

1. ABOUT US:



At “RAINBOW INTERNATIONAL WORKS”, the slogan is “*Excellence in Work*”. It begins with family businesses. As a family-run operation, we recognize the dynamics and needs from one business to the next can vary greatly. Since day one, inspired us to personalize every experience based on the specific technical products you need. Operating at our highest potential paves the way for you to operate at yours – productions breeding productivity. From the most well-known corporations to the smallest start-ups, by working together with us, you becoming the part of RIW family.

RIW has started its journey since January 2017, a renowned corporate house located in Dhaka, Bangladesh, established itself as contractor in construction business under Dhaka WASA and one of the best suppliers of food & food raw ingredients both consumer and industrial grade following a thorough refining process that attributes to its superior quality. TASTERIDE™ has introduced as popular brand in the market with the slogan “*Good Food Healthy Life*”. Dedication to quality, innovation, customer service and solution with reasonable price has given the company a unique position.

The company assures to meet the needs and increasing demand of quality products nation-wide. The products with international standards are being imported from other countries like; Japan, Indonesia, Thailand, Malaysia, China and India.

2. MISSION:

Poverty and hunger are curses, as we embark on this journey, our aim is to eliminate poverty by the way of employment and earn with dignity & self-respect to our compatriots through a profitable enterprise which lead to community development, social welfare and to build a sustainable entrepreneurial ecosystem.

3. VISION:

Expansion of business in national and international trend becoming one of the market leaders with vision to explore “*Good Food Healthy Life*”. Throughout the best effort, competitive marketing strategy, customers support with solutions and optimize the resources which the company always strive to reach the position from challenger to be the market leader.

4. HOW WE WORK:

As the business conglomerate of growing brands, our talent & well-connected team works hard, smart to present and effectively sell our products to key decision makers in the industry average national and multinational company, major retail outlets, chefs, and purchasers. Using our deep market knowledge with higher academic records, we launch brands with a competitive and speed-to-market advantage, positioning ourselves as the ultimate Brand Ambassadors. At RIW, we understand that adding value to our partners-

suppliers, business means delivering new ideas, innovative programs and creative promotions to set apart from the competitors. For us, successful marketing is about targeting the key customers effectively, growing sales, building brand awareness and loyalty in the long run. From trade events and in-store promotions to target marketing, we work in collaboration with marketing team to keep at the forefront of success. We focused core competencies and corporate value with work alongside producers, manufacturers, stakeholders, wholesalers, retailers and other organizations to fulfill their purpose, nourishes the work in a safe, responsible and sustainable way. Together, we create efficiencies, develop innovations, and help the communities *thrive*.....



- 4.1 TEAMWORK:** Unwavering to co-operate with our colleagues across geographical, divisional and functional boundaries to achieve Company's goal. We offer input expertise and risk management tools to small and large businesses, helping them boost their productivity and incomes.



- 4.2 HUMANITY:** At respect our colleagues as partners and regard them as valuable contributors to our Company's success. We process a wide range of industrial commodities into the food and food products the world needs, transporting them to the places they will be consumed.



- 4.3 RESULTS:** We take pride in our work and are happy to walk the extra mile to get the desired results. We associate with the national leading consumer goods (Noodles, Frozen Foods), restaurants and retail brands to create innovative products that serve the changing values of consumers everywhere.



- 4.4 INTEGRITY:** We value the professional honesty and sincerity above all and nourish customer with pioneering food products, work with manufacturers and expertise to ensure production' well-being, in order to sustainably meet growing demand for nutrients nationwide. Values built on the legacy of ethical practices embraced by its founder, committed to operate responsibly with integrity.



- 4.5 LOYALTY:** We care for our colleagues as family and the company as our own. We uphold the Company's interest through thick and thin. We join with community leaders, more-profits and others to enrich the places where we live and work, building a strong sustainable future for manufacturers as well as urban.



- 4.6 INNOVATION:** Seeking the best ways of doing things and embrace the change to adapt our business to the market and environment. Value addition through commitment to the highest standards of operational excellence driven by a culture of continuous improvement and innovation.

5. COMPANY PHILOSOPHY: In this section as follows 5.1- 5.3.

5.1 Company Motto;

The slogan “*EXCELLENCE IN WORK*” is defined that the conditions of surpassing some standards of expectations are accumulated which the dream of a practitioner or employees to present their excellence in the work place and the organization is determined to be focused on the growth and advancement of individual recognition.

