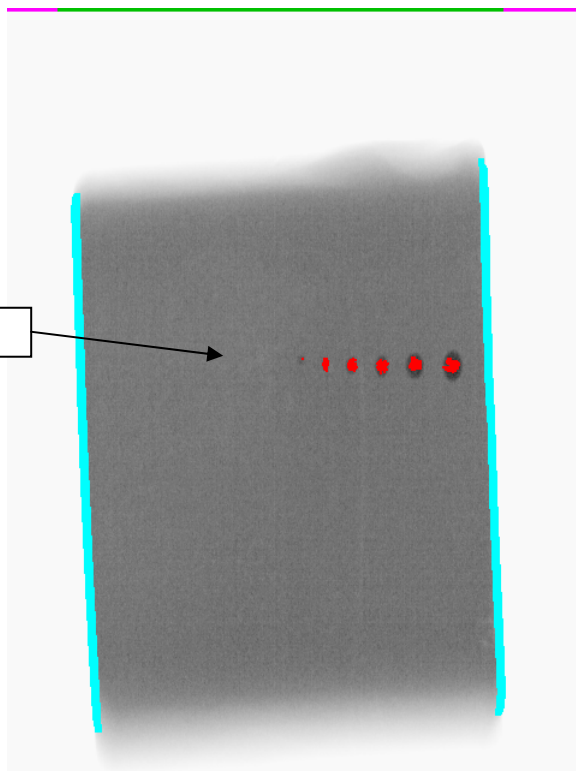
**Gold 4x6 ½ 5.1 lb**

5.0 mm Teflon Sphere

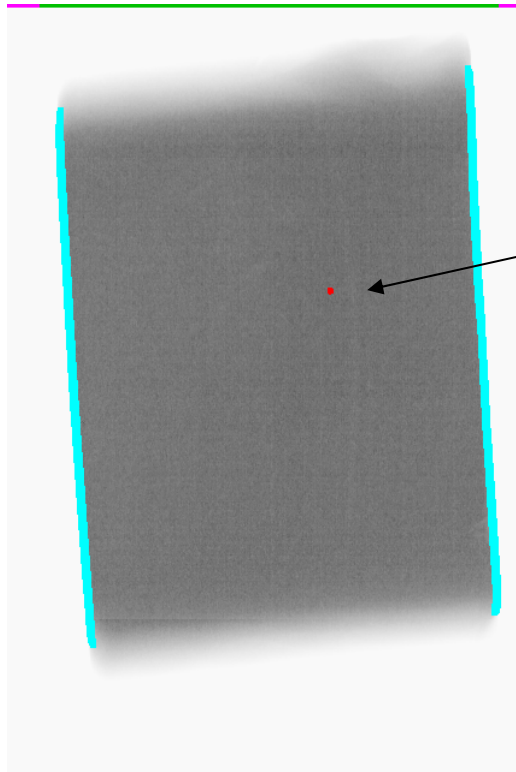


**Gold 4x6 ½ 5.1 lb**

2.0 mm Glass Sphere

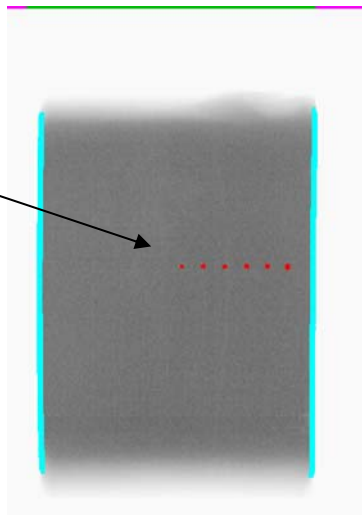


**Gold 4x6 ½ 5.1 lb**



0.8 mm Non-Fe Sphere

