



Heavy Metals Talking Points

ASTA has developed information for members to guide their conversations and communications about heavy metals found in spices.

What You Need to Know:

Consumers are posing more questions about the content and origin of the foods they eat. The presence of heavy metals, such as lead, cadmium, and arsenic in food has received significant attention recently. Consumers expect manufacturers to transparently communicate ingredient information and details about food production and safety. ASTA members should be ready to respond to questions from consumers about adulteration and contamination on all fronts, but especially regarding heavy metals.

It's imperative that consumers understand the facts about heavy metals in spices: trace levels may occur in spices due to natural and unavoidable heavy metals in the environment, but the amounts typically found in spices will not adversely affect an individual's health.

ASTA Statement on Heavy Metals in Spices

ASTA members are committed to the goal of limiting heavy metals levels in spices to be as low as feasible. Trace amounts of heavy metals in spices are largely unavoidable – the concentration of metals naturally varies due to where and how spices are grown, soil conditions, and harvesting and processing methods. Manufacturers work with suppliers to encourage agricultural best practices are followed to minimize levels of heavy metals. The average American consumer eats only a fraction of a gram of spices per day, and the average trace amounts of heavy metals that are found in spices are not dangerous to consumers. Most dietary lead exposure originates from fruits, grains, and dairy products, rather than from spices.

Common Questions and Quick Answers:

How are heavy metals getting into spices?

Heavy metals, such as lead, cadmium, and arsenic, are naturally found in the Earth's crust and are present in soil and ground water, [according to the FDA](#). As a result, any plant that contacts soil or ground water has the potential to take up trace amounts of metals, which cannot be removed. Soil conditions, from which part of the plant a spice comes from, and cultivation and harvesting times, greatly impact the level of naturally occurring heavy metal in each spice. Some crops are more prone to absorbing heavy metals than others.

What heavy metals may appear in spices?



Lead is the most abundant heavy metal in the Earth's crust and can travel through the air and leech through soil and enter groundwater reservoirs. Furthermore, most public health initiatives and regulations related to heavy metals and spices have focused on lead. Other heavy metals of note include cadmium and arsenic.

Why do some spices have concerning levels?

Historically, there have been a number of known incidents in which lead-based colorants were intentionally added to spices for purpose of economic gain. Such practices are illegal and ASTA has zero tolerance for economically motivated adulteration in spices.

It is critical that a distinction be made between these illegal practices, which have resulted in excessive and unsafe levels, and the very low levels of heavy metals that are frequently present in many agricultural products due to the presence of naturally occurring heavy metals in the environment.

Companies have taken steps to prevent intentional contamination with heavy metals, such as through supply chain verification programs and testing requirements. ASTA provides resources for its members and others in the industry to help prevent adulteration, including education, guidance, and analytical detection methods. ASTA's Spice Integrity Council monitors potential issues and provides guidance for the industry. Additionally, ASTA's long-standing Self-Regulation Program allows companies to report suspected cases of adulterated spices.

What is the spice industry doing to reduce heavy metals?

ASTA members are committed to the goal of limiting heavy metals levels in spices to be as low as feasible.

Manufacturers work with suppliers to encourage agricultural best practices to reduce levels of heavy metals. Suppliers and sellers are expected to institute quality control, monitoring, and testing protocols that adhere to regulatory requirements.

ASTA provides resources for producers to understand how to minimize heavy metals during production:

- **Farmer training on Good Agriculture Practices.** ASTA publishes a guide on [Good Agricultural Practices](#) for spice producers to understand how to best grow crops, manage irrigation, monitor soils, and safely transport product to minimize heavy metal uptake from the environment. ASTA works with producers and other partners, such as the Sustainable Spice Initiative, around the world to provide training on these practices.
- **Adherence to Good Manufacturing Practices.** Manufacturers use cleaning practices to minimize contributions from soil and the environment and adhere to practices to prevent the contribution of any heavy metals through processing.



- **Monitoring and Compliance.** Importers provide oversight over their suppliers by requiring documentation, including testing for heavy metals, to ensure compliance with their own internal quality standards and strict specifications from farmer to retailer.

ASTA supports industry efforts with resources for the detection and prevention of these substances and works with regulatory agencies, including the Food and Drug Administration and international food safety bodies, to establish heavy metal limits for spices that are both protective and achievable.

Are trace amounts of heavy metals in spices dangerous to consumers?

Heavy metal exposure from natural spices does not trigger concern under applicable thresholds, such as [Center for Disease Control and Prevention's](#) (CDC) or [FDA's](#) reference levels for lead. For example, in a recent exposure assessment, ASTA determined that at current levels of consumption, spices would contribute less than 0.1 percent to total dietary lead exposure among children 1-6 years of age. This is in large part because spices are a very small component of the diet. The average consumer eats only a fraction of a gram of spices per day, according to the 2005-2010 [What We Eat in America Food Commodity Intake Database](#) (WWEIA FCID).

FDA has not identified levels of concern for spices in its [testing protocol and monitoring program](#) for heavy metals in all foods.

How do spices compare to other sources of exposure?

Other food sources contribute substantially more to heavy metals intake than spices. For example, according to [Spungen](#) (2019), fruits, grains, and dairy products are top contributors to total dietary lead exposure among children, with grains contributing 27.5%, fruits comprising 24.7% and dairy making up 16.8% of total dietary exposure. It may also be helpful to recognize that due to public health interventions, exposure to lead among children has already [declined by 97%](#) in the last 40 years according to the FDA.

Spices are a nutritious and safe addition to one's diet, and advocates of the industry must share this message with consumers so that the global spice market can continue to thrive.

Additional Resources:

- [ASTA Lead in Spices Exposure Assessment Tool](#) - Based on a traditional exposure assessment framework, a screening tool was developed to estimate exposure to select contaminants in spices using consumption and dietary supplement use data from the National Health and Nutrition Examination Survey (NHANES). As part of this tool, the screening-level exposures to selected contaminants from spice consumption are compared to each contaminant's established regulatory



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safety benchmarks. The tool analyzes lead contamination in five spices (basil, cinnamon, ginger, oregano, and turmeric) as a case-study.

If you have questions, please contact info@astaspice.org.