5.2 Corporate Culture and Spirit;

Corporate culture represents the core values of a company’s ideology and practice. It can support an important business objective, value, beliefs and goal of a company as well as the consistent behavior & professionalism expected from all the employees top to bottom. The company shares ethical attitude, strong commitment to embedding tools and integrity in to its competitive business operation.

5.3 Financial Transaction;

Rainbow International Works will never ask customers to deposit the payments in a non-RIW bank account, only this gateway enriches the financial transaction satisfaction.

6. BUSINESS ETIQUETTE:

For the recent past 5 years, RIW has been determined to modify and development in business to corporate level, to achieve the perfection of customer, willing to take an innovative approach, devoted to sourcing and developing the best products that meet the needs of health security conscious customer. In this section as follows 6.1 - 6.6

6.1 Dress Code;

The dress code in Bangladesh is conservative, with men favoring dark-colored suits with tie & shoes and women opting for conservative business trouser suits and traditional Sari outfits. The kameez-shalwar outfit is the most popular.

6.2 Greetings;

Shaking hands is the usual form of greeting in business on arrival and departure from a meeting is expected. Usually, women are reluctant to shake hands with a man and will instead nod, so it’s better to wait until the woman extends her hand just to be sure. The greeting generally used is “As Salaamu Alaikum and the response is Wa Alaikum As Salaam”. Respect is very important in Bangladesh. Businessmen should be addressed as Sir, while women may be addressed as Madam. These titles can be used with or without the surname.

6.3 Negotiations;

Negotiations can take time as Bangladeshis often favor indirect forms of communication. Being tactful and avoid to show frustration is important, as respect is held in high regards in Bangladeshi society. Maintaining face is important. Even if meetings are lengthy, it is important to maintain a professional demeanor. Reaching a significant decision at a first meeting is rare as it takes time to build relationships. Agendas are often fluid and small talk is the usual way of opening a meeting. Rank is very important, so

ensure that you are aware of the seniority of those you will be meeting and only send/bring attendees of a similar rank.

6.4 Business Card;

Exchanging business cards at the start of a meeting, after the initial greeting or handshake is normal etiquette. Business cards should be treated with respect. They should be offered and taken with the right hand. You are expected to study the card, offer some comment and then place it carefully away.

6.5 Sealing The Deal;

Meetings are generally about discussion rather than decisions. Indeed, the initial meeting may be merely to create a sense of “Harmony” and can be consumed purely by small talk and pushing for an immediate decision may be seen as bad manners.

6.6 Entertainment;

Business entertaining is a way of getting to know potential business client better. Inviting to a meal, it is considered impolite to flatly turn the invitation down, even if you can’t make it. Respond by saying something like; “I will try” or “I will have to see” to save face. As fits the idea of hierarchy, guests are generally served first, followed by the oldest person present, continuing in order of seniority. It is important not to begin eating before the oldest or most senior person at the table.

7. OUR BUSINESS CONCERNS: Concerning of our business portfolio that has been expandable as bellow trend.

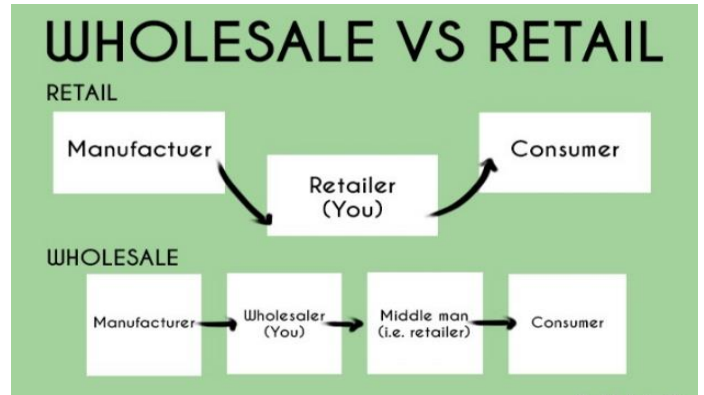
7.1 Import Business (ALL OVER THE WORLD);

With an impressive portfolio to our name, we continue to import a variety of branded products from around the world. Our dedicated logistics team ensures that all our international imports are received safely and timely. Although RIW specializes in integrated operations of Warehousing and Distribution, we have expanded our services to on-site. Together, we work every day to reach industry, kitchens and homes ensuring “Good Food Healthy Life”. Import in planned from Japan, Italy, Germany, Indonesia, Malaysia, Thailand, Singapore, Vietnam, China, India.