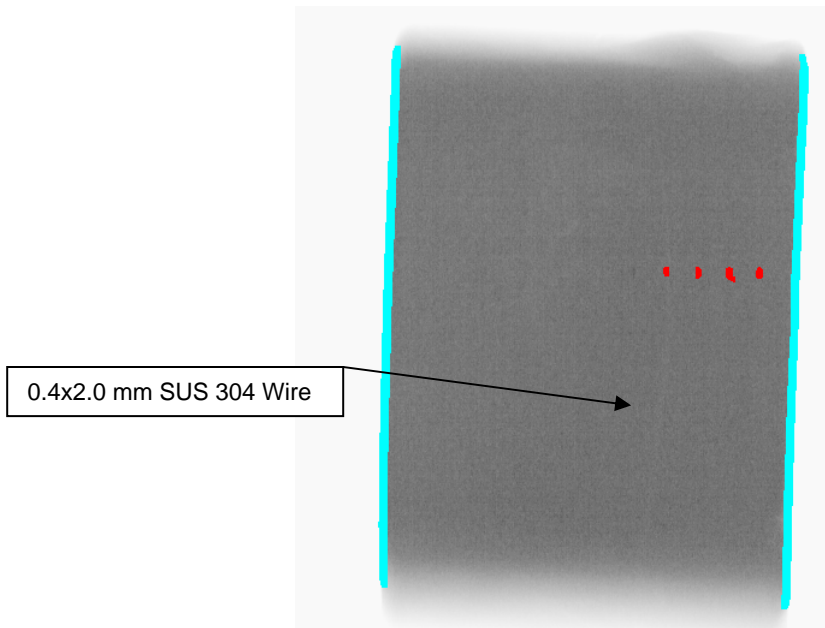
**Gold 4x6 ½ 5.1 lb**



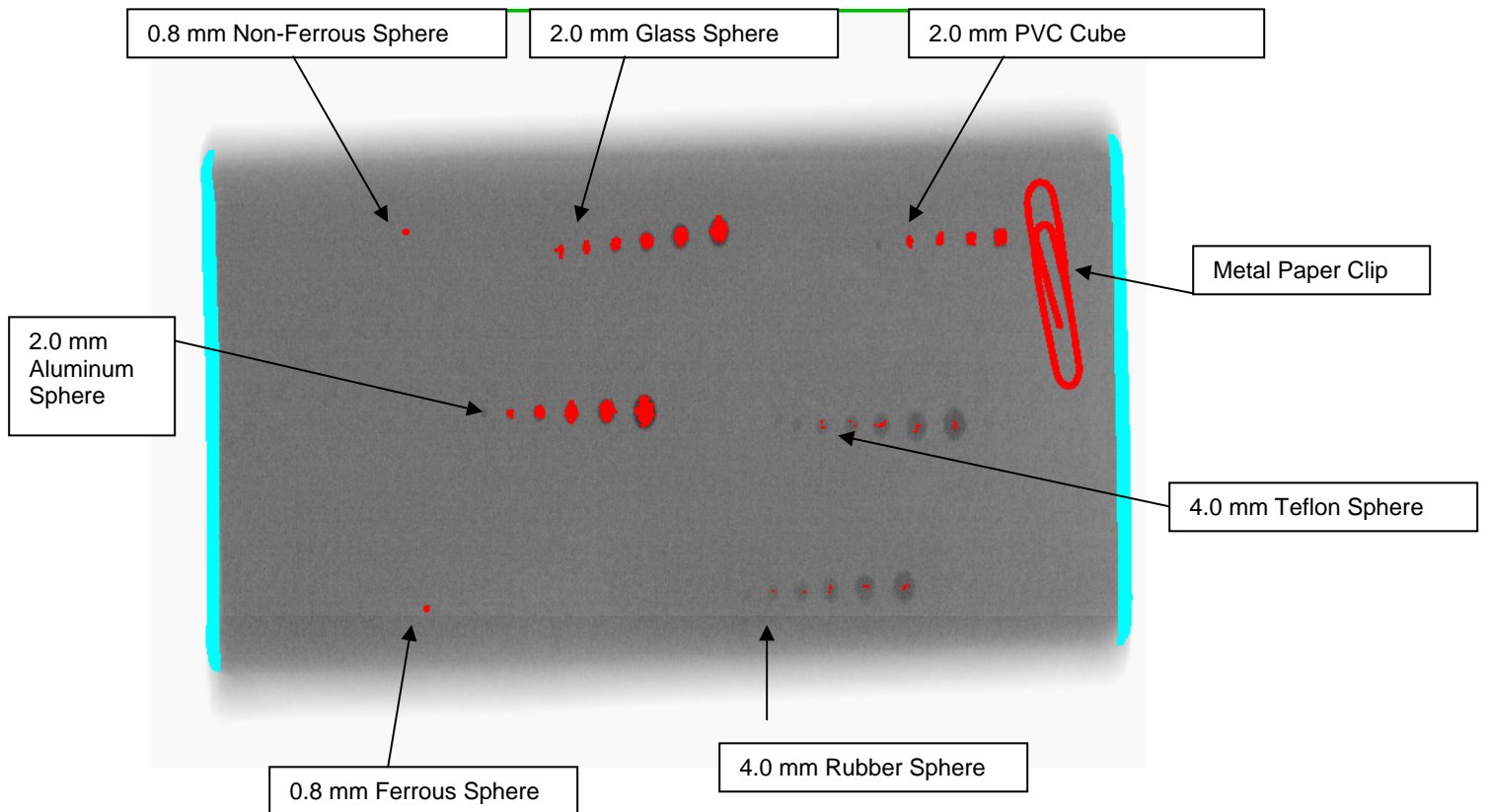
0.6 mm SUS 304 Sphere

**Gold 4x6 ½ 5.1 lb**

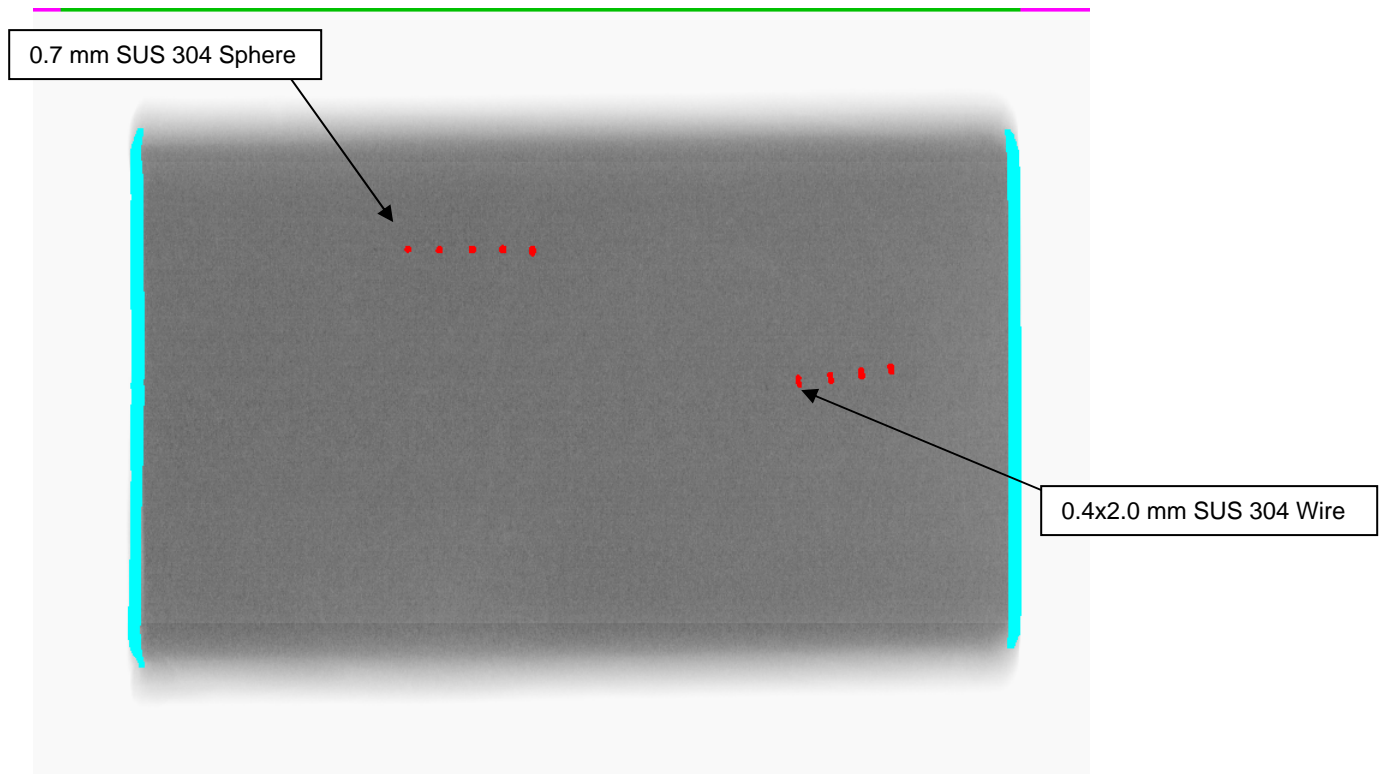




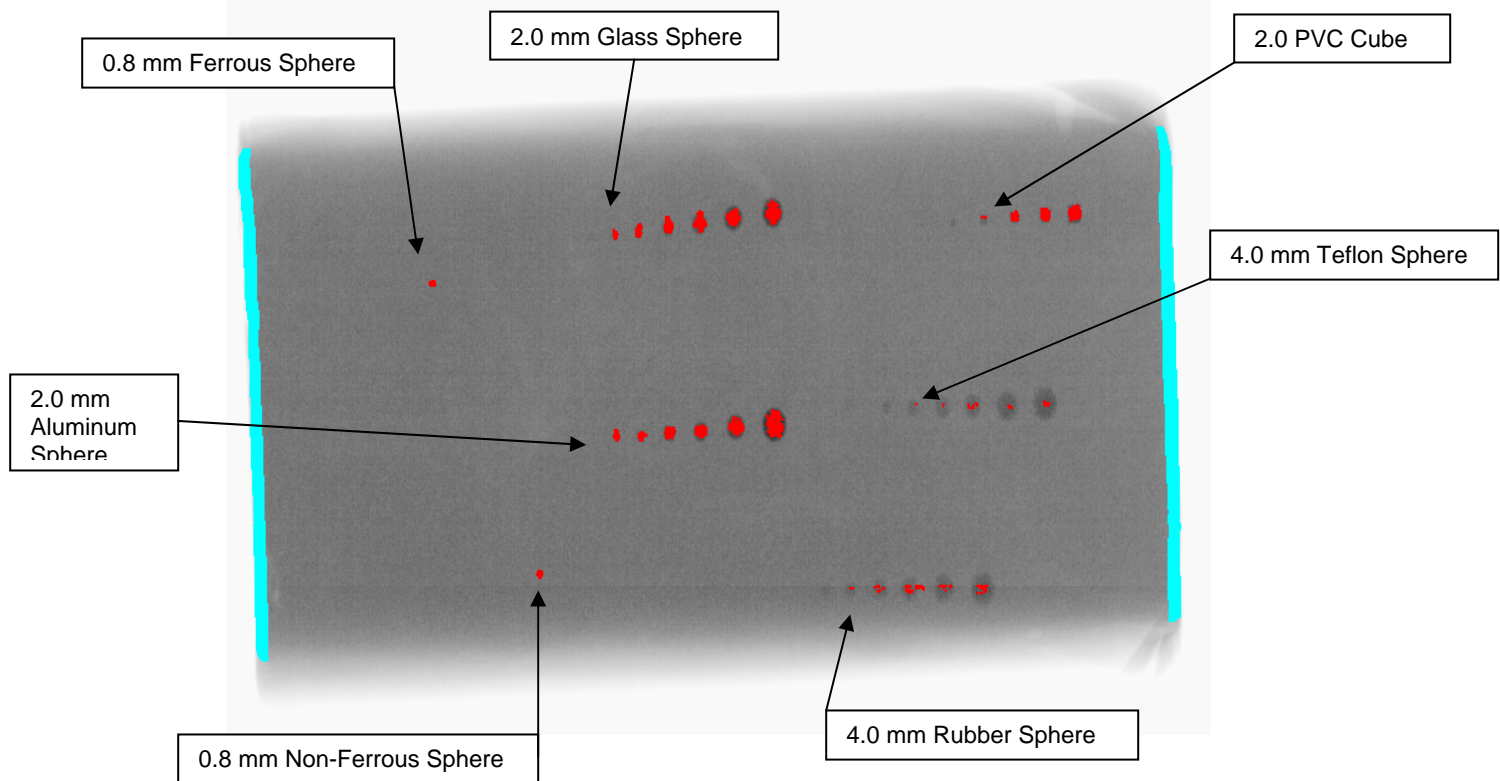
