Extracted from red seaweed by using powerful alkali solvents, carrageenan is a common thickening agent, stabilizer and texturizer. The scientific community has recognized for a long time (decades) that degraded carrageenan is harmful to human health.

We called Dr. Joanne Tobacman, M.D., who teaches at the University of Iowa's College of Medicine and has authored 18 published papers on carrageenan (see PubMed). Based on her extensive research over the years, she agreed with us that carrageenan should not be allowed in organic foods.

Dr. Tobacman notes the World Health Organization's (WHO) International Agency for Research on Cancer in 1982 identified sufficient evidence for the carcinogenicity of degraded carrageenan in animals to regard it as a carcinogenic risk to humans. The same WHO Agency has said food-grade carrageenan should contain less than 5% degraded carrageenan.

We learned further, from research by the Cornucopia Institute, that the trade group for carrageenan manufacturers (Marinalg) has concluded it "*could not reliably determine"* the levels of degraded carrageenan in products, and that industry data from 2005 revealed that levels of degraded carrageenan contaminate *all* food-grade carrageenans.

Dr. Tobacman's 2001 review of established data (Environmental Health Perspectives) demonstrated "that exposure to ***un-****degraded as well as degraded* [emphasis added] carrageenan is associated with the occurrence of intestinal ulcerations and neoplasms … Because of the acknowledged carcinogenic properties of degraded carrageenan in animal models and the cancer-promoting effects of un-degraded carrageenan in experimental models, the widespread use of carrageenan in the Western diet should be reconsidered."

High-weight molecular carrageenans were given GRAS status by the Food and Drug Administration in 1959, while low-weight carrageenans are considered dangerous. Dr. Tobacman, however, has demonstrated that digestive enzymes and bacterial action *convert high-weight carrageenans to dangerous low-molecular weight carrageenans and poligeenans in the human gut.*

Since carrageenan suppliers cannot meet the conditions established by the Organic Foods Production Act (OFPA) – that use of "substances would not be harmful to human health" – our position is that carrageenan cannot meet organic principles stipulated by OFPA and, therefore, must be prohibited in organic foods.

It's vital to note there are numerous alternatives to carrageenan as a thickener, stabilizer or texturizer for organic foods. They include (water-extracted) Arabic gum, guar gum, Locust bean gum, carob bean gum, and xanthan gum. Higher fat compositions also can create texture-enhancing properties. While one popular brand of soy milk uses carrageenan as a thickening agent, most other brands do not. Instead, they use barley flour, cellulose gel and soy lecithin, xanthan gum, rice syrup, or barley extract.

There is ample scientific evidence – and ample substitutes – to demonstrate that carrageenan must not be allowed on the National List.

3. Choline

PCC Natural Markets provided survey data in November 2011, indicating organic shoppers consider organic foods to be healthy inherently, without additives of any kind.

Such data has particular relevance to the petition wanting synthetic choline to be added to the National List.

The National List was instituted to allow ONLY for synthetics lacking an organic version or substitute. The exploding number of synthetics on the List jeopardizes the value of the organic label more than any other topic. When not absolutely essential, synthetics must be avoided.

The facts show synthetic choline does not meet the National List standard since, 1) there are numerous natural sources of choline from many foods, 2) organic lecithin already is approved and available as a rich substitute source of choline, 3) choline is not considered an essential nutrient, and 4) it's entirely viable to make baby food without synthetic choline. If more choline is desired, manufacturers simply may add broccoli, tofu, navy beans, wheat, cooked spinach, corn, peas, peanut butter, eggs, fish, beef or chicken.

For these reasons, we oppose the petition to allow synthetic chemical choline.

Thank you for the opportunity to comment.

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