



Food and Drug Administration
Rockville MD 20857

OCT 04 1991

The Honorable Alan J. Dixon
United States Senate
Washington, D.C. 20510

Dear Senator Dixon:

This is in further response to your request of July 31, 1991, on behalf of Dr. Adrienne Samuels of Northfield, Illinois, concerning monosodium glutamate (MSG) that may be present in foods as a component of other ingredients. Dr. Samuels provides a list of ingredients that she believes contain MSG.

Proteins contain glutamic acid, which is released as free glutamate (Dr. Samuels refers to this free glutamate as MSG) when the protein is digested. Free glutamate may also be released prior to eating by intentional hydrolysis or by naturally-occurring degradation of a protein. Thus, any food containing protein could have some free glutamate.

The content of free glutamate in the ingredients mentioned by Dr. Samuels varies greatly. For those listed under "these often contain MSG," the amounts of free glutamate can range from nearly zero to significant percentages. Non-hydrolyzed protein products (such as caseinate salt, barley malt and whey protein) should not contain free glutamate, but due to some processing conditions a small amount of protein may be broken down into peptides or free amino acids, thereby containing some free glutamate. On the other hand, flavorings and natural flavorings may contain significant quantities of free glutamate from added MSG or hydrolyzed proteins, depending upon manufacturer's formulations.

Specifically, for those ingredients listed under "these always contain MSG," MSG is monosodium glutamate monohydrate with a purity of 99 percent. Acid hydrolyzed proteins may contain up to 20 percent free glutamate. Autolyzed yeast extracts may contain up to 12 percent free glutamate. Sodium caseinate and calcium caseinate, both nonhydrolyzed proteins, contain about one percent free glutamate.

Further regarding Dr. Samuels' list, we have no information showing that malt extract (also known as malt syrup), carrageenan, or smoke flavoring contain free glutamate.

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We hope this information is helpful. If we can be of any further assistance, please let us know.

Sincerely yours,

Wayne R. Mena
for Kay Holcombe
Acting Associate Commissioner
for Legislative Affairs

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