**Gold 4x6 ½ 5.1 lb**



**ML Gold 4x6 Whole 11.2 lb**

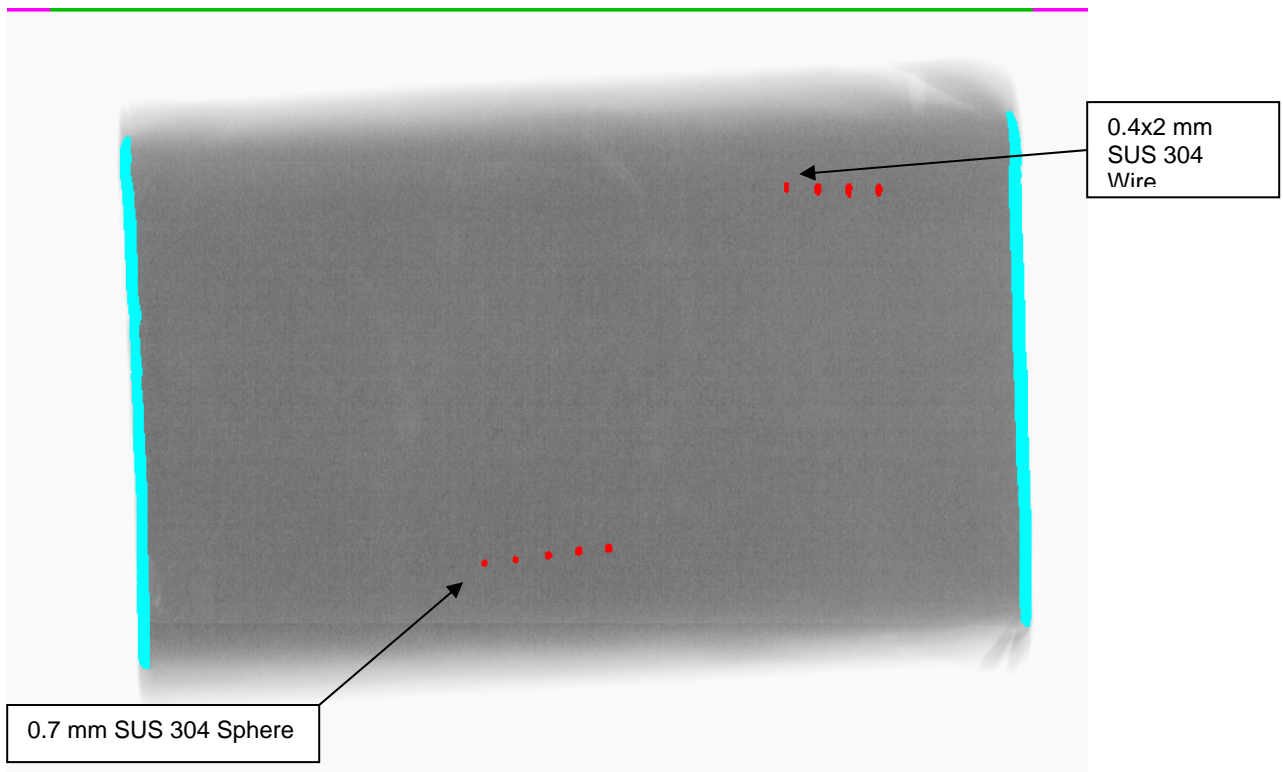


**ML Gold 4x6 Whole 11.2 lb**

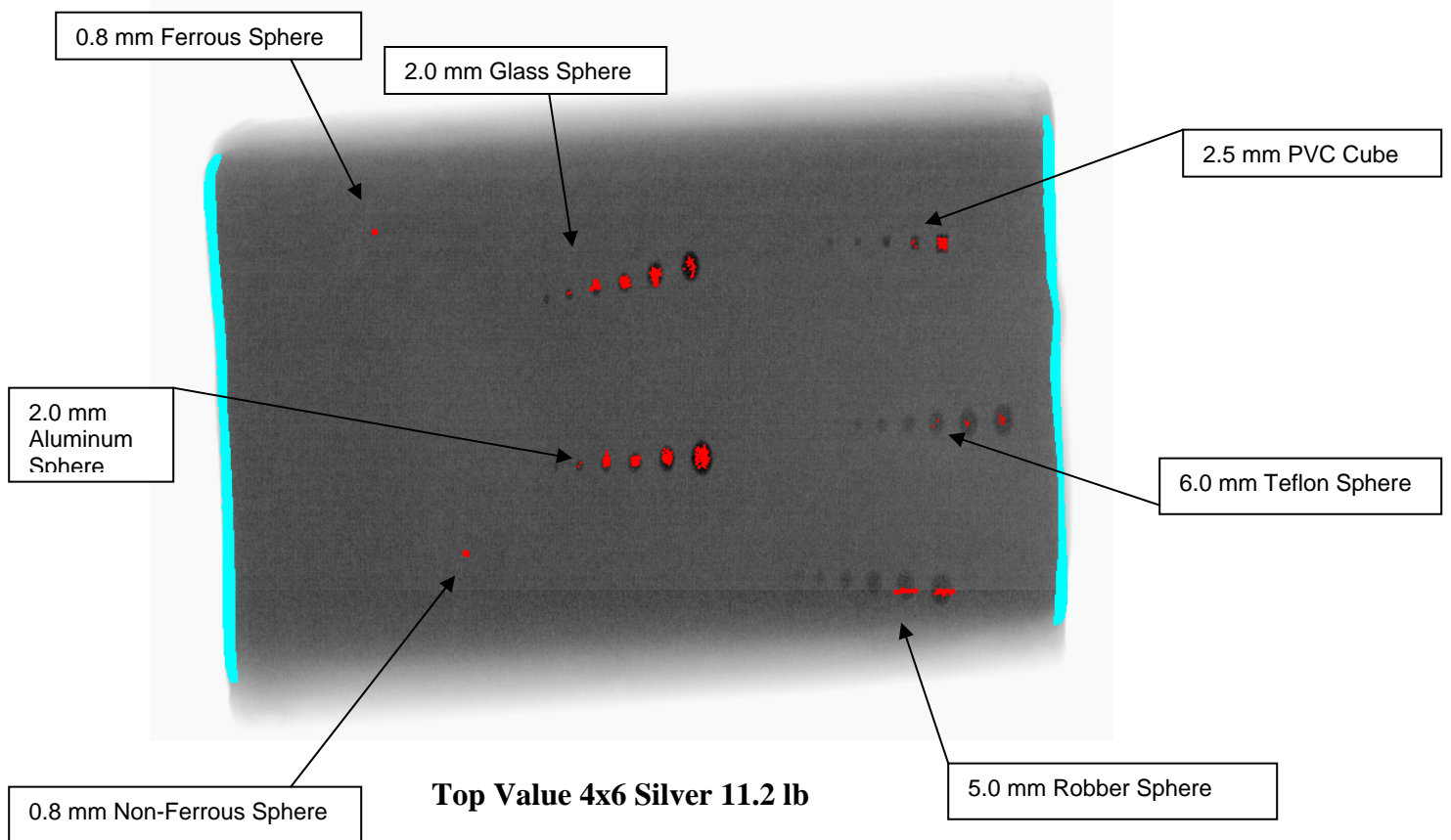


**4x6 Whole Water Added Clear 11.2 lb**

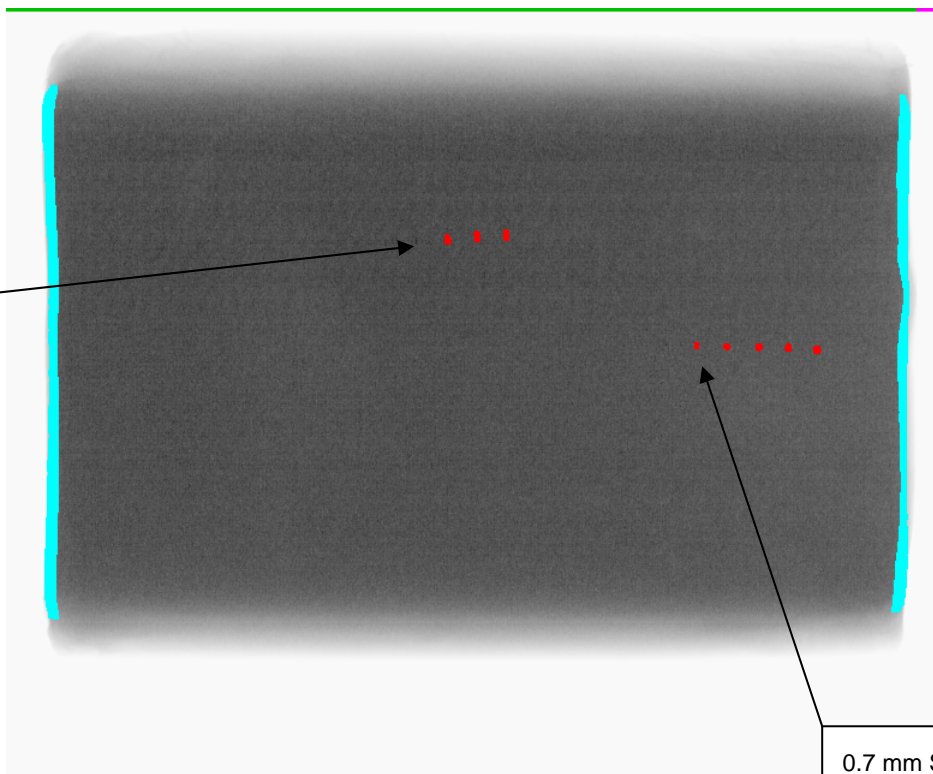