7.2 Packaging & Retail Business:

Our **TASTERIDE™** brand Packing and Re-packaging at our concern with maintaining standard quality that attributes and enhanced the brand value of Rainbow International Works. We ignited our brand to supply nation-wide that has been created revenue already.



7.3 Construction & Supply Business:

RIW is a very growing **construction company** in Bangladesh. We have worked with Government project under Dhaka Water Supply and Sewerage Authority (DWASA). The project aims to improve the water supply & sewerage system in the country's capital, Dhaka, by making it sustainable, more reliable, and climate-resilient. It will consolidate and enhance the gains made in the efficiency of the water distribution network achieved under ongoing projects.



Dhaka Water Supply & Sewerage Authority (DWASA) was established on 1963 as an independent organization with the mandate of Water Supply and Sewage disposal to the city dwellers of Dhaka.

The bellow equipment or construction machineries are used during the project execution of Dhaka WASA (DWASA).



DUMP TRUCK



EXCAVATOR



GRADER



LOADER



JUMPING JACK
GAS
2-STROKE

\$53 Day \$180 Wk \$435 4 Wks



JUMPING JACK
GAS
4-STROKE

\$53 Day \$180 Wk \$435 4 Wks



JUMPING JACK
ELECTRIC
120V

\$55 Day \$185 Wk \$440 4 Wks



PLATE COMPACTOR WACKER
REVERSIBLE
DIESEL / GAS
FORCE: 12 365 LBF
24"

\$95 Day \$295 Wk \$825 4 Wks



PLATE COMPACTOR
GAS
13"

\$40 Day \$150 Wk \$350 4 Wks



PLATE COMPACTOR
GAS
19"

\$40 Day \$150 Wk \$350 4 Wks



PLATE COMPACTOR
ASPHALT
GAS
19"

\$40 Day \$150 Wk \$350 4 Wks



VIBRATORY
ROLLER
CORNER
CT 40"
CATALYTIC
CONVERTER
FORCE: 12500 LBF
W. 3880 LBS

\$250 Day \$750 Wk \$1800 4 Wks



ASPHALT ROLLER
VIBRATORY 36"
FORCE 3400 LBF
W. 2490 LBS

\$160 Day \$445 Wk \$975 4 Wks



ASPHALT ROLLER 32"
1T

\$95 Day \$295 Wk \$795 4 Wks



PLATE COMPACTOR MIKASA
REVERSIBLE
GAS
FORCE: 12 365 LBF
24"

\$95 Day \$295 Wk \$825 4 Wks



TRAILER 4'X 10' TILT
3000 LBS CAPACITY

\$50 Day \$250 Wk



VIBRATORY ROLLER
30"

\$90 Day \$300 Wk \$800 4 Wks



THEODOLITE

\$75 Day \$225 Wk \$600 4 Wks



LEVEL / TRANSIT

\$25 Day \$85 Wk \$175 4 Wks



LASER LEVEL

\$57 Day \$190 Wk \$470 4 Wks



ASPHALT RAKE 30"

\$10 Day \$30 Wk \$60 4 Wks



ASPHALT IRON
40 LBS

\$15 Day \$45 Wk \$90 4 Wks



MANUAL COMPACTOR

\$10 Day \$25 Wk \$75 4 Wks



SKIDSTEER
BOBCAT
S70
S100
S130

SEE PAGE 11



EXCAVATOR KUBOTA
K008
K0018
U25
KX121

SEE PAGE 10

8. BUSINESS OPPORTUNITY:

Sustainable businesses can unlock the market opportunities. Rainbow International Works is committed to helping businesses transition to a more sustainable future. Our connections, expertise team player, quality products and sharing technical skill for developments are supporting clients all over Bangladesh to achieve their sustainability goals in the food sector. Our product **RIBOTIDE®** has been established since 2021 in the corporate levels who are the manufacture of Frozen Foods and Noodles.

