

# Discover Safety of MSG

## Q. Is MSG safe for human consumption?

Since its inception over 100 years ago, MSG has been used safely as a food ingredient and seasoning in many different cultures. Over the years, extensive scientific research has also been conducted to establish the safety of MSG and its role in the diet. In reviewing this research, numerous public health agencies and organizations around the world have validated the safety of MSG use in the food supply including:

- The US FDA considers the addition of MSG to foods to be “generally recognized as safe” (GRAS). Although many people identify themselves as sensitive to MSG, in studies with such individuals given MSG or a placebo, scientists have not been able to consistently trigger reactions. US FDA explains that MSG is a common flavor enhancer found naturally in some foods and added to others. The FDA also addresses concerns about "MSG symptom complex" and notes that while some people report mild symptoms after consuming large amounts of MSG, research has not consistently shown a link to serious health effects. The FAQ emphasizes that MSG is safe for the general population.
- In 1987, the Joint Expert Committee on Food Additives (JECFA) of the United Nations Food and Agriculture Organization (FAO) and the World Health Organization (WHO) confirmed that MSG was safe. JECFA has undertaken two evaluations of the safety of MSG. The first of these was conducted in 1971 – 1974, and the second was conducted in 1987. JECFA concluded that the total dietary intake of glutamates arising from their use at levels necessary to achieve the desired technological effects and from their acceptable background in food do not represent a hazard to health.
- In 1995, the Federation of American Societies for Experimental Biology (FASEB), upon request by the Center for Food Safety and Applied Nutrition (CFSAN), Food and Drug Administration (FDA) concluded that MSG is safe for the general population, and there is no difference between the naturally occurring free glutamate found in mushrooms, cheese and tomatoes and the manufactured free glutamate found in MSG, hydrolyzed proteins, and soy sauce.
- In 1996, a Food and Drug Administration (FDA) expert panel found “no evidence to support a role for dietary MSG or other forms of free glutamate in causing or exacerbating serious, long-term medical problems resulting from degenerative nerve cell damage”. The report stated “the scientific evidence does not support the assertion that manufactured free glutamate functions differently in the body than naturally occurring free glutamate.” These findings have also been cited by the Environmental Protection Agency (EPA).
- In 2003, Food Standards Australia and New Zealand reaffirmed the safety of MSG and concluded that “There is no convincing evidence that MSG is a significant factor in causing systemic reactions resulting in severe illness or mortality” and further stated that with regards to the symptoms associated with Chinese Restaurant Syndrome (CRS), studies “have largely failed to demonstrate a causal association with MSG”.

Q. What are the current regulatory provisions regarding MSG in India? Is there any ADI defined?

- The Indian regulatory provisions for MSG under Indian food safety regulations:
- Use Conditions:** The Food Safety and Standards (Food Products Standards and Food Additives) Seventh Amendment Regulations, 2016 define the use of MSG for all food categories (except those categories listed in the 'Annex to GMP' list) under the conditions of Good Manufacturing Practice (GMP). GMP means the quantity of the additive added to food shall be limited to the lowest possible level necessary to accomplish its desired effect = no numerical upper limit.

GMP Table Provisions For all Food Categories	
The following additives, as indicated may be used in all food categories (except those categories listed in the 'Annex to GMP' list) under the conditions of Good Manufacturing Practice (GMP) as outlined in the 3.1(8)	
INS No.	Food Additive
620	Glutamic acid, L(+)-
624	Monoammonium L-glutamate
622	Monopotassium L-glutamate
621	Monosodium L-glutamate

- Labelling Requirement:** As per the Food Safety and Standards (Labelling and Display) Regulations, 2020 every advertisement for and/or a package of food containing added Monosodium Glutamate shall carry the following declaration:

4.	Monosodium Glutamate	<p>This package of (name of the food) ..... contains added MONOSODIUM GLUTAMATE</p> <p>NOT RECOMMENDED FOR INFANTS BELOW -12 MONTHS AND PREGNANT WOMEN</p>
----	----------------------	--

- Infant Food for Special Medical Purpose:** The advisory list of amino acids and other nutrients for use in foods for infant nutrition under the provisions of the Food Safety and Standards (Foods for Infant Nutrition) Regulations, 2020 includes L-Glutamic acid and its sodium salt (MSG) for use in foods for infant nutrition under Food for Special Medical Purpose (FSMP).