### 4x6 Whole Water Added Clear 11.2 lb



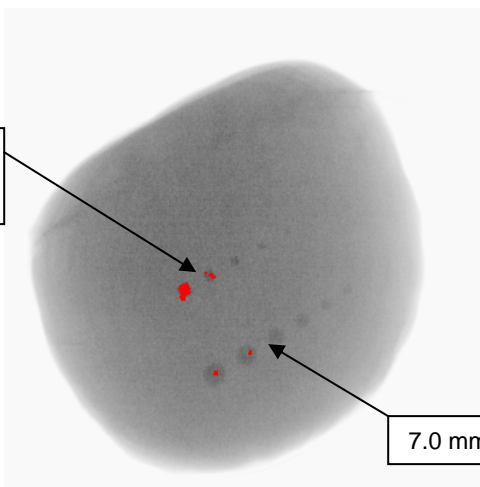
0.5x2 mm  
SUS 304  
Wire



**Top Value 4x6 Silver 11.2 lb**

0.7 mm SUS 304 Sphere

3.0 mm  
PVC  
Cube

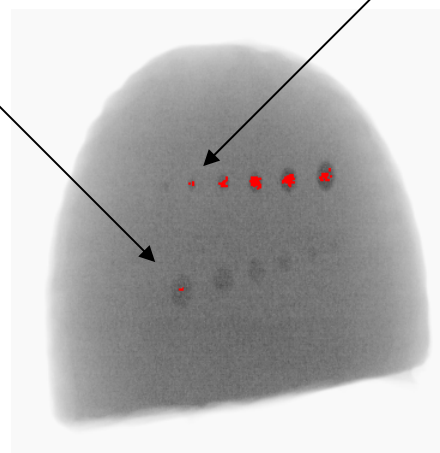


