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Vital Choice Fish Pass the Test with Flying Colors

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We're the first fishmonger to release radiation results; they show either none, or normal, safe trace levels

by Craig Weatherby

Although they met our expectations, the reassuring results of radiation tests on our wild Alaskan and Pacific seafood come as very welcome news.

To our knowledge, Vital Choice is the only U.S. seafood company to release radiation test results for its products.

And we found them quite comforting ... after all, our families are among the biggest consumers of Vital Choice seafood!

Tests covered primary products and concerns

Radiation-detection experts at Eurofins Central Analytical Laboratories analyzed samples of our primary wild Alaskan and Pacific seafood products.

We chose Eurofins because they routinely perform food safety and radiation analyses for the U.S. FDA, the USDA, and many official bodies worldwide.

As expected, their tests detected either none of the radioactive elements released from the Japanese nuclear plant at Fukushima, or normal, very safe trace levels.

The only unsafe radionuclides (radioactive elements) released in significant amounts from the stricken nuclear plant have been Cesium 134, Cesium 137, and Iodine 131.

Eurofins looked for each of those three radionuclides in these primary Vital Choice Pacific seafood products (frozen products were tested, except where noted):

Wild Alaskan Seafood	Wild Pacific Seafood
Cod	Clams (WA State)
Halibut	Mussels (WA State)
Scallops	Calamari (California)
King Crab	Pink Shrimp (Oregon)
King Salmon	Spot Prawns (Canada)
Silver Salmon	Dungeness Crab (WA State)
Sockeye Salmon	Albacore Tuna* (canned; No. Pacific)
Sablefish (“black cod”)	Sockeye Salmon (canned; Alaska & Canada)

	*The same tuna is used for our frozen and canned products.

In all cases, Eurofins tested samples of seafood taken from sealed Vital Choice packages or cans, selected at random from our Washington State shipping facility.

Radiation test results bring good news

As we expected, our Pacific seafood passed all tests with flying colors.

Eurofins found no detectable Cesium 137 or Iodine 131, and only very low, normal (and entirely safe) levels of Cesium-134 in our albacore tuna and halibut.

To learn about the terms referenced here (Bq/kg and DILs) – and to put the results in further perspective – see "Our test results, explained".

Cesium 134 – None detected, or normal trace levels

- Most species – No Cesium 134 was reported above the low detectable level of 1.0 Bq/kg.
- Albacore – 1.4 Bq/kg
- Halibut – 1.3 Bq/kg

The trace levels found in our albacore and halibut are less than 15% of the maximum combined level of Cesium 137 + 134 normally found in fish (10 Bq/kg).

And those trace levels are just 0.1% of the FDA's level of concern (DIL) for combined Cesium 137 + 134 levels in foods (1200 Bq/kg).

Cesium 137 – None detected

Any Cesium 137present fell below the detectable level (1.0 Bq/kg).

Iodine 131 – None detected

Any Iodine 131 present fell below the detectable level (2.0 Bq/kg).

This means that all seafood tested contained less than 1.2% of the FDA's Derived Intervention Level (DIL) for Iodine 131 (170 Bq/kg) ... which decays to safe forms within about two weeks anyway.

Our test results

affirm experts' estimates

Scientists at places ranging from Greenpeace to the U.S. FDA have generally agreed that contamination of seafood harvested in the mid-Pacific or off the U.S. coast is very unlikely.

Those estimates reflect the amounts of radionuclides released into the sea and their rapid, extreme dilution in trillions of cubic meters of fast-moving ocean waters.

Of the species we sell, only albacore tuna sometimes migrate near northeast Japan, and they sometimes migrate eastward in currents that have passed fairly close to northeast Japan.

Fortunately, our test results affirm experts' estimates that even migratory fish passing close to Japan would be very unlikely to accumulate unsafe levels of radioactive compounds.

For more on this subject, see

"No Worries for Vital Choice Seafood".

Our test results, explained

All foods emit some radiation, because a small percentage of the elements in them naturally occur in the unstable forms called radioactive isotopes.

