# Gums

## ****Agar-agar****

### ****Description:****

Agar, derived from seaweed, is a food-grade hydrocolloid celebrated for its remarkable gelling and stabilizing properties. This natural substance has been a staple in Asian cuisines for centuries and has gained global popularity in the food industry. As a versatile ingredient, agar is prized for its ability to form strong, resilient gels at relatively low concentrations, making it an ideal vegetarian and vegan substitute for gelatin. Its neutral taste, odorless nature, and capacity to set gels at higher temperatures contribute to its widespread use in diverse culinary applications, ranging from desserts and confectionery to savory dishes. Beyond the kitchen, agar finds utility in microbiology laboratories as a solidifying agent for culture media, and in pharmaceuticals for encapsulation purposes. The widespread adoption of agar in various industries reflects its unique combination of natural origin, functionality, and adaptability in creating textures and structures in a myriad of products.

### ****Other Names:****

Agar

### ****Functionalities:****

1.Gelling Agent:

Agar is renowned for its exceptional ability to form strong and resilient gels, even at relatively low concentrations. This functionality makes it a key ingredient in the creation of various gel-based food products, such as desserts, jellies, and confectionery.

2.Thickening Agent:

As a hydrocolloid, agar acts as an effective thickening agent, contributing to the viscosity and texture of liquid formulations. Its thickening properties enhance the mouthfeel and overall sensory experience in a variety of food applications.

3.Stabilizer:

Agar serves as a stabilizing agent in food formulations, preventing ingredient separation and maintaining the uniformity of products. This functionality is particularly valuable in the production of sauces, dressings, and certain dairy alternatives.

4.Vegetarian and Vegan Alternative:

Agar is a popular substitute for gelatin, especially in vegetarian and vegan formulations. Its natural origin from seaweed makes it suitable for those seeking plant-based alternatives in gelatinous foods.

5.Heat Resistance:

Agar exhibits excellent heat resistance, allowing gels to set at higher temperatures. This characteristic makes it suitable for applications where high temperatures are involved, such as in the preparation of hot desserts and bakery items.

6.Versatility in Culinary Applications:

Agar's neutral taste and odorless nature make it a versatile ingredient in both sweet and savory dishes. Its adaptability in various culinary applications adds to its functionality, making it a go-to choice for chefs and food manufacturers.

### ****Applicable Industries:****

1.Food and Culinary: Agar is widely used in the production of desserts, jellies, confectionery, and other gel-based food items. It is a common ingredient in Asian cuisines for both sweet and savory dishes.

2.Pharmaceuticals: Agar may be utilized in the pharmaceutical industry for encapsulation and controlled release applications.

3.Microbiology: In laboratories, agar is employed as a solidifying agent for microbiological culture media, providing a stable surface for bacterial and fungal growth.

## Xanthan Gum

### Description

Food-grade xanthan gum is a polysaccharide produced through the fermentation of specific bacteria, primarily Xanthomonas campestris. Known for its remarkable thickening, stabilizing, and emulsifying properties, xanthan gum is widely used in the food industry as a versatile additive. It undergoes careful processing to meet strict food-grade standards, ensuring its safety and suitability for consumption. Xanthan gum is appreciated for its ability to create desirable textures, prevent ingredient separation, and improve the shelf life of various food and beverage products. Its applications range from salad dressings and sauces to gluten-free baking, providing viscosity and enhancing overall product quality. As a natural ingredient derived from microbial fermentation, food-grade xanthan gum caters to diverse dietary preferences and has become a staple in the formulation of numerous processed foods, contributing to their stability, texture, and sensory appeal.

### Other names

Goma Xantana, Xanthan

### Functionalities

1.Thickening Agent: Xanthan Gum excels as a thickener, enhancing the viscosity of liquids in a wide variety of food and non-food applications.

2.Stabilizer: Acting as a stabilizer, Xanthan Gum helps maintain the uniformity and prevent the separation of ingredients in various products, such as salad dressings and sauces.

3.Emulsifier:Xanthan Gum contributes to the stabilization and improvement of emulsions, ensuring a smooth and consistent texture in products like mayonnaise and creamy dressings.

4.Gluten-Free Baking Aid:In gluten-free baking, Xanthan Gum serves as a crucial ingredient, providing the necessary structure and elasticity to doughs and batters.

5.Suspension Agent:Xanthan Gum helps suspend solid particles in liquids, preventing settling and enhancing the overall stability of products like beverages and dressings.

### Applicable industries

1.Food and Beverage: Widely used in the food industry, Xanthan Gum is a staple in products ranging from sauces and dressings to dairy alternatives and gluten-free baked goods.

2.Pharmaceuticals:In the pharmaceutical industry, Xanthan Gum is employed as a thickening and stabilizing agent in various formulations, including oral suspensions and topical gels.

3.Personal Care and Cosmetics:Xanthan Gum is utilized in cosmetic and personal care products, contributing to the texture and stability of creams, lotions, and hair care items.

## Gellan Gum

### Description

Gellan gum is a food-grade hydrocolloid produced through the fermentation of certain bacterial strains(Sphingomonas elodea). Widely used in the food and beverage industry for its versatile gelling, thickening, and stabilizing properties, gellan gum is particularly valued for its ability to create unique textures and maintain stability over a broad range of temperatures. As a natural additive, gellan gum is suitable for various dietary preferences, including vegetarian and vegan formulations. It undergoes stringent processing to meet food-grade standards, ensuring its safety and efficacy in diverse applications. Gellan gum is commonly found in a variety of products, including dairy alternatives, desserts, sauces, and confectionery, contributing to improved texture, suspension of particles, and enhanced overall product quality. Its adaptability and effectiveness in a range of formulations make gellan gum a popular choice in the food industry.

### Other names

### Functionalities

1.Gelling Agent:Gellan Gum excels as a gelling agent, forming clear and firm gels with a unique texture. It's widely used in the creation of intricate desserts, confectionery, and savory dishes.

2.Thickening Agent: Acting as a thickening agent, Gellan Gum enhances the viscosity of liquids, contributing to the smooth and appealing texture of products like sauces, dressings, and beverages.

3.Stabilizer:Gellan Gum acts as a stabilizer, providing structure and preventing ingredient separation in various food and beverage formulations.

4.Texturizer:Renowned for its ability to create a variety of textures, Gellan Gum allows chefs and food technologists to experiment with textures ranging from brittle to elastic, making it ideal for molecular gastronomy applications.

5.Suspension Agent:Gellan Gum helps suspend solid particles in liquids, offering stability and preventing settling in beverages and other liquid products.

### Applicable Industries:

1.Food and Beverage:Gellan Gum is a key ingredient in the food industry, used in a range of products such as desserts, gummy candies, plant-based milk alternatives, and beverages.

2.Confectionery: Confectioners utilize Gellan Gum to achieve unique textures in gummies, jellies, and other confectionery items.

3.Dairy and Plant-Based Products:Gellan Gum is employed in the production of dairy and plant-based products, providing stability and enhancing texture in items like yogurt and milk alternatives.

4.Bakery:In bakery applications, Gellan Gum is used to improve the texture and shelf life of baked goods, including fillings and toppings.

5.Personal Care and Cosmetics:Gellan Gum finds applications in the cosmetic and personal care industry, contributing to the texture and stability of creams, lotions, and hair care products.

## Carrageenan

### Description

Carrageenan is a food-grade additive derived from certain types of red seaweed. Widely used in the food industry for its gelling, thickening, and stabilizing properties, carrageenan is particularly known for its application in dairy and plant-based products. As a natural hydrocolloid, carrageenan undergoes careful processing to meet food-grade standards, ensuring its safety and efficacy. It is commonly employed in products like ice cream, yogurt, and plant-based milk alternatives to enhance texture, prevent ingredient separation, and create a smooth, appealing consistency. Despite its extensive use, carrageenan has been a subject of occasional debate regarding its safety, and various forms, such as degraded carrageenan, have been studied for their potential health implications. As research continues, the food industry remains attentive to consumer concerns, exploring alternative stabilizers while utilizing carrageenan within established safety guidelines.

### Other names

Carrageenin, Carageenan gum

### Functionalities:

1.Thickening Agent:Carrageenan excels as a natural thickening agent, enhancing the viscosity of liquids and providing a rich, smooth texture to products such as dairy items, sauces, and desserts.

2.Gelling Agent:Known for its exceptional gelling properties, Carrageenan is widely used to create stable and firm gels in products like gummy candies, jelly desserts, and even pet foods.

3.Stabilizer:Carrageenan acts as a stabilizer, preventing ingredient separation and maintaining uniformity in a variety of food formulations, including dairy products and plant-based alternatives.

4.Emulsifier:Carrageenan contributes to the stability and texture of emulsions, making it valuable in the production of creamy sauces, dressings, and certain beverages.

5.Binder:In meat and poultry applications, Carrageenan acts as a binder, improving water retention, texture, and overall quality in processed products such as sausages and deli meats.

### Applicable Industries:

1.Food and Beverage:Carrageenan is widely used in the food industry, making its mark in dairy products, desserts, sauces, beverages, and processed meats.

2.Confectionery:Confectioners utilize Carrageenan to achieve the desired texture and stability in products such as gummies, jelly candies, and marshmallows.

3.Dairy and Plant-Based Products:Carrageenan is a key ingredient in dairy and plant-based products, enhancing the texture and stability of items like ice cream, yogurt, and milk alternatives.

4.Meat and Poultry:In the meat processing industry, Carrageenan is employed as a binder, improving the texture and moisture retention in various products.

5.Pharmaceuticals:Carrageenan finds applications in the pharmaceutical industry, particularly in the formulation of oral medications and topical gels.

## Pectin

### Description

Pectin is a natural polysaccharide found in the cell walls of fruits, particularly apples and citrus fruits. Recognized for its gelling and thickening properties, pectin is widely used in the food industry, particularly in the production of jams, jellies, and fruit preserves. As a food-grade ingredient, it undergoes careful processing to ensure purity and adherence to quality standards. Pectin acts as a gelling agent when combined with sugar and acid, creating a gel-like consistency in fruit spreads. Apart from its role in food preservation, pectin is also valued for its dietary fiber content, contributing to digestive health. Its versatility makes it a common additive in a variety of food and beverage products, including juices, confectionery, and baked goods, enhancing texture and providing a desirable mouthfeel.

### Other names

Citrus Pectin

### Functionalities:

1.Gelling Agent:Pectin is renowned for its gelling properties, forming a gel when combined with sugars and acids. This makes it a crucial ingredient in the production of jams, jellies, and fruit preserves.