**Country Kitchen 2.1 lb**

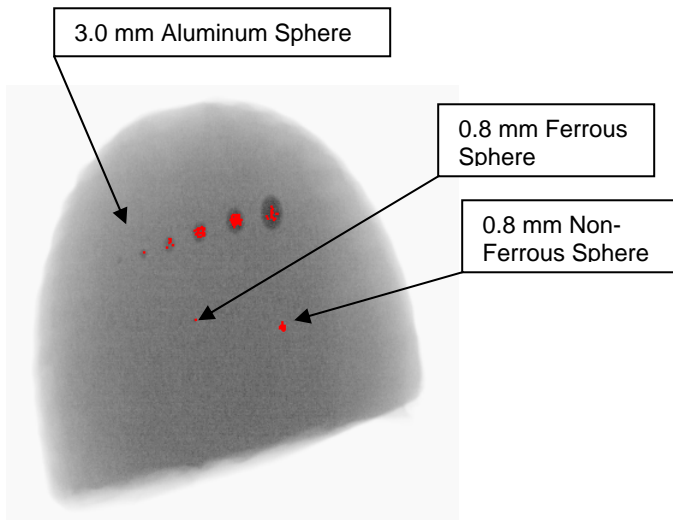
7.0 mm Teflon Sphere

8.0 mm Rubber Sphere

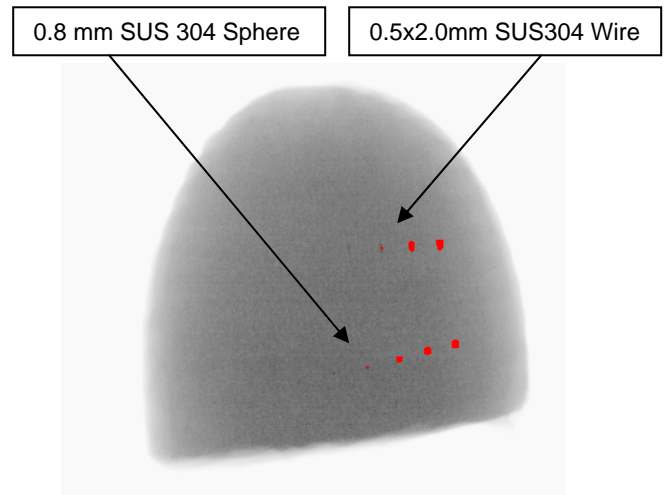
3.0 mm Glass Sphere



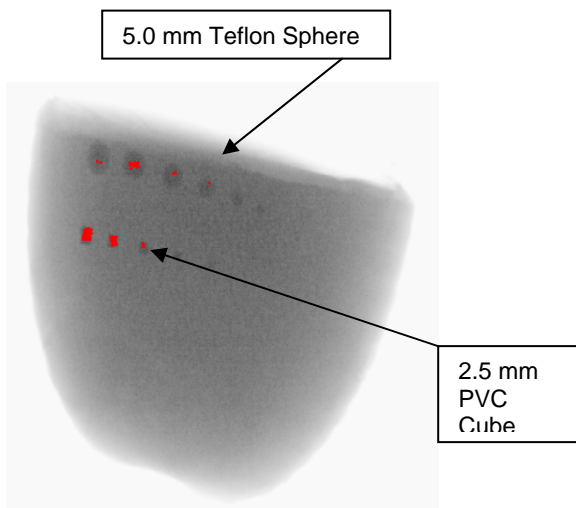
