



Acid Arsenic Pharmacy Mislabelling Bottle Medical Credit Creative Commons <https://creativecommons.org/publicdomain/zero/1.0/deed.en>

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What is arsenic and where does it come from

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Arsenic is an element in the Earth's crust and is present in water, air and soil. Fertilizers and pesticides also contribute to levels. Arsenic exists in two forms, organic and inorganic. When encountered in the diet, inorganic arsenic is considered to be the more toxic of the two forms.

[Rice has higher levels](#) of inorganic arsenic than other foods, in part because as rice plants grow, the plant and grain tend to absorb arsenic from the environment more than other crops. Arsenic is not intentionally added to rice grain, and when present in the grain, cannot be completely removed.

The FDA has been monitoring the levels of arsenic in foods and in 2011, after new methods to differentiate the forms of arsenic became available, the agency expanded its testing to help better understand and manage possible arsenic-related risks associated with food consumption in the United States.

SERIES: [Complete coverage of Dunbar toxic sludge site contaminated with arsenic](#)

Based on its testing, the FDA on April 1, 2016 proposed an action level, or limit, of 100 parts per billion (ppb) for inorganic arsenic in infant rice cereal. This level, which is based on the FDA's assessment of a large body of scientific information, seeks to reduce infant exposure to inorganic arsenic. Relative to body weight, rice intake for infants, primarily through infant rice cereal, is about three times greater than for adults.

The proposed limit also stems from analysis of scientific studies showing an association between adverse pregnancy outcomes and neurological effects in early life associated with inorganic arsenic exposure.

Questions & Answers on Arsenic

What is Arsenic?

Arsenic is a chemical element present in the environment from both natural and human sources, including erosion of arsenic-containing rocks, volcanic eruptions, contamination from mining and smelting ores, and previous or current use of arsenic-containing pesticides.

Are there different types of arsenic?

There are two types of arsenic compounds in water, food, air, and soil: organic and inorganic (these together are referred to as "total arsenic"). The inorganic forms of arsenic are the forms that have been associated with long term health effects. Because both forms of arsenic have been found in soil and ground water for many years, some arsenic may be found in certain food and beverage products, including rice, fruit juices and juice concentrates.

How does arsenic get into foods? Do all foods have arsenic?

Arsenic may be present in many foods including grains, fruits, and vegetables where it is present due to absorption through the soil and water. While most crops don't readily take up much arsenic from the ground, rice is different because it takes up arsenic from soil and water more readily than other grains. In addition, some seafood has high levels of less toxic organic arsenic.

Do organic foods have less arsenic than non-organic foods?

Because arsenic is naturally found in the soil and water, it is absorbed by plants regardless of whether they are grown under conventional or organic farming practices.

What are the health risks associated with arsenic exposure?

Long-term exposure to high levels of arsenic is associated with higher rates of skin, bladder, and lung cancers, as well as heart disease. The FDA is currently examining these and other long-term effects.

Advice to Parents and Caregivers, and Pregnant Women

The FDA offers the following advice to parents and caregivers of infants:

- Feed your baby iron-fortified cereals to be sure she or he is receiving enough of this important nutrient.
- Rice cereal fortified with iron is a good source of nutrients for your baby, but it shouldn't be the only source, and does not need to be the first source. Other fortified infant cereals include oat, barley and multigrain.
- For toddlers, provide a well-balanced diet, which includes a variety of grains.

Also based on the FDA's findings, it would be prudent for pregnant women to consume a variety of foods, including varied grains (such as wheat, oats, and barley), for good nutrition. This advice is consistent with long-standing nutrition guidance to pregnant women from the American Congress of Obstetricians and Gynecologists to have half of their grains consist of whole grains.

Published studies, including new research by the FDA, indicate that cooking rice in excess water (from six to 10 parts water to one part rice), and draining the excess water, can reduce from 40 to 60 percent of the inorganic arsenic content, depending on the type of rice – although this method may also remove some key nutrients.

Basis for Proposed Limit and Consumer Advice

On April 1, 2016, the FDA released data that had been gathered to complete its review of arsenic in rice and rice products. The data were needed to enhance the agency's understanding of arsenic in infant rice cereals. The data show the levels of inorganic arsenic in 76 rice-only cereals for infants and almost 36 multigrain and non-rice infant cereals and other foods commonly eaten by infants and toddlers. The FDA also tested 14 categories (more than 400 samples) of other foods commonly eaten by infants and toddlers. These new samples are in addition to the approximately 1,300 samples of rice and rice products that the FDA previously tested in 2013.

The FDA's data show that nearly half (47 percent) of infant rice cereals sampled from retail stores in 2014 met the agency's proposed action level of 100 ppb inorganic arsenic and a large majority (78 percent) was at or below 110 ppb inorganic arsenic.

The agency expects manufacturers can produce infant rice cereal that meet or are below the proposed limit with the use of good manufacturing practices, such as sourcing rice with lower inorganic arsenic levels. The FDA takes an action level into account when considering an enforcement action.

Author: CDC

Do you see a typo or an error? [Let us know.](#)