2.Thickener:As a thickening agent, Pectin enhances the viscosity of liquids, providing a luscious and smooth consistency in a variety of culinary applications, including sauces and fillings.

3.Stabilizer:Pectin acts as a stabilizer, preventing ingredient separation and maintaining the structure of certain products, particularly in fruit-based formulations.

4.Fat Substitute:In low-fat and fat-free products, Pectin can serve as a fat substitute, contributing to the desired texture and mouthfeel in items like yogurt and salad dressings.

5.Texturizer:Pectin contributes to the overall texture of a product, providing a pleasant mouthfeel in items such as gummy candies and fruit snacks.

### Applicable Industries:

1.Food and Beverage: Pectin is a staple in the food industry, finding applications in the production of jams, jellies, fruit preserves, sauces, and confectionery.

2.Confectionery: Confectioners utilize Pectin to achieve the desired gel texture in gummy candies, fruit chews, and other fruit-flavored confections.

3.Dairy and Plant-Based Products: Pectin is used in the production of dairy and plant-based products to enhance texture and stability, particularly in items like yogurt and fruit-flavored beverages.

4.Bakery: In bakery applications, Pectin is employed to improve the texture and stability of fruit fillings in pies, pastries, and other baked goods.

5.Pharmaceuticals: Pectin finds applications in the pharmaceutical industry for its gelling properties, particularly in the formulation of oral medications and chewable tablets.

## ****Carboxymethyl cellulose (CMC)****

### ****Product Description:****

Carboxymethyl cellulose (CMC) is a versatile cellulose derivative widely utilized in various industries for its exceptional thickening, stabilizing, and emulsifying properties. Derived from cellulose, a natural polymer found in plant cell walls, CMC is modified through a chemical reaction to introduce carboxymethyl groups. This modification enhances its water-solubility and makes it an effective additive in food products, pharmaceuticals, cosmetics, and industrial applications. In the food industry, CMC acts as a thickening agent in a variety of products such as sauces, dressings, and ice cream, contributing to improved texture and stability. Its role as a stabilizer and emulsifier extends to the pharmaceutical and cosmetic industries, where it is incorporated into formulations such as creams and lotions. CMC's ability to modify viscosity, improve suspension, and enhance texture makes it a valuable and versatile ingredient in a wide array of consumer and industrial products.

### ****Other Names:****

CMC

Cellulose gum

### ****Functionalities:****

1.Thickening Agent: Carboxymethyl Cellulose is widely recognized for its excellent thickening properties, making it an ideal additive for sauces, dressings, and other liquid-based formulations.

2.Stabilizer: CMC acts as a stabilizer in a variety of products, including dairy products, preventing phase separation and maintaining uniform consistency over time.

3.Water Retention: Due to its water-retaining capacity, CMC is used to prevent crystallization in certain food products and to enhance the moisture retention in baked goods.

4.Texture Enhancement: CMC contributes to the texture and mouthfeel of food products, providing a smooth and creamy consistency in ice creams, yogurts, and other processed foods.

5.Fat Replacement: In certain low-fat or reduced-fat formulations, Carboxymethyl Cellulose can be used as a fat replacement agent, contributing to the desired texture without the need for additional fats.

### ****Applicable Industries:****

1.Food and Beverage: Utilize Carboxymethyl Cellulose in a wide range of food and beverage applications, including sauces, dressings, dairy products, and baked goods, for its thickening and stabilizing properties.

2.Confectionery: Incorporate CMC into confectionery products such as icings, frostings, and gummies to enhance texture and prevent crystallization.

3.Dairy Industry: Enhance the stability and texture of dairy products, including ice cream, yogurt, and cream-based sauces, with the addition of Carboxymethyl Cellulose.

4.Bakery: Improve the texture and moisture retention in baked goods like bread, cakes, and cookies by incorporating CMC.

5.Processed Foods: Utilize CMC in various processed foods, including soups, gravies, and canned goods, to achieve desired consistency and stability.

6.Personal Care Products: Extend the use of Carboxymethyl Cellulose to personal care items, such as toothpaste and cosmetics, for its thickening and stabilizing functions.

# Food Grade Amino acid

## L-arginine

### Description:

Food-grade L-arginine is a conditionally essential amino acid, meaning that while the body can synthesize it, there are instances where dietary intake becomes crucial. L-arginine plays a fundamental role in protein synthesis, immune function, and is a precursor to nitric oxide—a molecule that dilates blood vessels, promoting improved blood circulation. As a food-grade supplement, L-arginine undergoes strict quality control measures to ensure its safety and efficacy. Its popularity in the food and dietary supplement industry lies in its potential cardiovascular benefits, exercise performance support, and contributions to overall well-being. It is commonly found in various protein-rich foods and is frequently included in formulations like sports nutrition products, pre-workout supplements, and certain functional foods, appealing to those aiming to enhance cardiovascular health and optimize physical performance.

### Other Names:

Arginine

### Functionalities:

1.Amino Acid Supplementation: L-arginine is a crucial amino acid that plays a vital role in the synthesis of proteins. As a building block of proteins, it supports muscle growth, tissue repair, and overall cellular function.

2.Nitric Oxide Production: L-arginine is a precursor to nitric oxide, a molecule that helps relax blood vessels and improve blood flow. This functionality makes L-arginine valuable for cardiovascular health and athletic performance.

3.Immune System Support:L-arginine contributes to the proper functioning of the immune system, supporting the body's defense against infections and diseases.

4.Wound Healing:Due to its role in collagen synthesis, L-arginine is involved in the wound-healing process. It promotes tissue repair and regeneration.

5.Detoxification:L-arginine is involved in the urea cycle, which plays a crucial role in the body's detoxification process by converting ammonia into urea for excretion.

### Applicable Industries:

1.Dietary Supplements: L-arginine is widely used in the dietary supplement industry, featuring in formulations aimed at promoting cardiovascular health, muscle development, and overall well-being.

2.Functional Foods: In the food industry, L-arginine can be incorporated into functional foods and beverages designed to provide health benefits, such as enhanced cardiovascular support.

3.Sports Nutrition: L-arginine is a popular ingredient in sports nutrition products, contributing to improved blood flow, nutrient delivery, and exercise performance.

4.Health and Wellness Products: Health and wellness products, including those focused on immune support and wound healing, can benefit from the inclusion of food-grade L-arginine.

5.Pharmaceuticals:L-arginine may be used in pharmaceutical formulations for specific health conditions and medical applications.

## L-Arginine hydrochloride

### Description:

Food-grade L-arginine hydrochloride is a form of the amino acid L-arginine that includes a hydrochloride salt. L-arginine is a semi-essential amino acid that plays a critical role in various physiological functions, including protein synthesis, immune function, and the production of nitric oxide—a vasodilator that supports improved blood circulation. L-arginine hydrochloride is commonly used in the food and dietary supplement industry for its potential cardiovascular benefits and exercise performance support. It undergoes rigorous quality control measures to ensure safety and efficacy. This compound is often included in pre-workout supplements, sports nutrition products, and certain functional foods, catering to individuals seeking cardiovascular health support and those aiming to optimize their physical performance.

### Other Names:

L-Arginine HCl

### Functionalities:

1.Amino Acid Supplementation:L-Arginine hydrochloride is a vital amino acid that serves as a fundamental building block for proteins. It supports muscle growth, tissue repair, and overall cellular function.

2.Nitric Oxide Production:As a precursor to nitric oxide, L-Arginine hydrochloride promotes improved blood flow, contributing to cardiovascular health and athletic performance.

3.Immune System Support:L-Arginine plays a role in supporting the proper functioning of the immune system, aiding the body's defense mechanisms against infections and diseases.

4.Wound Healing:L-Arginine hydrochloride is involved in collagen synthesis, making it beneficial for promoting the healing of wounds and tissue regeneration.

5.Detoxification:L-Arginine hydrochloride participates in the urea cycle, playing a role in detoxifying the body by converting ammonia into urea for excretion.

### Applicable Industries:

1.Dietary Supplements:L-Arginine hydrochloride is widely utilized in the dietary supplement industry, featuring prominently in formulations geared towards cardiovascular support, muscle development, and overall well-being.

2.Functional Foods:The food industry can incorporate L-Arginine hydrochloride into functional foods and beverages designed to offer health benefits, particularly those supporting cardiovascular health.

3.Sports Nutrition:L-Arginine hydrochloride is a popular ingredient in sports nutrition products, contributing to enhanced blood flow, nutrient delivery, and improved exercise performance.

4.Health and Wellness Products:Health and wellness products, including those focused on immune support and wound healing, can benefit from the inclusion of food-grade L-Arginine hydrochloride.

5.Pharmaceuticals:L-Arginine hydrochloride may find applications in pharmaceutical formulations for specific health conditions, aligning with medical and therapeutic objectives.

## L-histidine

### Description:

Food-grade L-histidine is an essential amino acid that plays a crucial role in various physiological processes within the body. As a building block of proteins, L-histidine is involved in the formation of histamine, a neurotransmitter that regulates immune responses and contributes to the inflammatory process. L-histidine is found in protein-rich foods such as meat, fish, dairy, and certain grains. As a food-grade supplement, L-histidine undergoes strict quality control measures to ensure its safety and effectiveness. While the body can synthesize histidine to some extent, its dietary intake remains essential for maintaining optimal health. L-histidine is a less common amino acid to supplement individually but is often included in complete amino acid formulations or protein supplements, contributing to the overall amino acid profile necessary for various physiological functions.

### Other Names:

L-His

### Functionalities:

1.Protein Building Block: L-histidine serves as a fundamental building block for proteins, contributing to the synthesis of enzymes, antibodies, and other essential proteins in the body.

2.Precursor to Histamine: L-histidine is a precursor to histamine, a neurotransmitter involved in various physiological processes, including immune response and the regulation of stomach acid.

3.Metal Chelation: L-histidine exhibits metal-chelating properties, which means it can bind to metal ions. This functionality is relevant in various biological and enzymatic processes.

4.Buffering Agent: L-histidine acts as a buffering agent, helping to maintain the pH balance in biological systems. This makes it important for maintaining the stability of proteins and enzymes.

5. Neurotransmitter Function:As a component of neurotransmitters, L-histidine plays a role in the transmission of signals in the nervous system, contributing to cognitive function and mood regulation.

### Applicable Industries:

1.Dietary Supplements: L-histidine is commonly used in the dietary supplement industry, where it is included in formulations aimed at supporting protein synthesis, overall health, and cognitive function.

