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Release of metals from enamel-coated grill racks: Several give off too much

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Gas and charcoal barbecues are often equipped with grill racks made of steel or cast iron. These materials are good conductors and accumulators of heat which enable grilling at even temperatures. To protect them from corrosion and facilitate cleaning, grill racks can be coated with enamel. Enamel is a glassy, solidified molten mass of silicates and oxides of different metals. It can contain aluminium, antimony, arsenic, lead, cadmium, chromium, iron, cobalt, lithium and nickel.

Monitoring authorities in the federal states of Germany have examined enamel-coated steel and cast iron grill racks to establish whether and to what extent metal elements from the enamel coating are released during grilling and are potentially transferred to the food. It was shown that in some cases significant quantities of aluminium, antimony, arsenic and nickel are released.

The German Federal Institute for Risk Assessment (BfR) assessed the results with regard to health aspects. As there are no legally binding maximum quantities, the BfR derived health-based acceptable exposure levels for each element. This describes quantities of these metals that can be ingested without impairing health. The BfR concludes that the derived health-based exposure levels are in some cases exceeded by a considerable extent. Health impairments are possible with several of the examined grill racks due to the quantities of nickel and arsenic released.

The products examined also included enamel-coated grill racks with low release rates of these elements, thus proving that an appropriate form of manufacture is possible. The manufacturers of enamel-coated grill racks should therefore investigate the possible causes of the release of metals from their products and take suitable measures to reduce release to the greatest possible extent.

The full version of this BfR opinion is available in German on <https://www.bfr.bund.de/cm/343/freisetzung-von-metallen-aus-emaillierten-grillrosten-einige-geben-zu-viel-ab.pdf>