Normally, the amounts of radioactive isotopes in foods are harmless. Following an accidental release of radiation, plants and animals can absorb radioactive isotopes. Depending on many factors, these may reach unsafe levels in affected foods.

In almost every case, Eurofins' tests detected none of the radioactive isotopes released in significant amounts from the Fukushima plant (Cesium 134, Cesium 137, and Iodine 131).

To be precise, any trace amounts that might have been present fell below the extremely low, very safe, levels detectable with current technology.

The only exceptions were our Albacore Tuna and Halibut, which showed barely detectable levels of Cesium 134 … which fell well within the levels normally found in seafood.

This means that all the seafood we tested had less than 4.5 Bq/kg of those three radionuclides of concern ... and possibly much less.

For comparison, these are the total Bq values of various foods and objects (WNA 2012):

- Bananas = 19 Bq/kg
- Coffee = 1000 Bq/kg
- Brazil nuts = 444 Bq/kg
- Adult human = 7000 Bq/kg
- Granite countertop = 1000 Bq/kg
- EPA maximum for drinking water = 740 Bq (tritium/liter)
- Household smoke detector with Americium = 30,000 Bq/kg

What do Bq/kg, half-life, and DIL mean?

Let's review the terms and acronyms found in our test results.

Becquerels

The amount of radioactive material in a food (or any material object) is expressed in units called Becquerels (Bq). One Becquerel equals one atomic decay per second.

Reports on the levels of radiation levels in foods affected by the Fukushima accident use Becquerels because this measure enables "apples-to-apples" comparisons among foods.

In most cases – including the test results for our seafood – the level of radiation in a food is expressed as Becquerels per kilogram (Bq/kg).

Vital Choice seafood had less than 2.5 Bq/kg of Cesium-137 + Cesium-134 and less than 2 Bq/kg of Iodine-131.

The major natural source of radioactivity in plant foods is Potassium 40, which normally constitutes just 0.0117% of the potassium in a plant food.

A typical banana contains about half a gram of potassium, and the portion that occurs as Potassium 40 gives bananas a radiation level of 15-20 Bq/kg.

Although 15-20 Bq/kg is a small and safe amount, it takes only a few bananas to trigger the radiation sensors used at U.S. ports!

Derived Intervention Levels (DILs)

The U.S. FDA sets Derived Intervention Levels (DILs) to determine whether a food presents a safety concern.

Any domestic or imported food that tests above the DIL for any radionuclide would be considered a cause for concern and possible prohibition.

These are the DILs for Cesium 134, Cesium 137, and Iodine-131 … the only unsafe radionuclides released in significant amounts from the stricken nuclear plant in Japan:

The DIL for Iodine 131 = 170 Bq/kg

The DIL for Cesium 134 + Cesium 137 = 1200 Bq/kg

(Individual DILs have not been set for Cesium 134 and Cesium 137.)

All of the Vital Choice seafood tested by Eurofins had undetectable or very low levels of the three radionuclides of concern, compared with the DILs:

- Less than 2 Bq/kg of Iodine 131, which is less than 1.2% of its DIL.
- Less than 2.5 Bq/kg of Cesium 137 + 134, which is less than 0.2% of their combined DIL.

Half-life

And as we said, potassium-rich foods like bananas contain significant traces of radioactive Potassium-40, but the body "recycles" potassium very rapidly, so Potassium-40 has a very brief biological half-life.

This fact renders the relatively high – but likely safe – Bq/kg levels in potassium-rich foods pretty harmless.

The half-life of a radioactive isotope such as Cesium 137 is the time it takes for half of the atoms to decay to stable, safe forms (isotopes).

The half-life of Cesium 134 is two years and the half-life of Cesium 137 is 30 years.

However, Cesium radionuclides and most others have a much shorter “biological half-life”. This is because of the normal turnover of elements in the body.

Cesium 137, for example, has a biological half-life of about 70 days. This means that about half of any Cesium 137 present in the body will disappear in less than three months.

Sources

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