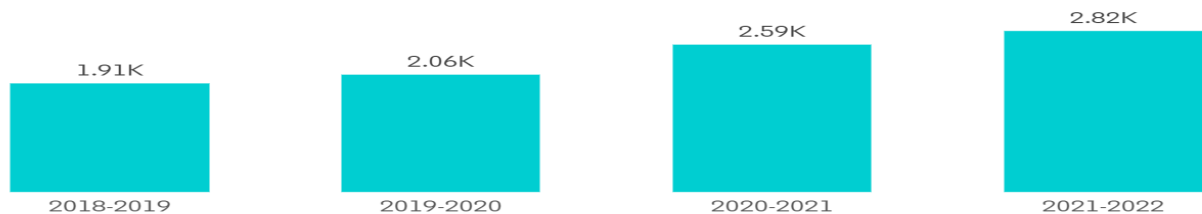
8.1 Frozen Food Industry;

RIBOTIDE® is used in the processing of Frozen Foods. Frozen food is food that has been preserved at low temperatures and used over a long period of time. Fast-paced urban life, rising disposable incomes, an increase in the number of women in the workforce, resulting in a lack of time, and a preference for nuclear families are all significant reasons for Bangladeshi consumers' growing acceptance of frozen food. In addition, factors include rising disposable income in the country, the introduction of longer shelf-life products, increasing impulse purchasing, and a massive demand for frozen food products due to a lack of time. The frozen food market in Bangladesh is being driven by urban consumers who have been exposing themselves to similar products in Quick-Service Restaurants (QSRs), food stalls, and kiosks, among others. Furthermore, the growing availability of traditional favorites in frozen formats has attracted a growing consumer base over the past few years, thereby driving the growth of the market over the review period. Therefore more, changing consumer lifestyles have created numerous opportunities for manufacturers across the industries. The increasing at-home socializing has led to the growing acceptance of western food across Bangladesh, thereby enabling the need for on-the-go foods and, in turn, enhancing the demand for frozen foods, including ready-to-eat and ready-to-cook products altogether, in turn driving the market.

8.2 Market Size of Frozen Foods (Product Wise);

Bangladesh has increased its production, distribution, and exports of frozen food. The frozen food industry has taken over the growing spot in export trade as an entirely value-added product. The country's principal product was frozen shrimp in 2022–23. In the fiscal year 2023–23, frozen foods export revenue totaled **USD 487.93 million**, a 4.65% increase over the USD 466.25 million earned in the previous fiscal year. Frozen food exports accounted for 1.23% of the country's overall export revenue in 2020–21. The United States, The United Kingdom, The Netherlands, Germany and Belgium are the top five markets for frozen food exports from Bangladesh.

Bangladesh Frozen Food Market: Per Capita Income, in USD, 2018-2022



Source: Bangladesh Bureau of Statistics



8.2.1 Product Category;

Products are categorized as, Ready to Cook, Ready to Eat and Ready to Drink. **RIBOTIDE®** is used in the process of Frozen Foods like; Frozen Meat and Fish, Frozen Cooked Ready Meals, Frozen Desserts, Frozen Snacks Chicken items, Beef items are Ready to Cook products.



8.2.2 Product Type;

Product types as, Frozen Fruits & Vegetables where **RIBOTIDE®** under development phase in this product type.

8.2.3 Distribution Channel;

By distribution channel, the market is segmented into supermarkets and hypermarkets, convenience stores, online channels, and others.

8.2.4 Noodles Manufacture Industry;

Our product **RIBOTIDE®** is used in the processing and manufacture of Noodles and instant Noodles.



8.3 Other Foods & Food Processing Industry;

Restaurant items like, Potato chips, Snakes. Kabab, Sauces, Soups etc.

9. OUR PRODUCT LIST:

SL No.	Products Category of Sales: Corporate & Retail	Country of Origin
1.	TASTERIDE™	RIW Brand
2.	RIBOTIDE®	MCLS-Japan
3	Monosodium Glutamate (MSG)	Indonesia, Vietnam, China
4.	DL MALIC ACID	China
Products under development		
1.	Vegetable Oil and Fat	Germany
2.	Yeast (High & Low Sugar)	China, Japan
3.	Sodium Bi Carbonate (SBC)	China
4.	Ammonium Bi Carbonate (ABC)	China
5.	Citric Acid (Anhydrous& Monohydrate)	China
6.	Whey Powder	CZY Republic
7.	Spices	Sri Lanka, India, Guatemala

