

Lead in stoneware – Harmful? ^[1]

Dear Alice,

I have purchased a set of stoneware dishes for a friend for Christmas, but my family has told me that stoneware (even when microwave and dishwasher safe) can be harmful due to a high lead content. Is this true of all stoneware dinnerware? I would appreciate any information on the subject. Thanks!

Answer

Dear Reader,

Indeed, there have been cases of lead poisoning stemming from the use of stoneware and terra cotta. While the Food and Drug Administration (FDA) takes measures to assure consumers are at minimum risk — such as addressing safety and labeling concerns for traditional pottery and ornamental ceramics that may contain lead and contaminate food — it may be impossible to avoid lead (a natural mineral) entirely. Even items labeled “lead-free” may still contain some lead, making your concerns all the more valid. While the FDA can’t totally ban lead, as it’s found in the environment, many potters have switched to non-lead glazes. Problem solved? Not exactly. Potters may continue to use old kilns (special ovens for pottery and stoneware) that were once used for firing lead-containing glazes, which may contaminate the “lead-free” pottery with lead residues. Read ahead for more on lead-related dread!

Stoneware is a broad term that encompasses many types of pottery and ceramics. Most pottery and similar items are made with earthenware, a porous form of clay which must be glazed in order for the pottery to hold food or liquid. The process of glazing involves applying a thin, glass-like coating to the surface of the clay to seal tiny porous openings on the surface of various types of stoneware. The glaze often contains lead, which facilitates the melting of glaze particles when the stoneware is put in a kiln to bake. If not baked at a proper temperature or for the proper amount of time, it’s possible the lead won’t fuse with the earthenware and may potentially contaminate food upon contact. Cases of lead poisoning from the use of stoneware most often occur when the dishes are:

- **Highly decorated:** This can happen especially when designs appear to have been painted on top of the glaze or when the glaze has deteriorated. Discard or don't use any dishes that

show signs of glaze corrosion for food preparation or serving to reduce the risk of lead exposure.

- **Handcrafted:** This increases the likelihood that glaze was made, applied, or fired (heated in a kiln to fix it to the dish) improperly.
- **Antique:** If any of your stoneware pieces are heirlooms, use them for display instead of dinner. The older your stoneware, the more probable it is that it contains lead due to lack of past regulation.
- **Bright orange, red, or yellow:** Lead is often used to maximize the intensity of these colors when applied to pottery.
- **Stamped with a warning label:** If the piece has a warning label that indicates the piece of stoneware is intended for decorative purposes only, then it may have lead in it.

While ceramic dishes come from all over the world, the FDA recommends that ceramic dishes specifically imported from China — where manufacturing practices may not be as carefully regulated — be vigilantly monitored for lead content. The [Environmental Defense Fund](#) ^[2] website lists Chinese ceramic dish manufacturers who meet U.S. safety standards, and the [FDA](#) ^[3] offers additional information about safe manufacturers. Keep in mind that dishes from anywhere in the world — not just from China — may be contaminated.

You may be wondering how much lead is too much. In 1993, the FDA established a maximum daily intake level (six micrograms per day), known as the provisional tolerable total dietary intake (PTTDI) level. In the past decade, however, new scientific information has become available about the neurotoxic effects of low levels of exposure to lead, and the standard set in 1993 is being reviewed. So, currently, there's no known safe blood lead level. What *is* known is that chronic exposure can seriously harm a child's health, increasing the risk for damage to the brain and the nervous system, delayed development, learning and behavior problems, as well as hearing and speech problems. Why are children more susceptible to experience lead poisoning than adults? Their bodies absorb lead more easily, and their developing nervous systems are more quickly and permanently damaged by lead's effects. Health officials estimate that between five and ten percent of American children have harmful amounts of lead in their blood, and that children who don't get adequate nutrition are significantly more vulnerable to the effects of lead.

How will you know if you've been exposed to too much lead? At high concentrations, lead poisoning can cause seizures, coma, and death. Symptoms of low to moderate levels of lead poisoning include:

- Decreased attention span
- Hearing loss
- Insomnia
- Behavioral and emotional problems
- Slowed growth
- Reading and learning disabilities
- Headache
- Stomach pain

Because these symptoms are vague and easily mistaken for other health concerns, the American Academy of Pediatrics recommends that children be routinely screened. In fact, some states

have mandatory lead screening for young children. Since lead is stored in children's bones, building up over time to toxic levels, prevention and early detection of lead poisoning is crucial. A few drops of blood taken from a fingertip in a health care provider's office can be used to detect lead poisoning in its early stages, before symptoms and irreversible damage appear.

It's worth noting that while people can be exposed to lead through pottery, it's actually more likely they'll be exposed to lead through lead-based paint. Lead particles can be released into the air and inhaled:

- **During exposure on the job:** The CDC estimates causes 95 percent of lead poisoning cases among adults. People at risk include painters, ironworkers, or other laborers, who repair or demolish steel bridges, railways, and storage tanks coated with durable lead-based paint.
- **When living in homes built before 1978:** About 80 percent of all homes in the United States may contain lead-based paint. Residents are exposed to lead when these homes are renovated or when the paint peels or chips.

Fortunately, lead test kits tend to be effective in detecting the presence of lead in drinking water, paint, dishes, or other surfaces, and are available for sale on the Internet for about 10 to 50 dollars. Some kits contain chemicals that turn a certain color when exposed to lead particles, while others allow you to collect samples and mail them back to a lab for testing. The [Occupational Safety and Health Administration](#) [4] offers a description and evaluation of some of the more popular lead home test kits on their website.

In sum, many of the most beautiful pieces of stoneware may also be the most risky to use due to their potential lead content. It may be best to consider these pieces decorations unless they pass a lead test.

Alice!

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