2.Functional Foods: The food industry can incorporate L-histidine into functional foods to offer nutritional benefits, particularly those targeting protein content and neurological health.

3.Sports Nutrition: L-histidine may be included in sports nutrition products to support protein synthesis, muscle health, and overall athletic performance.

4.Pharmaceuticals: L-histidine finds applications in pharmaceutical formulations, particularly in products designed to address deficiencies or support specific health conditions related to protein metabolism and neurotransmitter function.

5.Medical Nutrition: L-histidine can be utilized in medical nutrition products, catering to individuals with specific dietary needs or health conditions requiring amino acid supplementation.

## L-glutamine

### Description:

Food-grade L-glutamine is a conditionally essential amino acid that holds significant importance in the realms of protein synthesis, immune function, and gut health. While the body can synthesize glutamine, during times of stress, illness, or intense physical activity, the demand may exceed the body's production. L-glutamine is found in various protein-rich foods and is often included as a supplement to support muscle recovery, reduce muscle soreness, and enhance overall exercise performance. Its ability to serve as a fuel source for rapidly dividing cells, such as those in the immune system and the cells lining the digestive tract, makes L-glutamine a valuable nutrient. As a food-grade supplement, L-glutamine undergoes quality control measures to ensure safety and efficacy. It is commonly utilized in protein powders, sports nutrition products, and certain functional foods, catering to individuals seeking to optimize their muscle health and overall well-being.

### Other Names:

Glutamine

### Functionalities:

1.Muscle Support:L-glutamine is a vital component in muscle tissue and plays a key role in muscle protein synthesis. It is often used to support muscle recovery and maintenance.

2.Immune System Support:L-glutamine is essential for the proper functioning of the immune system. It supports the production and function of immune cells, aiding in the body's defense against infections.

3.Gut Health:L-glutamine is a preferred energy source for the cells lining the digestive tract. It supports the integrity of the intestinal lining, contributing to gut health and function.

4.Nitrogen Carrier:L-glutamine acts as a carrier of nitrogen between organs, playing a crucial role in the transport of nitrogen to cells for various physiological processes.

5.Energy Source for Cells:Certain cells, such as enterocytes in the intestines, utilize L-glutamine as a primary source of energy. This is particularly important for cells with high energy demands.

### Applicable Industries:

1.Dietary Supplements:L-glutamine is widely used in the dietary supplement industry, where it is included in formulations aimed at supporting muscle health, immune function, and overall well-being.

2.Sports Nutrition:L-glutamine is a popular ingredient in sports nutrition products, contributing to muscle recovery, reducing muscle soreness, and supporting athletes in reaching their performance goals.

3.Functional Foods:The food industry can incorporate L-glutamine into functional foods, offering nutritional benefits for muscle health, immune support, and overall wellness.

4.Medical Nutrition:L-glutamine finds applications in medical nutrition products, catering to individuals with specific health conditions, including those related to muscle wasting and compromised immune function.

5.Pharmaceuticals:L-glutamine may be included in pharmaceutical formulations, particularly in products designed to address deficiencies or support specific health conditions associated with muscle health and immune function.

## L-Citrulline

### Description:

Food-grade L-citrulline is a naturally occurring amino acid found in certain fruits like watermelon. Widely recognized for its potential benefits in promoting cardiovascular health and supporting exercise performance, L-citrulline is a popular ingredient in the food and dietary supplement industry. It acts as a precursor to L-arginine, which, in turn, contributes to the production of nitric oxide—a vasodilator that enhances blood flow. Improved blood circulation may lead to better nutrient delivery to muscles and reduced fatigue during exercise. As a food-grade supplement, L-citrulline undergoes stringent quality control measures to ensure its safety and efficacy. It is commonly included in pre-workout formulations, sports drinks, and nutritional supplements, catering to individuals looking to enhance their overall cardiovascular fitness and exercise endurance.

### Other Names:

Citrulline

### Functionalities:

1.Nitric Oxide Production: L-citrulline is a precursor to L-arginine, which is then converted to nitric oxide in the body. Nitric oxide plays a crucial role in vasodilation, supporting healthy blood flow and cardiovascular function.

2.Enhanced Exercise Performance:L-citrulline has been studied for its potential to reduce fatigue and improve exercise performance. It aids in the elimination of ammonia, a byproduct of exercise, supporting endurance and recovery.

3.Cardiovascular Health:By promoting vasodilation and healthy blood circulation, L-citrulline contributes to cardiovascular health, supporting optimal heart function and overall cardiovascular well-being.

4.Ammonia Detoxification:L-citrulline is involved in the urea cycle, where it helps in the detoxification of ammonia, a waste product generated during protein metabolism.

5.Immune System Support:Some studies suggest that L-citrulline may have immune-boosting properties, supporting the body's defense mechanisms against infections.

### Applicable Industries:

1.Dietary Supplements: L-citrulline is a popular ingredient in dietary supplements, where it is included in formulations designed to support cardiovascular health, exercise performance, and overall vitality.

2.Sports Nutrition: In the sports nutrition industry, L-citrulline is often featured in pre-workout supplements, amino acid blends, and products aimed at enhancing endurance and reducing muscle fatigue during exercise.

3.Functional Foods:The food industry can incorporate L-citrulline into functional foods and beverages to offer cardiovascular and performance benefits, catering to health-conscious consumers.

4.Heart Health Products: L-citrulline may find applications in products focused on heart health and circulatory support, addressing concerns related to blood pressure and overall cardiovascular function.

5.Wellness and Nutraceuticals: L-citrulline can be utilized in wellness products and nutraceutical formulations, providing a natural solution for those seeking cardiovascular and exercise-related benefits.

## L-Citrulline DL-Malate

### Description:

Food-grade L-citrulline DL-malate is a compound composed of the amino acid L-citrulline and malic acid. It is widely utilized in the food and dietary supplement industry for its potential benefits in supporting athletic performance and overall cardiovascular health. L-citrulline is a precursor to nitric oxide, a vasodilator that enhances blood flow, while malic acid contributes to the Krebs cycle, a key process in cellular energy production. The combination of these two compounds is believed to improve endurance, reduce muscle soreness, and enhance recovery post-exercise. As a food-grade supplement, L-citrulline DL-malate undergoes rigorous quality control to meet safety standards. It is commonly found in pre-workout supplements, sports nutrition products, and certain functional foods, catering to individuals seeking to optimize their exercise routines and promote cardiovascular well-being.

### Other Names:

Citrulline Malate

Citrulline DL-Malate

### Functionalities:

1.Nitric Oxide Boost: L-Citrulline DL-Malate is a potent precursor to L-arginine, supporting the production of nitric oxide. Nitric oxide helps relax blood vessels, promoting healthy blood flow and cardiovascular function.

2.Enhanced Exercise Performance:The combination of L-Citrulline and DL-Malate has been studied for its potential to reduce muscle fatigue, improve exercise performance, and support endurance during physical activity.

3.Ammonia Detoxification: L-Citrulline DL-Malate is involved in the urea cycle, aiding in the detoxification of ammonia, a byproduct of protein metabolism. This contributes to reduced muscle soreness and improved recovery.

4.Energy Production: DL-Malate, a combination of malic acid and L-Citrulline, participates in the tricarboxylic acid (TCA) cycle, enhancing energy production and supporting overall metabolic function.

5.Muscle Recovery: L-Citrulline DL-Malate may contribute to quicker muscle recovery after exercise, making it a valuable component in formulations targeting athletes and fitness enthusiasts.

### Applicable Industries:

1.Dietary Supplements: L-Citrulline DL-Malate is a popular ingredient in dietary supplements, especially those formulated for pre-workout support, cardiovascular health, and exercise performance enhancement.

2.Sports Nutrition: In the sports nutrition industry, L-Citrulline DL-Malate is commonly used in products designed to boost endurance, reduce muscle fatigue, and improve overall athletic performance.

3.Functional Foods: The food industry can incorporate L-Citrulline DL-Malate into functional foods and beverages to offer cardiovascular and performance benefits, catering to health-conscious consumers.

4.Wellness and Nutraceuticals: L-Citrulline DL-Malate may find applications in wellness products and nutraceutical formulations, providing a natural solution for those seeking exercise-related benefits and overall vitality.

5.Heart Health Products: L-Citrulline DL-Malate can be featured in products focused on heart health, circulatory support, and addressing concerns related to blood pressure and overall cardiovascular function.

## L-Alanine

### Description:

Food-grade L-alanine is a non-essential amino acid, meaning the human body can synthesize it, and it is also obtained through dietary sources. It plays a significant role in protein synthesis, serving as a building block for various proteins in the body. L-alanine is involved in glucose metabolism, and its conversion to pyruvate contributes to energy production. As a food-grade ingredient, L-alanine undergoes quality control measures to ensure its safety and efficacy in various applications. It is found naturally in protein-rich foods such as meat, poultry, and dairy products. While not as commonly supplemented as essential amino acids, L-alanine's role in supporting overall protein function and energy metabolism makes it a relevant component in the formulation of certain food and dietary supplement products.

### Other Names:

2-Aminopropanoic acid

Ala

Alanine

### Functionalities:

1.Energy Source: L-Alanine is a key player in the glucose-alanine cycle, acting as a carrier of amino groups and contributing to the production of glucose. This functionality makes it crucial for supporting energy levels.

2.Muscle Support: As a building block of proteins, L-Alanine is essential for maintaining muscle health and promoting muscle protein synthesis. It plays a role in supporting endurance during physical activities.

3.Gluconeogenesis Support: L-Alanine is involved in gluconeogenesis, a metabolic pathway that synthesizes glucose from non-carbohydrate sources. This is essential for maintaining blood sugar levels and supporting overall metabolic function.

4.Immune System Modulation: Some studies suggest that L-Alanine may have immunomodulatory effects, potentially contributing to the regulation of immune system function.

5.Nitrogen Balance: L-Alanine plays a role in maintaining nitrogen balance in the body, which is crucial for overall protein metabolism and health.

### Applicable Industries:

1.Dietary Supplements: L-Alanine is commonly used in dietary supplements, particularly in formulations aimed at supporting energy levels, muscle health, and overall vitality.

2.Sports Nutrition: In the sports nutrition industry, L-Alanine may be featured in products designed to enhance endurance, reduce muscle fatigue, and support muscle recovery after exercise.

3.Functional Foods: The food industry can incorporate L-Alanine into functional foods and beverages to offer nutritional benefits for energy support, muscle health, and overall well-being.

4.Medical Nutrition: L-Alanine may find applications in medical nutrition products, catering to individuals with specific dietary needs or health conditions requiring amino acid supplementation.