**Country Kitchen 2.1 lb**



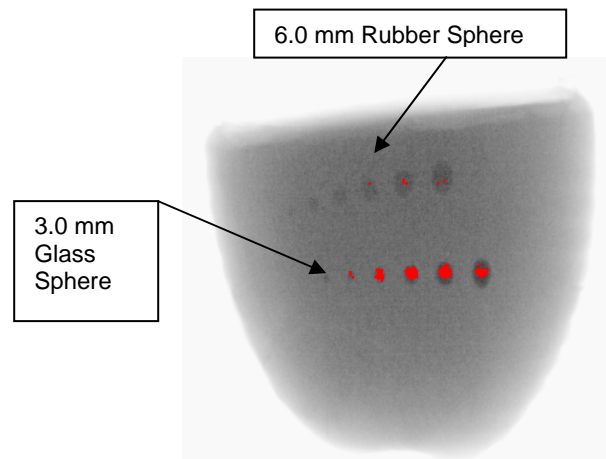
**Country Kitchen 2.1 lb**



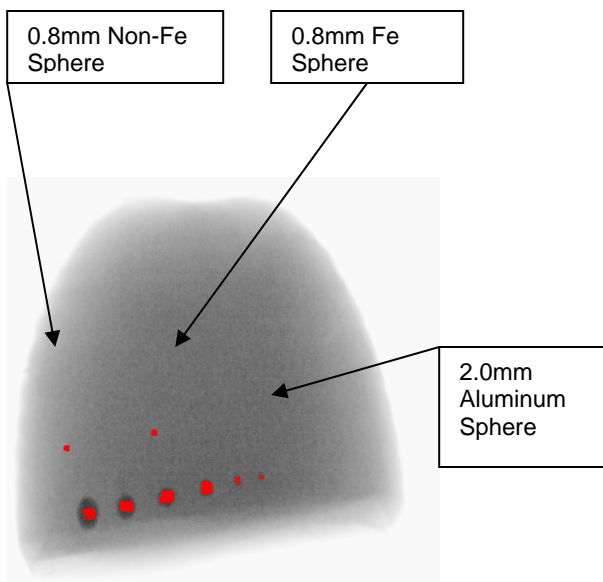
**Country Kitchen 2.1 lb**



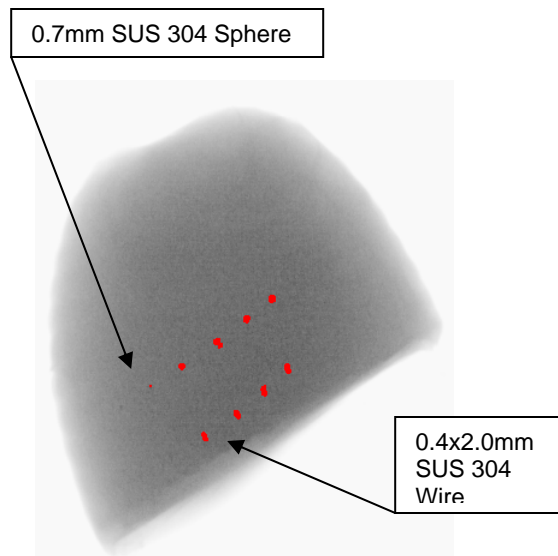
**Royale Honey Ham 1.8lb**



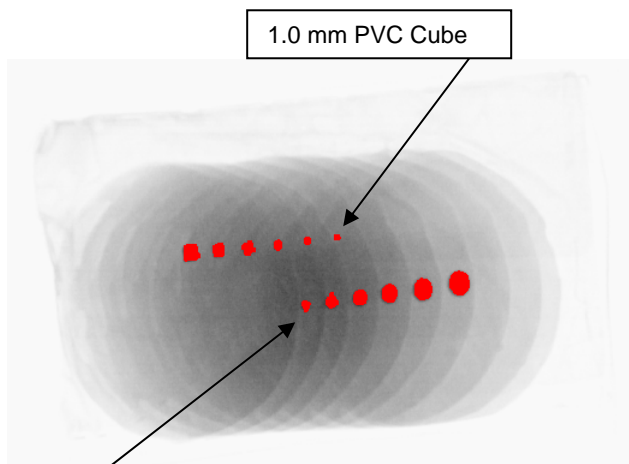
