

Frequently asked questions about the release of lead from coffee and espresso machines

BfR FAQ of 4 December 2013

Within the scope of a research project, the Federal Institute for Risk Assessment (BfR) measured high levels of lead in espresso released from portafilter espresso machines through the descaling process. The BfR has compiled some frequently asked questions for the information of consumers.

How did the BfR become aware of the release of lead from espresso machines?

During a research project involving the release of metals from metallic materials and articles with food contact and the transfer of these metals to the food, the BfR tested eight brand new coffee machines for household use. These comprised three portafilter, three coffee pad and two capsule espresso machines.

Which machines release a lot of lead?

Excessive lead release was measured in portafilter espresso machines.

Do all of the tested portafilter espresso machines release lead?

Distinct differences in the quantities of lead released were measured for the different types of coffee and espresso machines. One of the tested portafilter machine released high levels of lead compared to the tested coffee pad and capsule machines, especially after descaling, whereas others hardly released any lead.

Has the BfR published the product names of the tested coffee and espresso machines?

Publication of the names of the products and manufacturers is not intended. The tests were conducted by the BfR within the scope of a research project. Due to the small number of samples, the data are not representative, nor is the BfR involved in the control of food and commodities. As responsibility lies here with the surveillance authorities of the federal states, the BfR has notified them of the results of the tests.

What is the BfR advising consumers?

Portafilter espresso machines can release high levels of lead after descaling. To reduce lead intake, the BfR is advising that consumers rinse their machines thoroughly after descaling. The rinsing procedure stipulated by the manufacturer should be repeated and it is also recommended that coffee machines be rinsed through every day in line with the manufacturers' instructions before preparing any espresso or coffee (one cycle with water only).

Why does the descaling process release lead from the metallic components of the machine?

The lead could have been dissolved out of the metal parts by the acidic descaling products.

From which metal components in the espresso machine does the lead come?

The BfR does not know where the lead in the samples comes from. It is assumed at the institute that components inside the machines, as well as soldered connections, could contribute to the release of lead.

Is there a legal upper limit?

There is no legally determined limit value in the EU for the release of metals from metallic food contact materials, but the European Council has recommended a release limit for lead based on the permissible lead content in drinking water. The European Council's resolution on metals and alloys for food contact stipulates an upper limit of 10 µg/kg for the release of lead in food. "The European Council nevertheless considers a lead release of up to 40 µg/kg of food to be acceptable. More information on the resolution is contained in the European Council website <http://www.edqm.eu/en/Cosmetics-packaging-guides-1486.html>"

Are there any other test results on the release of metals from coffee machines?

The Official Chemical and Veterinary Control Office in Stuttgart conducted investigations on the release of lead from fully automatic coffee and espresso machines in 2007 and 2011. Whereas three out of 17 tested machines showed increased levels of lead release in 2007, a quality improvement was established during the second examination period in which no lead release was detected (quantitation limit for lead: 0.005 mg/l of test water).

See: http://www.cvuas.de/pub/beitrag.asp?subid=1&Thema_ID=3&ID=1559