5.Pharmaceuticals: L-Alanine may be included in pharmaceutical formulations for specific health conditions or medical applications related to energy metabolism and protein synthesis.

## L-Phenylalanine

### Description:

Food-grade L-phenylalanine is an essential amino acid that the human body cannot produce on its own and must be obtained through dietary sources. As a precursor to tyrosine, L-phenylalanine plays a vital role in the synthesis of neurotransmitters such as dopamine, norepinephrine, and epinephrine. Its impact on neurotransmitter production contributes to mood regulation, cognitive function, and overall mental well-being. Food-grade L-phenylalanine is carefully processed to meet quality standards, ensuring its safety and suitability for consumption. It is commonly found in protein-rich foods like meat, dairy, and certain plant-based sources. Given its role in neurotransmitter synthesis, L-phenylalanine is often included in formulations targeting cognitive support, mood enhancement, and overall brain health in various dietary supplement products.

### Other Names:

Phe

L-Phenylalanine

### Functionalities:

1.Precursor to Neurotransmitters: L-Phenylalanine is a crucial precursor to neurotransmitters such as dopamine, norepinephrine, and epinephrine. These neurotransmitters play a vital role in mood regulation, cognitive function, and stress response.

2.Protein Synthesis: As an essential amino acid, L-Phenylalanine is integral to protein synthesis, contributing to the formation of proteins that are essential for the structure and function of tissues in the body.

3.Cognitive Support: L-Phenylalanine is associated with cognitive support, and some studies suggest that it may have a positive impact on memory, alertness, and overall cognitive function.

4.Mood Enhancement: Due to its role in neurotransmitter production, L-Phenylalanine is thought to have mood-enhancing properties, potentially aiding in conditions related to mood disorders.

5.Appetite Regulation: L-Phenylalanine has been studied for its potential role in appetite regulation. It is involved in the synthesis of molecules that influence appetite and satiety.

### Applicable Industries:

1.Dietary Supplements: L-Phenylalanine is commonly used in dietary supplements, where it is included in formulations aimed at supporting cognitive health, mood balance, and overall mental well-being.

2.Functional Foods: The food industry can incorporate L-Phenylalanine into functional foods and beverages designed to offer cognitive and mood-related benefits, catering to health-conscious consumers.

3.Pharmaceuticals: L-Phenylalanine may be included in pharmaceutical formulations, particularly those targeting conditions related to neurotransmitter imbalances, cognitive health, and mood disorders.

4.Mental Wellness Products: L-Phenylalanine can be featured in products focused on mental wellness, stress management, and emotional well-being.

5.Nutraceuticals: L-Phenylalanine can be utilized in nutraceutical products, providing a natural solution for those seeking cognitive and mood support through nutrition.

## L-Tryptophan

### Description:

Food-grade L-tryptophan is an essential amino acid known for its role as a precursor to serotonin, a neurotransmitter that regulates mood and sleep. As the body cannot synthesize L-tryptophan, it must be obtained through the diet, making it a crucial component in various food and dietary supplement products. L-tryptophan is carefully processed to meet food-grade standards, ensuring its safety and effectiveness. Due to its involvement in serotonin production, L-tryptophan is often included in formulations targeting mood support and sleep enhancement. In addition to its impact on neurotransmitters, L-tryptophan is an essential building block for protein synthesis and contributes to overall protein nutrition. Its versatility and physiological importance make food-grade L-tryptophan a valuable ingredient in products aimed at promoting both mental well-being and nutritional balance.

### Other Names:

Trp

Tryptophan

### Functionalities:

1.Precursor to Serotonin: L-Tryptophan is a vital precursor to serotonin, a neurotransmitter that plays a key role in mood regulation, emotional well-being, and relaxation.

2.Sleep Support: Due to its role in serotonin synthesis, L-Tryptophan is associated with sleep support. It is a precursor to melatonin, a hormone that regulates the sleep-wake cycle.

3.Mood Enhancement: L-Tryptophan is thought to have mood-enhancing properties, contributing to emotional balance and overall mental wellness.

4.Stress Management: As a precursor to serotonin, L-Tryptophan may play a role in stress management by influencing neurotransmitters that impact mood and stress response.

5.Protein Synthesis: L-Tryptophan is an essential amino acid, contributing to protein synthesis and the formation of proteins that are crucial for various physiological functions.

### Applicable Industries:

1.Dietary Supplements: L-Tryptophan is commonly used in dietary supplements, where it is included in formulations aimed at supporting mood, relaxation, sleep, and overall emotional well-being.

2.Functional Foods: The food industry can incorporate L-Tryptophan into functional foods and beverages designed to offer mood and sleep-related benefits, catering to individuals seeking emotional balance through nutrition.

3.Sleep and Relaxation Products:L-Tryptophan can be featured in products focused on sleep support, relaxation, and stress management, contributing to a sense of calm and tranquility.

4.Pharmaceuticals:L-Tryptophan may be included in pharmaceutical formulations, particularly those targeting conditions related to neurotransmitter imbalances, mood disorders, and sleep disturbances.

5.Mental Wellness Products:L-Tryptophan can be utilized in products promoting mental wellness, offering natural solutions for individuals seeking emotional balance and relaxation.

## Branched-chain amino acid (BCAA)

### Description:

A branched-chain amino acid (BCAA) is an amino acid having an aliphatic side-chain with Branched-chain amino acids (BCAAs) refer to a group of essential amino acids that include leucine, isoleucine, and valine. Unlike other amino acids, BCAAs are metabolized in the muscles rather than the liver, making them crucial for protein synthesis, muscle growth, and overall energy production. As essential components of the human diet, BCAAs cannot be produced by the body and must be obtained through food or supplements. Their popularity in sports nutrition and fitness industries stems from their role in supporting muscle health, enhancing exercise performance, and aiding in post-exercise recovery. BCAAs are commonly found in protein-rich foods, and their isolated form is often included in dietary supplements, energy drinks, and protein powders to meet the needs of individuals seeking to optimize muscle function and maintain overall well-being.

### Other Names:

branched chain amino acid

### Functionalities:

1.Muscle Protein Synthesis: BCAAs are essential for muscle protein synthesis, playing a crucial role in building and repairing muscle tissues. Leucine, in particular, is a potent stimulator of protein synthesis.

2.Energy Source During Exercise: BCAAs can serve as a source of energy during exercise. When glucose levels are depleted, muscles can utilize BCAAs for energy, helping to sustain endurance and reduce muscle fatigue.

3.Muscle Recovery: BCAAs contribute to faster muscle recovery by reducing muscle soreness and promoting the repair of damaged muscle fibers. This is particularly beneficial for individuals engaging in intense physical activities.

4.Enhanced Exercise Performance: Supplementing with BCAAs may enhance exercise performance by improving endurance, reducing perceived exertion, and supporting the maintenance of lean muscle mass.

5.Metabolic Health: BCAAs play a role in metabolic health, contributing to glucose regulation and insulin sensitivity. This can be beneficial for individuals managing weight and metabolic conditions.

### Applicable Industries:

1.Sports Nutrition: BCAAs are a staple in the sports nutrition industry, featured in pre-workout, intra-workout, and post-workout supplements to support muscle growth, recovery, and exercise performance.

2.Dietary Supplements: BCAAs are widely used in dietary supplements catering to individuals seeking additional amino acid support, protein supplementation, and muscle health promotion.

3.Fitness and Wellness Products: Fitness enthusiasts and individuals focused on overall wellness can benefit from BCAAs, as they contribute to muscle health, recovery, and exercise-related goals.

4.Functional Foods and Beverages: The food industry can incorporate BCAAs into functional foods and beverages, providing a convenient way for consumers to obtain these essential amino acids.

5.Pharmaceuticals: BCAAs may find applications in pharmaceutical formulations for specific health conditions, including muscle wasting disorders and metabolic disorders.

## L-Valine

### Description:

Food-grade L-valine is an essential branched-chain amino acid that the human body cannot produce and must be obtained through dietary sources. As a key component in protein synthesis and a contributor to muscle metabolism, L-valine plays a crucial role in supporting muscle growth, repair, and overall athletic performance. Often included alongside other essential amino acids, especially leucine and isoleucine, L-valine is a sought-after ingredient in food and dietary supplement formulations, particularly those designed for sports nutrition. Its food-grade quality ensures safety and compliance with regulatory standards. L-valine is commonly found in protein-rich foods like meat, dairy, and legumes, and its supplementation is valued by individuals looking to optimize their protein intake for muscle health and recovery.

### Other Names:

2-Amino-3-methylbutanoic acid

### Functionalities:

1.Muscle Protein Synthesis: L-Valine is essential for muscle protein synthesis, contributing to the growth, repair, and maintenance of muscle tissues. It is particularly important for athletes and individuals engaged in physical activities.

2.Energy Source During Exercise: L-Valine, along with leucine and isoleucine, is a branched-chain amino acid (BCAA) that can be used as a source of energy during exercise. It helps sustain endurance and reduces muscle fatigue.

3.Nitrogen Balance: L-Valine plays a role in maintaining nitrogen balance in the body, which is crucial for overall protein metabolism and the synthesis of important biomolecules.

4.Immune System Support: Some studies suggest that L-Valine may have immune-modulating effects, contributing to the proper functioning of the immune system and supporting overall health.

5.Glucose Regulation: L-Valine, as a BCAA, is involved in glucose regulation and can be beneficial for individuals managing blood sugar levels and metabolic health.

### Applicable Industries:

1.Sports Nutrition: L-Valine is a key ingredient in sports nutrition supplements, including BCAA blends and intra-workout formulations, aimed at promoting muscle health, recovery, and exercise performance.

2.Dietary Supplements: L-Valine is commonly included in dietary supplements for individuals seeking additional amino acid support, especially those with fitness and muscle-building goals.

3.Fitness and Wellness Products: Fitness enthusiasts and individuals focused on overall wellness can benefit from L-Valine supplementation, supporting muscle health and recovery.

4.Pharmaceuticals: L-Valine may find applications in pharmaceutical formulations for specific health conditions, including muscle wasting disorders and immune system support.

5.Functional Foods and Beverages: The food industry can incorporate L-Valine into functional foods and beverages, providing a convenient and palatable way for consumers to obtain this essential amino acid.