**Royale Honey Ham 1.8lb**



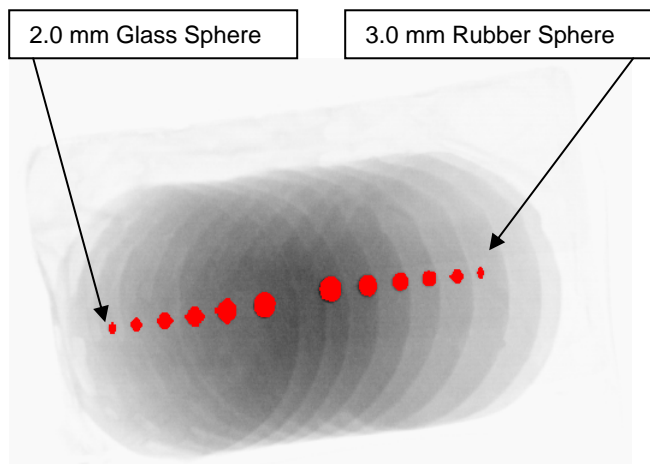
**Royale Honey Ham 1.8lb**



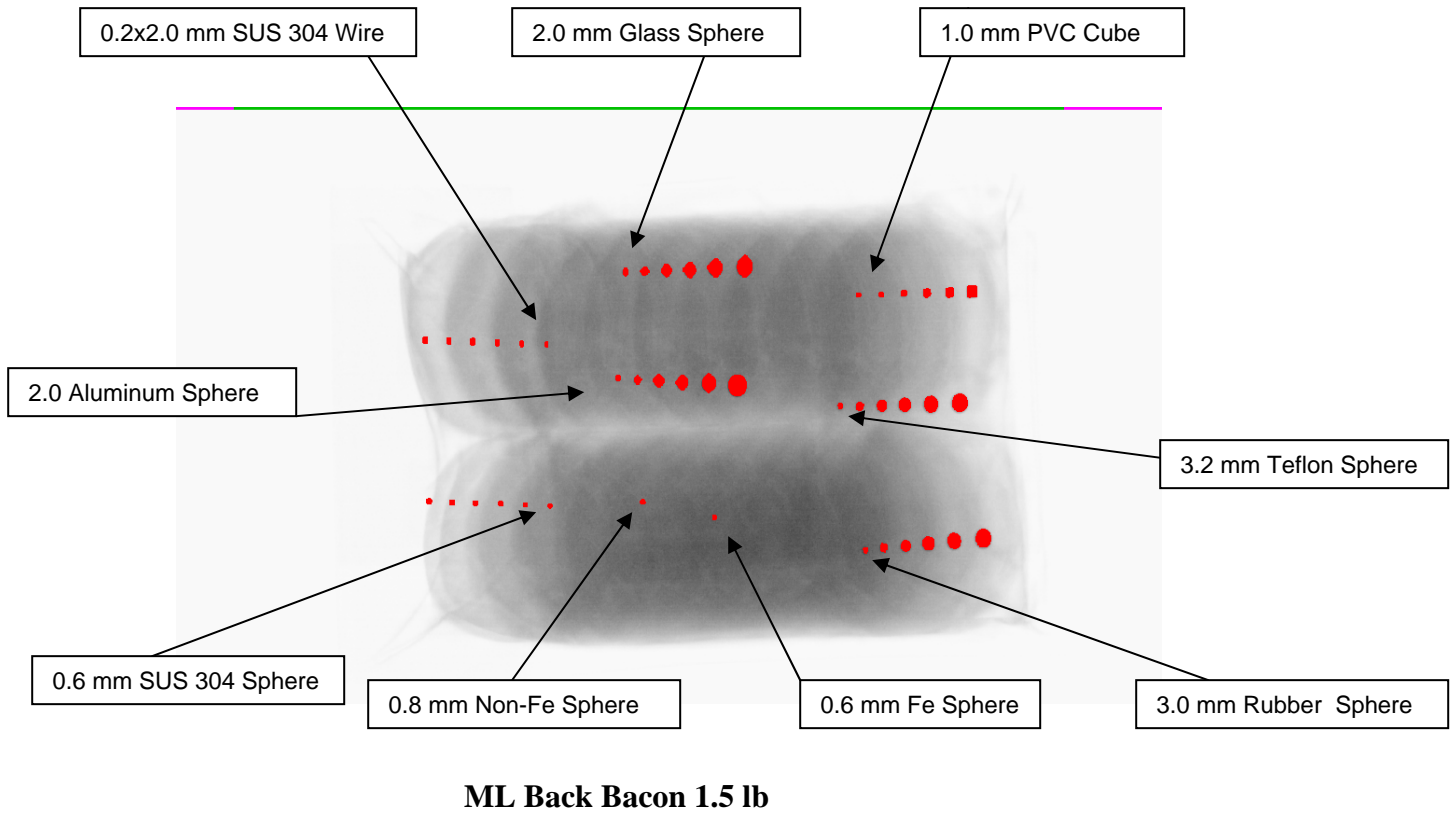
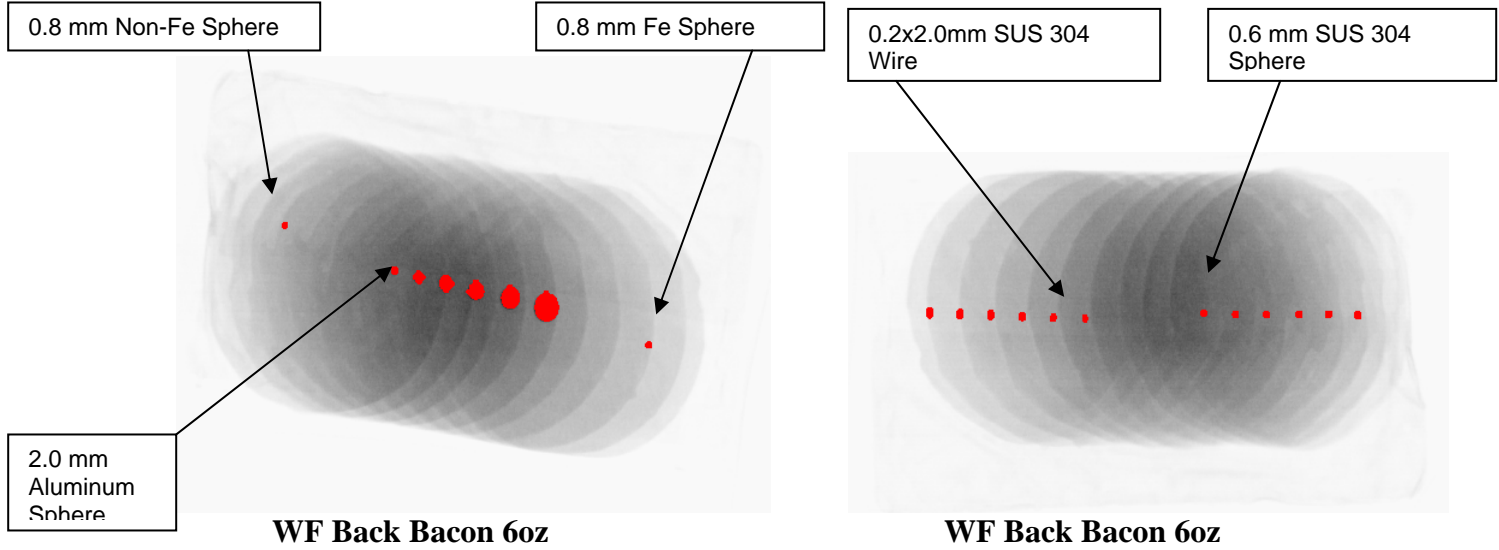
**Royale Honey Ham 1.8lb**

