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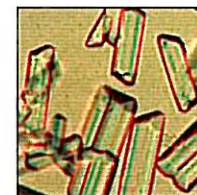
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FACT SHEET ON

CRYSTALS in Canned Seafoods



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CRYSTALS in Canned Seafoods

Canned shrimp, tuna, salmon, and other seafood products sometimes contain small fragments of a substance that, at first glance, resembles glass.



Occasionally, these fragments are large enough to be noticeable; in such instances, some consumers assume that they have found a foreign substance in their food. What really has happened is that certain natural constituents of the fish or

shellfish have crystallized, much as sugar often forms crystals in syrups or preserves.

These sugar crystals in syrups or preserves obviously are harmless—and so are the less familiar crystals found in canned seafoods. These small fragments are crystals of a substance known chemically as magnesium ammonium phosphate, commonly called “struvite.”

Struvite is formed by the union of natural, normal constituents of the meat of all seafoods after they are sterilized in the can. These constituents are mineral elements, richly supplied by the sea water in which the fish or shellfish live. While the fish or shellfish were alive, these mineral elements were important to their health. After cooking, however, the magnesium, ammonia, and phosphate sometimes come together in such a way that crystals are formed.

Considering the enormous volume of seafood products packed each year, the occurrence of such crystals of a size large enough to be noticeable is a relatively rare event. Nonetheless, both the food industry has long been aware of struvite—and the U.S. Food and Drug Administration (FDA) has reassured consumers several times that these crystals pose no danger.

During World War I, someone found these crystals in a can of tuna and assumed that ground glass had been purposely added by an enemy agent—a situation that caused considerable alarm until FDA identified the crystals as struvite. During World War II, crystals in canned seafood were again responsible for a few “ground glass” rumors, some of which were reported by the press. In 1942, FDA issued a news release explaining to the public that these crystals were harmless.



In addition to FDA's attention to this issue, a number of technical publications have mentioned the formation of crystals in various canned seafood products. These publications all have made the case that such crystals pose no risk to consumers.

The scientific centers operated by the National Food Processors Association examine canned seafoods of all types. Over a period of years, crystal formation has been observed in a variety of canned seafoods, including canned tuna, salmon, shrimp, crab meat, lobster, and sardines.



While struvite bears a superficial resemblance to particles of broken glass, a close examination—especially with a magnifying glass—usually shows the difference. These crystals occur most often in the form of regularly shaped prisms, with the edges tending to form straight lines. By contrast, glass particles are more likely to be irregular in shape. In solid pack tuna, these crystals sometimes form between the tuna and the bottom of the can. Because of the confined space, the crystals formed under these conditions may tend to be flat and somewhat more irregular than those found in other products.



It is not necessary, however, to rely upon differences in appearance to recognize that these fragments are not glass. Such crystals are no harder than ordinary table salt and can be easily scratched or crushed to a powder with little pressure. In case any doubt should remain after examining them in this way, their true identity can be determined by boiling them with a little vinegar or lemon juice. They dissolve in a few minutes when boiled in this manner, while glass, of course, would not dissolve at all. This test also illustrates the fact that these crystals are soluble in weak acids, and therefore will dissolve readily in the stomach; they are assimilated by the body as easily as the mineral matter of any food.



Struvite is without odor or taste and is too soft to do any harm. The components that form struvite occur in many of our foods and are valuable food elements. While no procedure has been completely successful in preventing struvite, no one should feel alarm at finding these harmless fragments in canned seafoods. They are something of a rarity, and any consumer who finds them in a can of seafood is unlikely to ever find them again in another container. ■