## L-Isoleucine

### Description:

Food-grade L-isoleucine is an essential amino acid, meaning it cannot be synthesized by the human body and must be obtained through the diet. As a branched-chain amino acid (BCAA), L-isoleucine plays a crucial role in protein synthesis, muscle development, and energy production. It is a valuable component in various food and dietary supplement products, especially those designed for athletic and fitness purposes. Food-grade L-isoleucine undergoes stringent quality control measures to ensure its safety and effectiveness in various applications. Often found alongside other BCAAs like leucine and valine, L-isoleucine is incorporated into protein powders, energy bars, and sports nutrition formulations, contributing to the overall amino acid profile necessary for muscle health and performance optimization. Its inclusion in food-grade products caters to individuals looking to support their exercise routines and maintain a balanced amino acid intake.

### Other Names:

Isoleucine

2-Amino-3-methylvaleric acid

### Functionalities:

1.Muscle Protein Synthesis: L-Isoleucine is a branched-chain amino acid (BCAA) crucial for muscle protein synthesis, playing a key role in the growth, repair, and maintenance of muscle tissues.

2.Energy Source During Exercise: As a BCAA, L-Isoleucine serves as a source of energy during prolonged exercise. It helps support endurance, reduce muscle fatigue, and contribute to overall athletic performance.

3.Blood Sugar Regulation: L-Isoleucine is involved in glucose uptake and utilization, contributing to blood sugar regulation. This functionality can be beneficial for individuals managing blood glucose levels.

4.Nitrogen Balance: L-Isoleucine participates in maintaining nitrogen balance in the body, a crucial factor in overall protein metabolism and the synthesis of essential biomolecules.

5.Immune System Support: Some studies suggest that L-Isoleucine may have immune-modulating effects, contributing to a well-functioning immune system and supporting overall health.

### Applicable Industries:

1.Sports Nutrition: L-Isoleucine is a key component in sports nutrition supplements, including BCAA blends, pre-workout formulations, and intra-workout products, aiming to support muscle health, recovery, and exercise performance.

2.Dietary Supplements: L-Isoleucine is commonly included in dietary supplements for individuals seeking additional amino acid support, especially those with fitness and muscle-building goals.

3.Fitness and Wellness Products: Fitness enthusiasts and individuals focused on overall wellness can benefit from L-Isoleucine supplementation, supporting muscle health and recovery.

4.Pharmaceuticals: L-Isoleucine may find applications in pharmaceutical formulations for specific health conditions, including muscle wasting disorders and immune system support.

5.Functional Foods and Beverages: The food industry can incorporate L-Isoleucine into functional foods and beverages, providing a convenient and palatable way for consumers to obtain this essential amino acid.

## Creatine monohydrate

### Description:

Food-grade creatine monohydrate is a naturally occurring compound that plays a crucial role in energy metabolism, particularly during short bursts of intense physical activity. Widely recognized and utilized in the sports and fitness industry, creatine monohydrate is a popular dietary supplement for individuals aiming to enhance their athletic performance and support muscle strength. As a food-grade supplement, it undergoes rigorous quality control measures to ensure purity and safety. Creatine monohydrate works by replenishing adenosine triphosphate (ATP), the primary energy currency in cells, leading to improved strength, power, and recovery. It is commonly incorporated into sports nutrition products, protein powders, and functional foods, contributing to the development of formulations geared towards fitness enthusiasts and athletes seeking to optimize their exercise performance.

### Other Names:

Creatine

N-(Aminoiminomethyl)-N-methylglycine monohydrate

Methylguanidoacetic Acid Monohydrate

### Functionalities:

1.ATP Regeneration: Creatine Monohydrate is a key player in the regeneration of adenosine triphosphate (ATP), the primary energy currency of cells. Increased ATP availability supports enhanced energy during short bursts of intense exercise.

2.Muscle Strength and Power: By replenishing phosphocreatine stores in muscles, Creatine Monohydrate contributes to increased strength and power during high-intensity activities, such as weightlifting and sprinting.

3.Muscle Cell Hydration: Creatine Monohydrate draws water into muscle cells, leading to improved cell hydration. This may contribute to muscle fullness and support overall cellular function.

4.Exercise Performance: Supplementation with Creatine Monohydrate has been shown to improve exercise performance, especially in activities that involve short bursts of intense effort, making it a go-to supplement for athletes.

5.Recovery Support: Creatine Monohydrate may aid in faster recovery between bouts of exercise, allowing athletes to train more frequently and with higher intensity.

### Applicable Industries:

1.Sports Nutrition: Creatine Monohydrate is a fundamental ingredient in sports nutrition supplements, including pre-workout blends, post-workout formulations, and standalone creatine products aimed at supporting muscle strength and power.

2.Fitness and Bodybuilding: Widely embraced by fitness enthusiasts and bodybuilders, Creatine Monohydrate is a staple in regimens focused on muscle building, strength gains, and overall physical performance.

3.Dietary Supplements: Creatine Monohydrate is commonly included in dietary supplements catering to individuals seeking support for muscle health, athletic performance, and recovery.

4.Functional Foods and Beverages: The food industry can incorporate Creatine Monohydrate into functional foods and beverages, offering a convenient way for consumers to integrate creatine into their daily nutrition.

5.Pharmaceuticals: Creatine Monohydrate may find applications in pharmaceutical formulations, especially in products designed to address conditions related to muscle wasting and certain neuromuscular disorders.

## L-Malic acid

### Description:

Food-grade L-malic acid is a naturally occurring organic acid found in various fruits, particularly apples. As a food additive, L-malic acid is widely used in the food and beverage industry for its multifunctional properties. It serves as a tart and sour flavor enhancer, providing a crisp and tangy taste in various products, including candies, beverages, and fruit-flavored items. L-malic acid is also utilized as an acidulant and pH regulator, contributing to the stability and preservation of certain food formulations. Its inclusion in food-grade products is carefully regulated to meet quality and safety standards, ensuring its suitability for consumption. The versatility of food-grade L-malic acid makes it a valuable ingredient, enhancing the overall sensory experience of a wide range of food and beverage applications.

### Other Names:

Malic Acid

2-Hydroxybutanedioic Acid

Hydroxybutanedioic Acid

### Functionalities:

1.Acidulant: L-Malic Acid serves as an effective acidulant, contributing a sour and tangy taste to food and beverage products. It enhances the overall flavor profile and provides a crisp acidity that is desirable in various applications.

2.Flavor Enhancer:As a flavor enhancer, L-Malic Acid can improve the overall taste and palatability of products. It is often used to balance sweetness and mask undesirable flavors.

3.pH Regulation: L-Malic Acid plays a role in pH regulation, helping to maintain acidity levels in products. This is particularly important in the formulation of beverages, fruit juices, and certain processed foods.

4.Buffering Agent: L-Malic Acid acts as a buffering agent, helping to stabilize pH levels in products and prevent drastic fluctuations. This is essential for maintaining product quality and stability.

5.Natural Preservative: In some applications, L-Malic Acid may contribute to the preservation of certain food products. Its acidity can help inhibit the growth of spoilage microorganisms.

### Applicable Industries:

1.Food and Beverage: L-Malic Acid is widely used in the food and beverage industry, including the production of fruit-flavored beverages, candies, jellies, and other products where acidity and tartness are desired.

2.Bakery and Confectionery: In baking and confectionery, L-Malic Acid can be used to impart a tart flavor to products like sour candies, gummies, and certain baked goods.

3.Dairy and Desserts: L-Malic Acid finds applications in the dairy industry, contributing to the acidity of yogurt, fruit-flavored creams, and frozen desserts.

4.Nutraceuticals: L-Malic Acid may be included in nutraceutical products, offering a natural acidulant option for formulations that require acidity without the use of synthetic acids.

5.Pharmaceuticals: In the pharmaceutical industry, L-Malic Acid may be used in certain formulations where acidity and taste enhancement are considerations.

## N-Acetyl-L-cysteine(NAC)

### Description:

Food-grade N-Acetyl-L-cysteine (NAC) is a derivative of the amino acid L-cysteine and is widely used in the food and dietary supplement industry for its potential health benefits. NAC is valued for its role as a precursor to glutathione, a powerful antioxidant in the body that plays a crucial role in cellular protection and detoxification. With its ability to replenish glutathione levels, food-grade NAC is incorporated into formulations aiming to support immune function and overall antioxidant defenses. Additionally, NAC has been studied for its mucolytic properties, making it beneficial for respiratory health. It is carefully processed to meet food-grade standards, ensuring its safety and efficacy when used in various food products and nutritional supplements. The versatility and potential health-promoting properties of food-grade N-Acetyl-L-cysteine make it a sought-after ingredient in the development of products aimed at enhancing overall well-being.

### Other Names:

NAC

Acetylcysteine

N-Acetyl Cysteine

N-Acetylcysteine

### Functionalities:

1.Antioxidant Support: N-Acetyl-L-Cysteine is a powerful antioxidant that helps neutralize free radicals, protecting cells from oxidative stress. It supports overall cellular health and contributes to the body's natural defense mechanisms.

2.Glutathione Precursor: NAC is a precursor to glutathione, one of the body's most important antioxidants. By providing cysteine, a key component of glutathione, NAC supports the synthesis of this crucial antioxidant.

3.Respiratory Health: NAC has mucolytic properties, making it beneficial for respiratory health. It may help thin mucus, making it easier to clear from the airways, and is used in certain respiratory formulations.

4.Detoxification Support: N-Acetyl-L-Cysteine plays a role in detoxification processes, aiding in the removal of harmful substances from the body. It can support liver health and detoxification pathways.

5.Immune System Modulation: Some studies suggest that NAC may have immune-modulating effects, contributing to the regulation of the immune system and supporting immune function.

### Applicable Industries:

1.Dietary Supplements: N-Acetyl-L-Cysteine is commonly used in dietary supplements, particularly those focused on antioxidant support, respiratory health, and overall wellness.

2.Pharmaceuticals: NAC may find applications in pharmaceutical formulations, including respiratory medications, antioxidant therapies, and formulations addressing specific health conditions.

3.Nutraceuticals: NAC can be included in nutraceutical products, providing a natural solution for individuals seeking antioxidant support and overall health benefits.

4.Respiratory Formulations: NAC is often incorporated into formulations aimed at supporting respiratory health, including cough syrups, inhalation solutions, and supplements for lung support.

5.Detoxification Products: NAC is included in products designed to support detoxification and liver health, contributing to the removal of toxins from the body.