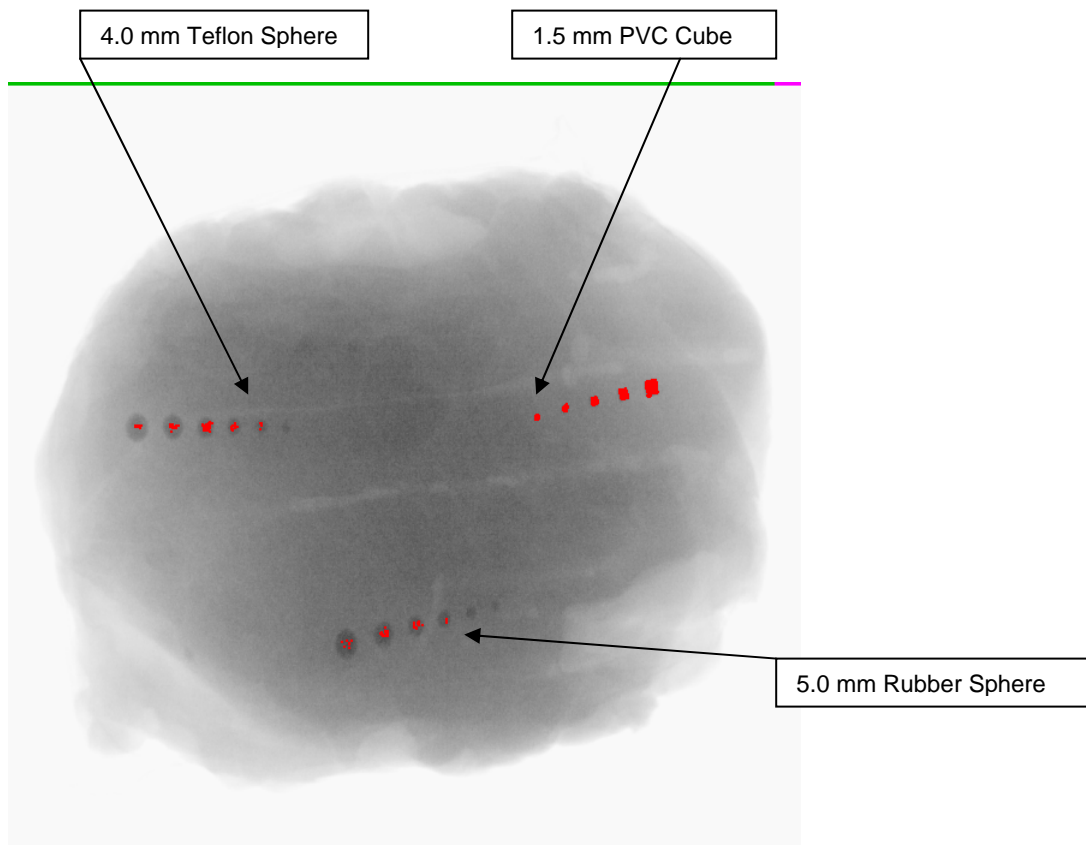


**WF Back Bacon 6oz**

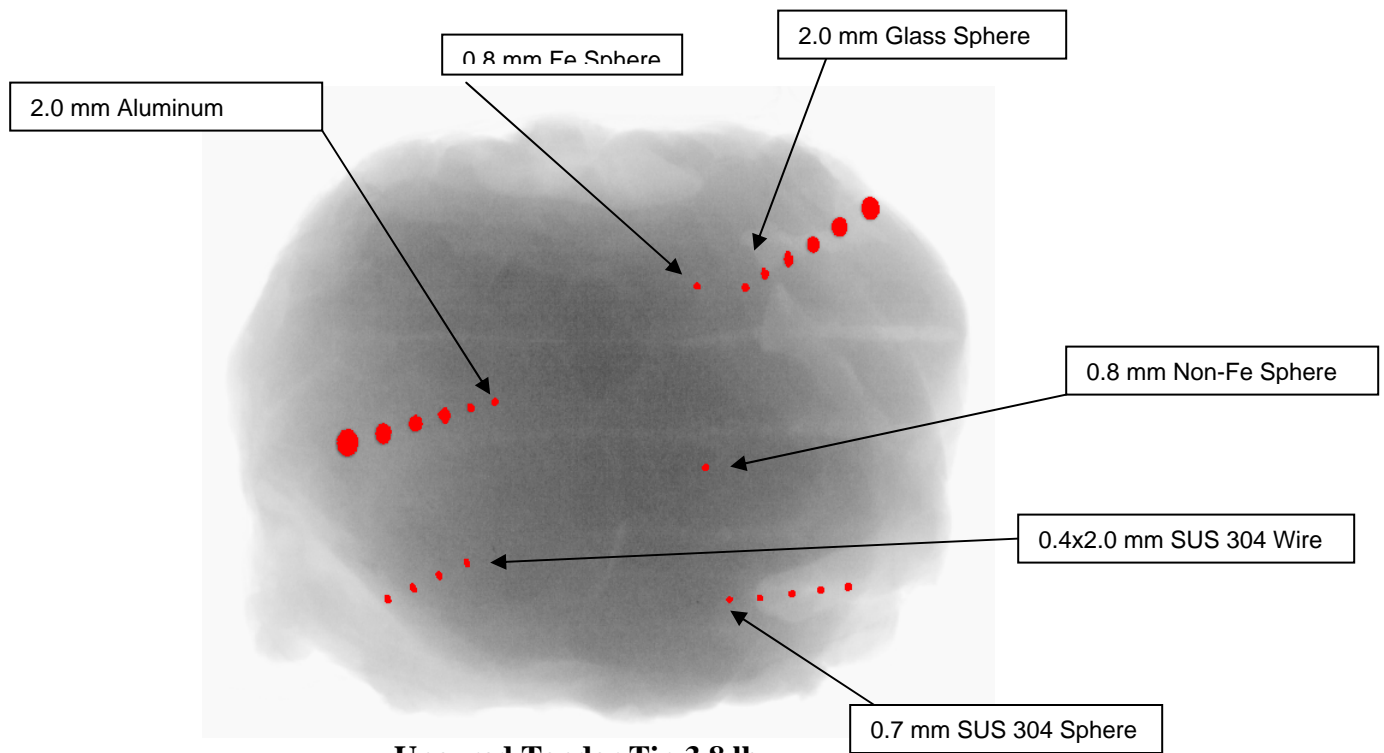


**WF Back Bacon 6oz**





**Uncured Tender Tip 3.8 lb**



**Uncured Tender Tip 3.8 lb**