9.1 Corporate Sales Product;

RIBOTIDE® (I+G) the mixture of Disodium 5' Inosinate and Disodium 5' Guanylate is called Ribonucleotide which used as flavor enhancer in the manufacture of Noodles and the processing of Frozen Foods, Snakes, Chips, Chana Chur. RIBOTIDE® is registered product of **Mitsubishi Corporation Life Science Limited-Japan**. It has the **HS code 29349910** (NUCLEIC ACIDS AND THEIR SALTS) and the JECFA Monograph recognizes this additive is a single compound with a single INS Number 635. This is

true, it is chemically identical to the mixture of two nucleotide family members, Disodium Inosinate and Disodium Guanylate. JECFA is Joint FAO/WHO Expert Committee on Food Additives under the WHO organization.



9.2 Retail Sales Product;

TASTERIDE™ is our own brand which Re-packing at our concern with the permission of **BSTI**. Monosodium Glutamate is called Testing Salt and used as flavor enhancer. Monosodium Glutamate imported from other countries and it has been tested from **BCSIR** for purity checked and it's safe food ingredient for human consumption.

TASTERIDE™ is used in variety curry dishes like; beef, meat, fish and vegetables at home as well as restaurant or chinese/thai food set menu dishes. Recommendation of use are inserted on the packet. Pictures;

(a) Brand name with logo (b) Packing Products (c) Cartoning



(a)



(b)

(c)



10. OUR KEY CLIENTS/CUSTOMER:

RAINBOW INTERNATIONAL WORKS has to co-operate businesses to go ahead with providing reliable brands. Since the incorporation, we have worked with many customers. We cooperate them in increasing their business (Assisting QC & QA for Development, Production, Marketing & Sales) within the desired time. Our competent team works to fulfil the needs of every client. Apart from that, we have the goal to establish good relationships with our clients. We work with manufacturers, exporters, traders, stakeholders, factory owners and financial institutions. Every time, our clients get professional and reliable services from our company. You can choose our company to build a successful business and grown up with advancement. We have successfully served many reputed clients like;



1.

Nestlé



2.

ভালো খান, নিশ্চিন্তে!



3.



4.



5.



6.



7.



8.



11. PRODUCT WISE SECTOR:

Under development phase as follows 11.1 – 11.2

11.1 Products for Pharmaceutical Industries;

Active Pharmaceutical Ingredients (APIs), Coating & Packaging raw materials are under development in many pharmaceutical industries.

11.2 Products for Textile Industries;

Textile yarns, Fabric Washing Chemicals, Pigments & Dyestuffs, Textile Machineries are under development in many textile industries.

12. BANKING INFORMATION:

Bellow bank details are operated as company accounts for financial transaction.

12.1 Standard Bank PLC; Branch: Kawran Bazar, Routing Number: 210262533, Swift Code:

12.2 Shahjalal Islami Bank PLC; Branch: Kawran Bazar, Routing Number: 190262532, Swift Code:

12.3 Janata Bank PLC; Branch: Sthalabondar, Hakimpur (Hili), Routing Number: ...Swift Code:

13. CERTIFICATES COVERED: In this section as follows 13.1 - 13.7

13.1 Trade License; It's under Dhaka North City Corporation (DNCC).

13.2 E-BIN Certificate; It's under National Board of Revenue (NBR) and Customs.

13.3 E-TIN Certificate; It's under National Board of Revenue (NBR) and Taxation.

13.4 BCSIR Certificate; It's under Bangladesh Council of Scientific and Industrial Research.

13.5 BSTI Certificate; It's under Bangladesh Standards and Testing Institution.

13.6 Membership Certificate; National Association of Small and Cottage Industries of Bangladesh (NASCIB).

13.7 Construction License; It's under Dhaka WASA (DWASA).

14. OUR FACILITIES:

The organization complies legal policy for the employees or practitioners as follows 14.1 to 14.10.