Schedule I(c)  
Advisory list of amino acids and other nutrients for use in foods for infant nutrition under the provisions of the regulations

S.No.	Nutrient source	Purity requirements by	Use in foods for infant nutrition
<b>I. Amino acids</b>			
(21)	L-Alanine	FCC, USP, PhEur, IP	<b>FSMP</b>
(22)	L-Arginine-L-aspartate	PhEur, IP	
(23)	L-Aspartic acid	FCC, USP, PhEur, IP	
(24)	L-Citrulline	USP, IP	
(25)	L-Glutamic acid	JECFA(1987), USP, FCC, PhEur, IP	
(26)	L-Glutamine	FCC, USP, PhEur, IP	

Version-II (04.01.2024)



### Q. Is there an acceptable daily intake specified for MSG?

- There is no limitation for the use of MSG as a food additive because scientific and regulatory bodies such as the Joint FAO/WHO Expert Committee on Food Additives (JECFA)\* placed MSG in the safest category “Acceptable Daily Intake (ADI) not specified” based on the extensive scientific data.
- Even in India, there is no ADI defined for the use of MSG. The food safety regulation defines the use of MSG under the conditions of Good Manufacturing Practice (GMP). GMP means the quantity of the additive added to food shall be limited to the lowest possible level necessary to accomplish its desired effect.
- Other regulatory bodies including, European Community Scientific Committee on Food established ADI “not specified”.
- Furthermore, MSG is a self-limiting substance. Once the proper amount is used, additional use contributes little, or not at all, to food flavor. In fact, adding too much MSG can result in a decline in palatability and is economically wasteful.

### Q. Can someone be allergic to MSG? If so, what kind of allergies can one get?

- MSG is not an allergen. In 2017, the National Academy of Sciences comprehensively reviewed the topic of food allergens and MSG was not included. Some people may have sensitivities to foods that contain MSG in the same way people have sensitivities to a wide array of foods, often depending on how much of a food is consumed and with what other ingredients. Whether such reactions are specific to MSG or other components of the food is difficult to determine.
- According to FARE’s Educational Resource, “Food Additives and Allergies/Intolerances”:
  - “There are no reported cases of IgE-mediated allergy to MSG. Although some people identify themselves as sensitive to MSG, in studies with such individuals given MSG or a placebo, scientists have not been able to consistently trigger reactions.”<sup>2</sup>
  - Monosodium glutamate is a common food additive, and it is very rare that people are allergic to food additives. “Food additives are used for a variety of reasons, including improving flavor or texture, boosting nutritional value and maintaining product safety from production to the pantry. The safety and efficacy of additives are overseen by the U.S. Food and Drug Administration (FDA)...While there are documented cases of adverse reactions to certain additives, these are typically not related to an immune-system response and therefore less severe than typical allergic reactions. True allergic reactions, including anaphylaxis, are very rare to most additives.”

### Q. Does use of MSG leads to increased consumption of food? In such a scenario, does it contribute to obesity?

- There is no evidence that MSG contributes to obesity. There have been a small number of epidemiological studies that have shown a positive association between MSG intake and obesity in Asian populations, however other studies have not shown a relationship.
- Importantly, such studies do not prove cause and effect and [experts](#) consider the link likely a function of “co-varying environmental factors (e.g., diet, physical activity) linked to the “nutrition transition” in developing Asian countries.”



## Q. Does MSG contribute to long-term health problems?

- There is no scientific evidence to prove any negative impact of MSG on health. Over the years it has been used safely as a food additive.
- As MSG is one of the most studied of all food ingredients, it has gone through various hundreds of peer-reviewed studies and has undergone intensive scrutiny, and MSG's safety has been confirmed time after time in reviews of this data.
- Further, Scientific and regulatory bodies around the world including the European Communities Scientific Committee for Food (SCF), and the Joint FAO/WHO Expert Committee on Food Additives (JECFA), have also reviewed the research on MSG and have affirmed its safety. MSG is so safe that the FDA has placed it on the list of substances known as "Generally Recognized As Safe" (GRAS), right along with sugar, baking powder, salt, and pepper. Likewise, the World Health Organization (WHO) has chosen not to set a limit on the Acceptable Daily Intake (ADI) of MSG, classifying it as "not specified".

## Q. Does MSG cause headaches?

- Some anecdotal evidence has linked MSG intake to headaches in susceptible individuals. A study conducted in 1991, established MSG as a trigger for headaches. However, the connection was established through MSG elimination diets and self-reported symptoms, rather than the double-blind challenge technique considered more appropriate in clinical research of this nature.
- Further, the International Headache Society removed MSG from its list of causative factors for headaches in January of 2018. Previously, MSG had been listed as a substance attributed to headaches in the Society's International Classification of Headache Disorders (ICHD). Now, in the ICHD 3rd edition, based on the latest scientific evidence MSG has been removed from this list.

## Q. Is there a co-relation between MSG and Chinese Restaurant Syndrome (CRS)?

In 2003, Monosodium Glutamate: A Safety Assessment Technical Report by Food Standards Australia New Zealand concluded that:

- There is no convincing evidence that MSG is a significant factor in causing systemic reactions resulting in severe illness or mortality.
- The studies conducted to date on Chinese Restaurant Syndrome (CRS) have largely failed to demonstrate a causal association with MSG.
- Symptoms resembling those of CRS may be provoked in a clinical setting in small numbers of individuals by the administration of large doses of MSG without food.

However, such affects are neither persistent nor serious and are likely to be attenuated when MSG is consumed with food. In terms of more serious adverse effects such as the triggering of bronchospasm in asthmatic individuals, the evidence does not indicate that MSG is a significant trigger factor.