## L-Arginine nitrate

### Description:

Food-grade L-arginine nitrate is a compound derived from the amino acid L-arginine and nitric acid. It is a common ingredient in various food and beverage products, particularly those within the sports and fitness industry, due to its potential to enhance nitric oxide production in the body. Nitric oxide is a vasodilator that may improve blood flow and nutrient delivery to muscles. In food-grade formulations, L-arginine nitrate is carefully processed to meet quality standards, ensuring its safety and suitability for consumption. It is often incorporated into pre-workout supplements, energy drinks, and certain functional foods as a way to support athletic performance and cardiovascular health. The combination of L-arginine and nitrate in this compound makes it a popular choice for individuals looking to boost exercise endurance and promote overall well-being through their dietary choices.

### Other Names:

Arginine Nitrate

Nitric Oxide Precursor

### Functionalities:

1.Nitric Oxide Production: L-Arginine Nitrate serves as a precursor to nitric oxide, a molecule known for its vasodilatory effects. Nitric oxide helps relax blood vessels, promoting improved blood flow and circulation.

2.Vasodilation: The nitrate component in L-Arginine Nitrate enhances vasodilation, contributing to the widening of blood vessels. This can result in increased oxygen and nutrient delivery to tissues and muscles.

3.Cardiovascular Support: L-Arginine is recognized for its potential cardiovascular benefits, and the addition of nitrate further supports heart health by promoting healthy blood pressure levels and endothelial function.

4.Exercise Performance: Improved blood flow and vasodilation may contribute to enhanced exercise performance by delivering more oxygen and nutrients to working muscles. This can be beneficial for athletes and fitness enthusiasts.

5.Endurance Enhancement: L-Arginine Nitrate may contribute to improved endurance during physical activities by supporting efficient oxygen utilization and nutrient delivery to muscles.

### Applicable Industries:

1.Sports Nutrition: L-Arginine Nitrate is a key ingredient in sports nutrition supplements, including pre-workout formulations and nitric oxide boosters, aimed at supporting exercise performance, endurance, and muscle pump.

2.Dietary Supplements: L-Arginine Nitrate is commonly included in dietary supplements targeting cardiovascular health, circulatory support, and overall well-being.

3.Fitness and Bodybuilding: Fitness enthusiasts and bodybuilders often incorporate L-Arginine Nitrate into their regimens to support vasodilation, muscle pump, and exercise performance.

4.Cardiovascular Health Products: L-Arginine Nitrate can be featured in formulations addressing cardiovascular health, promoting healthy blood pressure levels, and supporting overall circulatory function.

5.Functional Foods and Beverages: The food industry can incorporate L-Arginine Nitrate into functional foods and beverages designed to provide cardiovascular and performance benefits in a convenient format.

## Taurine

### Product Description:

Food-grade taurine is a naturally occurring amino acid-like compound that is often included in various food and beverage products for its potential health benefits. While the human body can synthesize taurine, dietary sources contribute to its intake. Taurine is commonly found in foods like meat, fish, and dairy products. In the food industry, it is used as a functional ingredient in energy drinks, nutritional supplements, and certain functional foods. Taurine is recognized for its role in supporting cardiovascular health, bile salt formation, and antioxidative properties. As a food-grade supplement, taurine undergoes strict quality control measures to ensure its safety and efficacy. Its inclusion in food products reflects its versatility and the growing interest in promoting health and wellness through dietary choices.

### Other Names:

2-Aminoethanesulfonic acid

Tauric acid

### Functionalities:

1.Flavor Enhancement: Taurine contributes to a savory and umami flavor profile, making it an ideal addition to various food and beverage applications.

2.Energy Boost: Known for its energizing properties, Taurine can be a key component in energy drinks and functional beverages, providing a natural and sustained boost without the need for stimulants.

3.Antioxidant Properties: With its antioxidant capabilities, Taurine helps protect against oxidative stress, promoting overall health and wellness.

4.Cellular Development: Taurine plays a crucial role in cellular development and function, making it valuable for applications aimed at supporting growth and development.

5.Stabilization: Its stabilizing properties make Taurine an excellent choice for maintaining the integrity of certain formulations, particularly in the beverage industry.

### Applicable Industries:

1.Beverage Industry: Enhance the taste and functionality of energy drinks, functional beverages, and sports drinks with our Food Grade Taurine.

2.Food Manufacturing: Elevate the nutritional content of various food products, including snacks, nutrition bars, and functional foods, by incorporating Taurine.

3.Supplement and Nutraceuticals: Formulate high-quality supplements to support energy levels, cardiovascular health, and overall well-being with our premium Taurine.

4.Cosmetic Industry: Explore the use of Taurine in cosmetic formulations, benefiting from its antioxidant properties for skincare products.

## Inositol

### Product Description:

Food-grade inositol is a carbohydrate and essential nutrient often classified as a B-vitamin, although the body can synthesize it naturally. Recognized for its integral role in various physiological processes, including cell membrane structure, signal transduction, and lipid metabolism, inositol is found in many food sources such as fruits, beans, and grains. In the food industry, inositol is used as a food supplement and ingredient in a variety of products, including beverages, cereals, and nutritional supplements. It is valued not only for its potential health benefits, such as supporting mental health and mood regulation, but also for its functional properties in promoting overall well-being. Food-grade inositol is carefully processed to meet quality standards and is widely incorporated into formulations to enhance nutritional profiles and contribute to the development of health-conscious food products.

### Other Names:

myo-Inositol

### Functionalities:

1.Cellular Signaling: Inositol plays a crucial role in cellular signaling, contributing to various physiological processes and supporting overall cellular health.

2.Mood and Mental Well-Being: Known for its involvement in neurotransmitter function, Inositol may promote a positive mood and support mental well-being, making it a valuable addition to functional foods and supplements.

3.Liver Health: Inositol is linked to liver health, aiding in the metabolism of fats and supporting the liver's detoxification processes.

4.Cell Membrane Structure: As a key component of cell membranes, Inositol helps maintain cell structure and integrity, influencing cellular functions and interactions.

5.Blood Sugar Regulation: Inositol has been studied for its potential role in blood sugar regulation, making it an interesting ingredient for products targeting metabolic health.

### Applicable Industries:

1.Nutraceuticals and Dietary Supplements: Formulate high-quality supplements to support mental health, liver function, and overall well-being with our premium Food Grade Inositol.

2.Functional Foods: Enhance the nutritional profile of various food products, including energy bars, cereals, and health-focused snacks, by incorporating Inositol.

3.Beverage Industry: Create functional beverages that support mood and mental clarity, providing consumers with a refreshing and beneficial drink option.

4.Cosmetic Industry: Explore the use of Inositol in skincare formulations, benefiting from its potential to promote healthy skin.

## Glucosamine

### Product Description:

Food-grade glucosamine is a naturally occurring compound found in the exoskeletons of shellfish, as well as in some fungi. Widely recognized for its potential benefits in joint health, glucosamine is often used as a dietary supplement. It serves as a building block for the synthesis of glycosaminoglycans, essential components of cartilage and connective tissues. As a food-grade ingredient, glucosamine undergoes rigorous quality control measures to ensure its safety and efficacy. It is commonly included in formulations targeting joint support, arthritis management, and overall musculoskeletal well-being. While some sources of glucosamine may not be suitable for individuals with shellfish allergies, there are vegetarian alternatives like glucosamine sulfate derived from fungi. The popularity of food-grade glucosamine stems from its potential role in promoting joint flexibility, reducing inflammation, and contributing to overall joint health.

### Other Names:

/

### Functionalities:

Glucosamine plays a crucial role in the synthesis of proteoglycans and hyaluronic acid, which contribute to the structure and lubrication of joints. It is believed to promote the regeneration of damaged cartilage and inhibit the progression of joint-related disorders. Additionally, glucosamine possesses anti-inflammatory properties that can help alleviate joint pain and discomfort.

### Applicable Industries:

1.Dietary Supplements: Glucosamine is a prevalent ingredient in dietary supplements targeted at promoting joint health and addressing conditions like arthritis.

2.Pharmaceuticals: In pharmaceutical formulations, glucosamine may be utilized in medications designed to manage joint disorders.

3.Functional Foods: Glucosamine is incorporated into certain food products, such as fortified beverages and snacks, catering to consumers seeking joint support through their regular diet.

# ****Feed grade amino acids****

## L-Methionine

### Product Description:

Feed grade L-Methionine stands as a crucial amino acid supplement in animal nutrition, notably in the feed industry. As an essential amino acid, L-Methionine plays a pivotal role in protein synthesis, supporting optimal growth, promoting tissue development, and ensuring overall metabolic function in livestock and poultry. Its indispensability arises from the fact that animals cannot synthesize it internally, necessitating its inclusion in their diets. Beyond its role in protein formation, L-Methionine serves as a primary source of sulfur, contributing to the synthesis of other essential sulfur-containing amino acids. The supplementation of animal feeds with L-Methionine is known to enhance growth rates, improve feed efficiency, and bolster the animals' immune systems. This amino acid is particularly crucial in diets where natural feed ingredients may lack sufficient methionine levels, ensuring balanced nutrition and fostering the health and productivity of various animal species.

### Other Names:

Methionine

L-Met

### Functionalities:

1.Protein Synthesis Support: L-Methionine is an indispensable amino acid that serves as a building block for protein synthesis in animals. It plays a vital role in the formation of proteins necessary for growth, muscle development, and overall tissue maintenance.

2.Feather and Coat Health: In poultry and livestock, L-Methionine contributes to the development of healthy feathers and coats. It is particularly essential in supporting the growth of feathers and maintaining the quality of fur or wool in various animals.

3.Optimal Growth and Performance: Supplementing animal feeds with L-Methionine ensures that animals receive the necessary amino acids for optimal growth, efficient metabolism, and improved overall performance.

4.Nutritional Balance: L-Methionine is often added to animal feeds to achieve a well-balanced amino acid profile. It complements other amino acids, helping to meet the specific nutritional requirements of different animal species.

5.Egg Production in Poultry: For poultry, L-Methionine is crucial in egg production, supporting the synthesis of proteins essential for the development of egg whites and yolks. It contributes to improved egg quality and hatchability.

### Applicable Industries:

1.Poultry Farming: Feed Grade L-Methionine is extensively used in poultry feeds to ensure optimal growth rates, feather quality, and egg production in broilers, layers, and breeders.

2.Livestock Farming: Incorporate L-Methionine into feeds for cattle, swine, and other livestock to support muscle development, overall growth, and health.

3.Aquaculture: Utilize L-Methionine in aquafeed formulations for fish and shrimp farming to enhance protein synthesis, growth, and overall nutritional content.

4.Animal Nutrition: L-Methionine is a valuable component in formulating balanced and nutritionally complete feeds for various animal species, ensuring they receive essential amino acids for optimal health and productivity.

