NATIONAL ORGANIC STANDARDS BOARD
FINAL RECOMMENDATION ADDENDUM NUMBER 16
ADDITION OF SYNTHETIC MAGNESIUM CHLORIDE TO NATIONAL LIST

Date adopted: October 31, 1995
Location: Austin, Texas

Introduction:

Included within the discussion of the materials review of magnesium sulfate, considerable concern was raised about "nigari" or magnesium chloride, a substance used to coagulate soymilk in the production of tofu, specifically if it was currently being mislabeled as to the actual source used. Accordingly, the Processing, Handling, and Labeling Committee was charged to research nigari as well as natural and synthetic forms of magnesium chloride to report the group's recommendations as to whether these should or should not be included on the National List. Our research includes the following:

In general, the confusion originates on the correct definition of "nigari", the traditional name used for the tofu coagulant made from salt water. Natural extracted nigari is the most traditional and one of the most natural coagulants for tofu. Extracted from sea water by removing most or all of the sodium chloride and water, it contains primarily magnesium chloride plus all the other salts and trace minerals naturally found in sea water, as well as twigs, sand, plankton, organic matter, etc. if not properly filtered. As most tofu shops have found natural nigari of questionable purity and sanitation, most prefer the refined form.

Japanese production of **refined** nigari continues to be extraction from sea water, available via two different extraction methods: 1) the ion-exchange process or 2) a method in which sea water is concentrated, filtered, bleached, and cooked to yield magnesium and natural salt. Most tofu producers in the U.S. use refined nigari processed according to the second method. Although from sea water, refined nigari must be classified as a synesthetic due to the bleaching process in its manufacture.

Food grade magnesium chloride made in the U.S. is produced from the reaction between hydrochloric acid and magnesium. It, too, is a synthetic process, albeit very pure, sanitary, and safe to use. However, since the Japanese source is extracted from sea water, it appears that it remains "more natural" than U.S. food grade magnesium chloride.

While other types of coagulants can be used to produce tofu, such as calcium chloride, calcium sulfate, magnesium sulfate, and glucono delta-lactone, most manufacturers use magnesium chloride (or refined nigari) as at least the primary coagulant (often a blend of coagulants is used) to achieve the flavor and texture that is typically preferred.

Recommendation:

The Processing, Handling, and Labeling Committee recommends that synthetic magnesium chloride extracted from sea water (often referred to as "refined nigari") be added to the National List as an allowed synthetic for use as an ingredient in organic foods. Natural (unrefined) nigari should be listed as a prohibited natural on the National List.