



Arsenic (Q&A)

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What is arsenic?

Arsenic is a metal widely distributed in the environment. It occurs in the air, soil, water – both sea and fresh – and in almost all plants and animal tissues. As a result, arsenic occurs naturally at very low levels in many foods and it is not possible to avoid its exposure.

What is the difference between organic and inorganic arsenic?

There are two different forms of arsenic: organic and inorganic. Inorganic arsenic is highly toxic and is therefore a public health concern; the organic form (commonly found in fish and seafood) is less harmful.

What are the health effects of long term exposure to inorganic arsenic?

Long-term exposure to inorganic arsenic can cause cancer and skin lesions. It has also been associated with developmental effects, heart disease, diabetes, and damage to the nervous system and brain.

How can arsenic get into the food chain?

Arsenic is a natural component of the earth's crust and is widely distributed throughout the environment in the air, water and land. However, it can also enter the environment through industrial use, and has been used as a pesticide in the past. This contributes to the general background level of arsenic in the environment in water supplies, and in food when absorbed by crops from water and soil.

Which foods accumulate the most arsenic?

Food, particularly grain-based processed products such as wheat bread, rice, milk, dairy products, and drinking water are the main sources of exposure of inorganic arsenic for the general European population.

Are there any regulations concerning the levels of arsenic in foods?

There are currently no recommended maximum levels of inorganic arsenic in food at EU level, however, EU maximum limits for inorganic arsenic (particularly in rice and rice products – see question below) are being discussed. Some member states have already set national guidelines for arsenic in certain foodstuffs.

A [recent investigation](#) by [EFSA](#) (European Food Safety Authority) found that dietary exposure to inorganic arsenic in Europe is not as high as was previously assumed.

The current EU limit on arsenic in drinking water is 10 micrograms per litre. The investigation found that almost 98% of the samples collected by EFSA contained amounts of arsenic that were below this limit.

Arsenic in rice

As it is grown under flooded conditions, rice can absorb higher levels of inorganic arsenic from soil and irrigation water than other cereal crops. Levels of arsenic in rice and rice products can vary according to variety and method of production.

To protect consumers from excessive exposure, a [maximum level for arsenic](#) in rice has been set by the UN food standards body, the [Codex Alimentarius Commission](#), at 0.2 mg per kg.

What can I do to reduce the levels of arsenic in my rice?

There is no need for consumers to stop eating rice. The level of arsenic can be reduced by rinsing the rice well before cooking, until the water runs off turns clear, or cooking rice with a high ratio of water to grain. Aromatic rice varieties such as in Indian basmati rice and Thai jasmine rice show lower levels of inorganic arsenic. You can also supplement your rice intake with other grains including cous cous, bulgur wheat, barley, quinoa or polenta.

For more information

1. Food Safety Authority of Ireland. (2009) Factsheet Series, Issue 1: [Mercury, Lead, Cadmium, Tin and Arsenic in Food](#).
2. European Commission. (2012) [Science for Environment Policy: Issue 297](#).
3. European Food Safety Authority. (2014) [Press Release: EFSA publishes dietary exposure estimates for inorganic arsenic](#).
4. European Food Safety Authority. (2014) [Dietary exposure to inorganic arsenic in the European population](#). EFSA Journal 12(3):3597.

5. World Health Organization. (2014) [Factsheet: Arsenic.](#)