5.Pet Food Industry: In the production of pet foods, L-Methionine is used to support the nutritional needs of dogs and cats, promoting healthy skin, coat, and overall well-being.

## L-Threonine

### Product Description:

Feed grade L-Threonine is a crucial amino acid supplement extensively utilized in animal nutrition, particularly in the feed industry. As an essential amino acid, L-Threonine plays a vital role in protein synthesis, promoting optimal growth, maintaining tissue integrity, and supporting various metabolic functions in livestock and poultry. Its significance lies in being a building block for proteins essential for muscle development and overall health. By supplementing animal feeds with L-Threonine, nutritional imbalances are addressed, leading to improved feed efficiency, enhanced weight gain, and better utilization of dietary protein. Additionally, L-Threonine contributes to immune function, disease resistance, and, in the case of poultry, positively impacts feather quality, making it an indispensable component for ensuring the well-being and productivity of various animal species.

### Other Names:

Threonine

L-Thr

### Functionalities:

1.Protein Synthesis Support: L-Threonine is an essential amino acid that serves as a crucial component in protein synthesis. It is involved in the formation of proteins vital for muscle development, tissue maintenance, and overall growth in animals.

2.Gut Health: L-Threonine is known for its positive impact on gut health. It helps maintain the integrity of the intestinal mucosa, supporting proper digestion and absorption of nutrients in animals.

3.Immune System Support: Supplementing animal feeds with L-Threonine contributes to the development and maintenance of a robust immune system in livestock and poultry, helping animals better resist diseases.

4.Feather Quality in Poultry: For poultry, L-Threonine is essential for the production of keratin, a protein that contributes to the development of high-quality feathers. It plays a role in feather growth and maintenance.

5.Optimal Performance: L-Threonine is a limiting amino acid in many animal diets, and its supplementation ensures a balanced amino acid profile, promoting optimal growth rates, feed efficiency, and overall performance.

### Applicable Industries:

1.Poultry Farming: Feed Grade L-Threonine is widely used in poultry feeds to support the growth and performance of broilers, layers, and breeders, with a specific focus on feather quality and egg production.

2.Livestock Farming: Incorporate L-Threonine into feeds for cattle, swine, and other livestock to enhance protein synthesis, overall growth, and immune system function.

3.Aquaculture: Utilize L-Threonine in aquafeed formulations for fish and shrimp farming to improve protein utilization, growth rates, and overall health.

4.Animal Nutrition: L-Threonine is a valuable component in formulating balanced and nutritionally complete feeds for various animal species, ensuring they receive essential amino acids for optimal health and productivity.

5.Pet Food Industry: In the production of pet foods, L-Threonine is used to meet the amino acid requirements of dogs and cats, supporting their overall well-being and health.

## L-Lysine

### Product Description:

Feed grade L-Lysine is a vital amino acid supplement extensively utilized in animal nutrition, especially in the feed industry. As an essential amino acid, L-Lysine plays a fundamental role in protein synthesis, supporting optimal growth, muscle development, and overall metabolic functions in livestock and poultry. Its significance lies in being a limiting amino acid in many animal diets, and its supplementation is essential for addressing nutritional imbalances. L-Lysine is particularly valuable in diets based on plant proteins, where natural sources may be deficient in this essential amino acid. The inclusion of feed grade L-Lysine helps enhance the amino acid profile of feeds, improving feed efficiency, promoting weight gain, and supporting the overall health and productivity of various animal species.

### Other Names:

Lysine

### Functionalities:

1.Protein Synthesis Support: L-Lysine is an indispensable amino acid that serves as a fundamental building block for protein synthesis. It plays a crucial role in the development of muscles, tissues, and enzymes essential for growth.

2.Optimal Growth Rates: Supplementing animal feeds with L-Lysine ensures that animals receive the necessary amino acids for optimal growth rates, improved feed efficiency, and enhanced overall performance.

3.Protein Quality Improvement: L-Lysine is often used to complement other protein sources in feed formulations, enhancing the overall protein quality and ensuring that animals receive a well-balanced amino acid profile.

4.Nutrient Utilization: L-Lysine aids in the efficient utilization of other essential nutrients, promoting better absorption of minerals and vitamins in the digestive system of animals.

5.Immune System Support: L-Lysine contributes to immune system function, helping animals better resist infections and diseases. It plays a role in the production of antibodies and supports overall immune health.

### Applicable Industries:

1.Poultry Farming: Feed Grade L-Lysine is extensively used in poultry feeds, especially for broilers, layers, and breeders, to support optimal growth, feather development, and egg production.

2.Livestock Farming: Incorporate L-Lysine into feeds for cattle, swine, and other livestock to enhance protein synthesis, overall growth, and performance.

3.Aquaculture: Utilize L-Lysine in aquafeed formulations for fish and shrimp farming to improve protein utilization, growth rates, and overall health.

4.Animal Nutrition: L-Lysine is a valuable component in formulating balanced and nutritionally complete feeds for various animal species, ensuring they receive essential amino acids for optimal health and productivity.

5.Pet Food Industry: In the production of pet foods, L-Lysine is used to meet the amino acid requirements of dogs and cats, supporting their growth, immune system, and overall well-being.

## L-Tryptophan

### Product Description:

Feed grade L-Tryptophan is a crucial amino acid supplement in animal nutrition, particularly in the feed industry. Recognized as an essential amino acid, L-Tryptophan plays a vital role in protein synthesis, supporting optimal growth, immunity, and overall metabolic functions in livestock and poultry. Its significance arises from being a precursor to serotonin and melatonin, neurotransmitters involved in regulating mood, sleep, and stress response. As animals cannot synthesize L-Tryptophan internally, its inclusion in their diets becomes essential. The supplementation of feed with L-Tryptophan is known to improve the overall amino acid profile, enhance feed efficiency, and positively impact animal behavior and stress management. This amino acid serves as a key component in ensuring balanced nutrition, contributing to the well-being and productivity of various animal species.

### Other Names:

Tryptophan

### Functionalities:

1.Protein Synthesis Support: L-Tryptophan is an indispensable amino acid that serves as a key building block for protein synthesis. It contributes to the formation of proteins essential for muscle development, tissue repair, and overall growth.

2.Serotonin Production: L-Tryptophan is a precursor to serotonin, a neurotransmitter that plays a crucial role in regulating mood, appetite, and sleep in animals. Supplementing with L-Tryptophan may positively influence behavior and stress responses.

3.Stress Reduction: L-Tryptophan is known for its potential to alleviate stress and anxiety in animals. It has calming effects and may contribute to improved adaptability in stressful conditions.

4.Immune System Support: L-Tryptophan is involved in supporting immune function, aiding in the production of antibodies and contributing to the overall health and resilience of animals.

5.Feed Palatability: L-Tryptophan can enhance the palatability of feed formulations, making them more appealing to animals and encouraging consistent and adequate intake.

### Applicable Industries:

1.Poultry Farming: Feed Grade L-Tryptophan is commonly used in poultry feeds, particularly for broilers, layers, and breeders, to support optimal growth, stress resilience, and overall well-being.

2.Livestock Farming: Incorporate L-Tryptophan into feeds for cattle, swine, and other livestock to enhance protein synthesis, immune function, and stress management.

3.Aquaculture: Utilize L-Tryptophan in aquafeed formulations for fish and shrimp farming to support growth, immune health, and stress reduction.

4.Animal Nutrition: L-Tryptophan is a valuable component in formulating balanced and nutritionally complete feeds for various animal species, ensuring they receive essential amino acids for optimal health and productivity.

5.Pet Food Industry: In the production of pet foods, L-Tryptophan is used to meet the amino acid requirements of dogs and cats, supporting their overall well-being, behavior, and stress management.

## L-leucine

### Product Description:

Feed grade L-Leucine is a pivotal amino acid supplement in animal nutrition, particularly in the feed industry. As an essential amino acid, L-Leucine plays a crucial role in protein synthesis, promoting optimal growth, muscle development, and overall metabolic functions in livestock and poultry. Its significance lies in being one of the branched-chain amino acids (BCAAs), essential for supporting various physiological processes. L-Leucine, which animals cannot synthesize internally, must be supplied through their diet. The inclusion of feed grade L-Leucine contributes to improving the overall amino acid profile, enhancing protein utilization, and supporting the overall health and productivity of various animal species.

### Other Names:

Leucine

### Functionalities:

1.Protein Synthesis Support: L-Leucine is a branched-chain amino acid (BCAA) that acts as a key stimulator of protein synthesis. It plays a critical role in the formation of muscle proteins, supporting muscle development and overall growth.

2.Muscle Maintenance: L-Leucine is crucial for maintaining muscle mass in animals. It helps preserve muscle tissue during periods of stress, growth, and metabolic changes, contributing to overall muscle health.

3.Energy Metabolism: L-Leucine plays a role in energy metabolism, influencing the utilization of nutrients for energy production. It contributes to efficient energy use and may enhance performance in livestock and poultry.

4.Stress Response: L-Leucine has been associated with stress resilience in animals. Supplementing with L-Leucine may aid in mitigating the impact of stressors and promoting adaptability.

5.Immune System Support: L-Leucine is involved in supporting immune function, contributing to the production of antibodies and enhancing the overall immune response in animals.

### Applicable Industries:

1.Poultry Farming: Feed Grade L-Leucine is commonly used in poultry feeds, including broilers, layers, and breeders, to support muscle development, growth, and stress resilience.

2.Livestock Farming: Incorporate L-Leucine into feeds for cattle, swine, and other livestock to enhance protein synthesis, muscle maintenance, and overall growth.

3.Aquaculture: Utilize L-Leucine in aquafeed formulations for fish and shrimp farming to support muscle development, energy metabolism, and stress resistance.

4.Animal Nutrition: L-Leucine is a valuable component in formulating balanced and nutritionally complete feeds for various animal species, ensuring they receive essential amino acids for optimal health and productivity.

5.Pet Food Industry: In the production of pet foods, L-Leucine is used to meet the amino acid requirements of dogs and cats, supporting their muscle development, energy levels, and overall well-being.

## L-isoleucine

### Product Description:

Feed grade L-Isoleucine is a crucial amino acid supplement in animal nutrition, particularly in the feed industry. As an essential branched-chain amino acid (BCAA), L-Isoleucine plays a fundamental role in protein synthesis, supporting optimal growth, muscle development, and overall metabolic functions in livestock and poultry. Its significance arises from being indispensable for various physiological processes that contribute to the well-being of animals. Since animals cannot synthesize L-Isoleucine internally, its inclusion in their diets becomes essential. The supplementation of feed with L-Isoleucine is known to enhance the overall amino acid profile, promote protein utilization, and support the health and productivity of various animal species.