14.1 On time Salary;

14.2 Festival Bonus;

14.3 Annual Earn Leave;

14.4 Annual Casual Leave;

14.5 Annual Sick Leave;

14.6 Medical Allowances;

14.7 Cellular Bill Allowances;

14.8 Transport Facility;

14.9 Provident Fund;

14.10 Gratuity;

15. MANAGEMENT:



15.1 CEO Message;

I wish to express my cordial gratitude and compliments to our honorable customers, clients, bankers, suppliers, Government agencies, regulatory bodies with whom the company interacted in conducting its business. I grateful to you all for extending at all the times for your valuable support and co-operation to bring the company to the level of unique position that has been growing. The success so far only possible of the collective efforts of all concerned.

It is all with the blessing of Almighty “ALLAH” the best wishes of my sincere effort and well-wishers that indeed a great challenge and responsibility, try our utmost for the furtherance of trade and industry.

.....

GOLAM MORSHED

Chief Executive Officer

Rainbow International Works



15.2 Director Message:

RAINBOW INTERNATIONAL WORKS, a renowned corporate business house located in Dhaka, Bangladesh. Delegation of authority, humble leadership, vigilant management and persistence in quality are the core pillars to the company's success. We will continue to strengthen these efforts, aiming to realize continuous growth and advancement by the thorough application of our principles of customer-first, good quality, affordable price and commitment. We look forward to have your advice furtherance growth and advancement.

.....

NAYAN AHMED

Director (Administration)

Rainbow International Works.

16. STORAGE KEY PROCESS:

We are equipped with warehousing facilities strategically located in Mirpur, Dhaka-1216. The complex enables a smooth distribution network with easy access throughout Bangladesh. We have an unwavering commitment to food safety and take our role in the food chain very seriously. We have also been verified year on year by the BSTI.



**HACCP certified
Stores & Operations**



17. COMPANY ACHIEVEMENTS/NEWS/OBSERVATIONS:

Having **BSI** Certification which controls our top-quality food & food ingredients and assortments of toppings will give our customers an authentic and mouth-watering Japanese dining experience following food safety and security obtained from **BCSIR**.



This article examines MSG and its health effects, exploring both sides of the argument. MSG is short for monosodium glutamate. It is a common food additive that is used to enhance flavor. MSG is derived from the amino acid glutamate, or glutamic acid, which is one of the most abundant amino acids in nature. Glutamic acid is a non-essential amino acid, meaning that your body can produce it. It serves various functions in your body and is found in nearly all foods. Chemically, MSG is a white crystalline powder that resembles table salt or sugar. It combines sodium and glutamic acid, known as a sodium salt. The glutamic acid in MSG is made by fermenting starches, but there is no chemical difference between the glutamic acid in MSG and that in natural foods. However, the glutamic acid in MSG may be easier to absorb because it isn't bound inside big protein molecules that your body needs to break down. MSG enhances the savory, meaty umami flavor of foods. Umami is the fifth basic taste, along with salty, sour, bitter and sweet. This additive is popular in Asian cooking and used in various processed foods in the West. The average daily intake of MSG is 0.55–0.58 grams in the US and UK and 1.2–1.7 grams in Japan and Korea.

Why do people think it's harmful?



Glutamic acid functions as a neurotransmitter in your brain. It is an excitatory neurotransmitter, meaning that it stimulates nerve cells in order to relay its signal. Some people claim that MSG leads to excessive glutamate in the brain and excessive stimulation of nerve cells. For this reason, MSG has been labeled an excite toxin. Fear of MSG dates as far back as 1969, when a study found that injecting large doses of MSG into newborn mice caused harmful neurological effects. Since then, books like Russell Blaylock's "excite toxins: The Taste That Kills" have kept this fear of MSG alive. It's true that increased glutamate activity in your brain can cause harm and that large doses of MSG can raise blood levels of glutamate. However, dietary glutamate should have little to no effect on your brain, as it cannot cross the **Blood-Brain Barrier** in large amounts. Overall, there is no compelling evidence that MSG acts as an excite toxin when consumed in normal amounts.

17.1 *Some people may be sensitive:* Some people may experience adverse effects from consuming MSG. This condition is called Chinese restaurant syndrome or MSG symptom complex. In one study, people with self-reported MSG sensitivity consumed either 5 grams of MSG or a placebo 36.1% reported reactions with MSG compared to 24.6% with a placebo. Symptoms included headache, muscle tightness, numbness, tingling, weakness and flushing. The threshold dose that causes symptoms seems to be around 3 grams per meal. However, keep in mind that 3 grams is a very high dose about six times the average daily intake in the US. It is unclear why this happens, but some researchers speculate that such large doses of MSG enable trace amounts of glutamic acid to cross the blood-brain barrier and interact with neurons, leading to brain swelling and injury. Some claim that MSG also causes asthma attacks in susceptible individuals. In one 32-person study, 40% of participants experienced an asthma attack with large doses of MSG. However, other similar studies did not find any relationship between MSG intake and asthma.

17.2 *Impact on flavor and calorie intake:* Certain foods are more filling than others. Eating filling foods should reduce your calorie intake, which may aid weight loss. Some evidence suggests that MSG may help you feel full. Studies note that people who consume soups flavored with MSG eat fewer calories at subsequent meals. MSG's umami flavor may stimulate receptors found on your tongue and in your digestive tract, triggering the release of appetite-regulating hormones. That said, other studies indicate that MSG increases — rather than decreases — calorie intake. Therefore, it's best not to rely on MSG to help you feel full.

17.3 *Impact on obesity and metabolic disorders:* Some people associate MSG with weight gain. In animal studies, injecting high doses of MSG into the brains of rats and mice caused them to become obese. However, this has little — if any — relevance to dietary intake of MSG in humans. That said, several human studies link MSG consumptions to weight gain and obesity. In China, increased MSG intake has been linked to weight gain — with average intake ranging from 0.33–2.2 grams per day. However, in Vietnamese adults, an average intake of 2.2 grams per day was not associated with being overweight. Another study tied increased MSG intake to weight gain and metabolic syndrome in Thailand — but it has been criticized for methodological flaws. In a controlled trial in humans, MSG raised blood pressure and increased the frequency of headaches and nausea. However, this study used unrealistically high doses. More human studies are needed before full claims can be made about MSG's link to obesity or metabolic disorders. Monosodium glutamate, also known as sodium glutamate and MSG, is a sodium salt of the non-essential amino acid glutamic acid. It is used as a food additive and is commonly marketed as a flavor enhancer.

Pure MSG is not reported to have a highly pleasant taste until it is combined with a savory odor. The basic sensory function of MSG is attributed to its ability to enhance the presence of savory taste-active compounds when included at the right concentration. The optimum concentration varies with the type of food; in clear soup, the pleasantness score rapidly falls with more than 1 g of MSG per 100 ml. There is also an interaction between MSG and salt (sodium chloride), and other umami substances such as nucleotides, with these properties, MSG can be used to reduce salt intake (sodium), which predisposes to hypertension, heart diseases and stroke. By adding MSG appropriately, salt can be reduced by 30 to 40 percent without a perceived reduction in saltiness.

The sodium content (in mass percent) of MSG is roughly a third of the amount (12%) than in sodium chloride (39%). Other salts of glutamate have been used in low-salt soups, but with a lower palatability than MSG.

17.4 *AT A GLANCE ON MSG:* MSG was classified by the U.S. Food and Drug Administration as generally recognized as safe (GRAS) and by the European Union as a food additive. MSG has the **HS code 29224220 and the E number E621**. The L-glutamate form of MSG confers the same umami taste of free L-glutamate naturally found in foods. Industrial food manufacturers market and use MSG as a flavor enhancer because it balances, blends and rounds the total perception of other tastes.

MSG has been used for more than 100 years to season food. During this period, many studies have been conducted on the safety of MSG. At this point, international and national bodies for the safety of food additives consider MSG safe for human consumption as a flavor enhancer. The "MSG symptom complex" was originally termed the "Chinese Restaurant Syndrome" when Robert Ho Man Kwok anecdotally reported the symptoms

he felt after an American-Chinese meal. Kwok suggested multiple reasons behind the symptoms, including alcohol from cooking with wine, the sodium content, or the MSG seasoning. But MSG became the focus and the symptoms have been associated with MSG ever since. The effect of wine or salt content was not studied. With the years, the list of non-specific symptoms has grown on anecdotal grounds. In normal conditions, humans have the ability to metabolize glutamate that has a very low acute toxicity. The oral lethal dose to 50% of subjects (LD50) is between 15 to 18 g/kg body weight in rats and mice respectively, five times greater than the LD50 of salt (3 g/kg in rats). Therefore, the intake of MSG as a food additive and the natural level of glutamic acid in foods do not represent a toxicological concern in humans.

..... END.....