### Other Names:

Isoleucine

### Functionalities:

1.Protein Synthesis Support: L-Isoleucine is a key component in protein synthesis, contributing to the formation of muscle proteins and supporting overall muscle development in animals.

2.Energy Metabolism: As a branched-chain amino acid, L-Isoleucine is involved in energy metabolism. It plays a role in glucose uptake and utilization, helping animals efficiently convert nutrients into energy.

3.Muscle Maintenance: L-Isoleucine is essential for maintaining muscle mass in animals. It aids in preserving muscle tissue during periods of stress, growth, and metabolic changes, contributing to overall muscle health.

4.Stress Response: L-Isoleucine has been associated with stress resilience in animals. Supplementing with L-Isoleucine may help mitigate the impact of stressors and promote adaptability.

5.Immune System Support: L-Isoleucine contributes to supporting the immune system, participating in the synthesis of antibodies and enhancing the overall immune response in animals.

### Applicable Industries:

1.Poultry Farming: Feed Grade L-Isoleucine is commonly used in poultry feeds, including broilers, layers, and breeders, to support muscle development, growth, and stress resilience.

2.Livestock Farming: Incorporate L-Isoleucine into feeds for cattle, swine, and other livestock to enhance protein synthesis, muscle maintenance, and overall growth.

3.Aquaculture: Utilize L-Isoleucine in aquafeed formulations for fish and shrimp farming to support muscle development, energy metabolism, and stress resistance.

4.Animal Nutrition: L-Isoleucine is a valuable component in formulating balanced and nutritionally complete feeds for various animal species, ensuring they receive essential amino acids for optimal health and productivity.

5.Pet Food Industry: In the production of pet foods, L-Isoleucine is used to meet the amino acid requirements of dogs and cats, supporting their muscle development, energy levels, and overall well-being.

## L-valine

### Product Description:

Feed grade L-Valine is a crucial amino acid supplement in animal nutrition, especially in the feed industry. As an essential branched-chain amino acid (BCAA), L-Valine plays a fundamental role in protein synthesis, supporting optimal growth, muscle development, and overall metabolic functions in livestock and poultry. Its significance lies in being one of the building blocks for proteins essential for various physiological processes. Given that animals cannot synthesize L-Valine internally, its inclusion in their diets is essential. The supplementation of feed with L-Valine is known to enhance the overall amino acid profile, promote protein utilization, and contribute to the health and productivity of various animal species.

### Other Names:

Valine

### Functionalities:

1.Protein Synthesis Support: L-Valine is a key contributor to protein synthesis, playing a crucial role in the formation of muscle proteins and supporting overall muscle development in animals.

2.Energy Metabolism: As a branched-chain amino acid, L-Valine participates in energy metabolism. It aids in glucose uptake and utilization, contributing to efficient energy production and utilization in animals.

3.Muscle Maintenance: L-Valine is essential for maintaining muscle mass in animals. It helps preserve muscle tissue during periods of stress, growth, and metabolic changes, contributing to overall muscle health.

4.Stress Response: L-Valine has been associated with stress resilience in animals. Supplementing with L-Valine may help mitigate the impact of stressors and support adaptability.

5.Immune System Support: L-Valine contributes to supporting the immune system, participating in the synthesis of antibodies and enhancing the overall immune response in animals.

### Applicable Industries:

1.Poultry Farming: Feed Grade L-Valine is commonly used in poultry feeds, including broilers, layers, and breeders, to support muscle development, growth, and stress resilience.

2.Livestock Farming: Incorporate L-Valine into feeds for cattle, swine, and other livestock to enhance protein synthesis, muscle maintenance, and overall growth.

3.Aquaculture: Utilize L-Valine in aquafeed formulations for fish and shrimp farming to support muscle development, energy metabolism, and stress resistance.

4.Animal Nutrition: L-Valine is a valuable component in formulating balanced and nutritionally complete feeds for various animal species, ensuring they receive essential amino acids for optimal health and productivity.

5.Pet Food Industry: In the production of pet foods, L-Valine is used to meet the amino acid requirements of dogs and cats, supporting their muscle development, energy levels, and overall well-being.

# Prebiotic

## human milk oligosaccharides (HMO)

### Product Description:

Human milk oligosaccharides (HMOs) are complex carbohydrates naturally found in human breast milk. Comprising a diverse and unique group of over 200 structures, HMOs play a crucial role in supporting the health and development of infants. While not directly digestible by the infant, HMOs serve as prebiotics, promoting the growth of beneficial bacteria in the infant's gut, which is vital for the development of a healthy microbiome. Additionally, HMOs have been associated with various health benefits, including immune system support and protection against pathogens. The composition of HMOs in breast milk is dynamic, adapting to the specific needs of the infant at different stages of development. Recognizing the importance of HMOs, there is ongoing research to replicate their structures in infant formula, aiming to provide non-breastfed infants with some of the unique benefits associated with breast milk consumption.

### Other Names:

HMOs

### Functionalities:

1.Immune Support: Human Milk Oligosaccharides are renowned for their ability to support and modulate the immune system, contributing to overall health and wellness.

2.Prebiotic Properties: As prebiotics, HMOs nourish and promote the growth of beneficial bacteria in the gut, fostering a healthy and balanced gut microbiome.

3.Digestive Health: HMOs play a crucial role in promoting digestive health by supporting the development of a robust gastrointestinal system.

4.Cognitive Development: Some studies suggest a potential role of HMOs in cognitive development, making them a compelling addition to products targeting brain health.

5.Anti-Adhesive Properties: HMOs have anti-adhesive properties, helping to prevent the adhesion of harmful pathogens to the gut lining.

### Applicable Industries:

1.Infant Formula: Enhance the nutritional profile of infant formula by incorporating Food Grade HMOs to mimic the benefits of breast milk, supporting the health and development of newborns.

2.Functional Foods: Create innovative functional foods, such as nutritional bars, cereals, and snacks, by adding HMOs to offer immune and digestive health benefits.

3.Dietary Supplements: Formulate high-quality dietary supplements that support gut health, immune function, and overall well-being with the inclusion of HMOs.

4.Beverage Industry: Innovate in the beverage sector by incorporating HMOs into drinks, promoting gut health and providing an added layer of functional benefits.

## iso-malto-oligosaccharide(IMO)

### Product Description:

Iso-malto-oligosaccharides (IMO) are a group of prebiotic carbohydrates derived from starch through enzymatic hydrolysis and isomerization processes. With a molecular structure comprising glucose units linked by alpha-1,6 and alpha-1,4 glycosidic bonds, IMO is known for its resistance to digestion in the upper gastrointestinal tract. This resistance allows it to reach the colon intact, where it serves as a substrate for beneficial gut bacteria, promoting their growth and activity. IMO is recognized for its low-calorie content, mildly sweet taste, and prebiotic properties, making it a popular ingredient in functional foods, dietary supplements, and low-calorie products. It is often used to enhance the fiber content of food products while contributing to improved taste and texture. Additionally, IMO has gained attention for its potential to support digestive health and overall well-being by fostering a balanced gut microbiota.

### Other Names:

IMO (Isomalto-oligosaccharide)

### Functionalities:

1.Low Glycemic Index Sweetener: Iso-Malto-Oligosaccharide serves as a low glycemic index sweetener, making it an ideal choice for products catering to individuals seeking blood sugar control and a sustained energy release.

2.Prebiotic Properties: With its prebiotic characteristics, Iso-Malto-Oligosaccharide supports the growth of beneficial bacteria in the gut, contributing to a healthy and balanced digestive system.

3.Texture Enhancement: This ingredient improves the texture of various food products, including baked goods, confectionery, and dairy, providing a smooth and pleasant mouthfeel.

4.Stabilizing Agent: Iso-Malto-Oligosaccharide acts as a stabilizing agent, enhancing the shelf life and structural integrity of certain formulations.

5.Caloric Reduction: As a lower-calorie sweetener, Iso-Malto-Oligosaccharide allows for the creation of reduced-calorie products without compromising on sweetness.

### Applicable Industries:

1.Confectionery: Elevate the taste and texture of chocolates, candies, and gummies with the sweetness and functional benefits of Iso-Malto-Oligosaccharide.

2.Bakery: Improve the texture and sweetness of baked goods, such as cookies, cakes, and pastries, while offering a lower glycemic impact.

3.Dairy Products: Enhance the mouthfeel and sweetness of dairy-based products like yogurt, ice cream, and milk beverages with the inclusion of Iso-Malto-Oligosaccharide.

4.Beverage Industry: Innovate in the beverage sector by incorporating Iso-Malto-Oligosaccharide into drinks, providing a sweet and functional solution for health-conscious consumers.

5.Functional Foods: Formulate nutrition bars, energy bars, and other functional foods with Iso-Malto-Oligosaccharide to add sweetness, texture, and prebiotic benefits.

## Fructooligosaccharides(FOS)

### Product Description:

Fructooligosaccharides (FOS) are naturally occurring, plant-derived carbohydrates known for their prebiotic properties and potential health benefits. Comprising short chains of fructose molecules, FOS serves as a selectively fermentable substrate for beneficial gut bacteria, promoting their growth and activity in the colon. Found in various fruits and vegetables such as bananas, onions, and asparagus, FOS is recognized for its ability to stimulate the growth of probiotics, particularly bifidobacteria. As a prebiotic, FOS contributes to the maintenance of a healthy gut microbiota, supporting digestive health and potentially enhancing the absorption of certain minerals. FOS is commonly used as an ingredient in functional foods, dietary supplements, and health-promoting products due to its sweet taste, low-calorie content, and positive impact on gut flora.

### Other Names:

FOS

Oligofructose

### Functionalities:

1.Prebiotic Powerhouse: Fructooligosaccharides serve as potent prebiotics, nourishing and promoting the growth of beneficial gut bacteria. This contributes to a healthy and balanced digestive system.

2.Low-Calorie Sweetener: With a sweet taste and lower caloric content compared to traditional sugars, FOS is an excellent choice for those seeking sweetness without excess calories.

3.Blood Sugar Regulation: FOS has a low glycemic index, making it a suitable option for individuals managing blood sugar levels.

4.Texture Enhancement: FOS enhances the texture and mouthfeel of various food products, including beverages, dairy, and baked goods, providing a pleasant and indulgent experience.

5.Flavor Enhancer: FOS has a natural sweetness that enhances the overall flavor profile of products, allowing for a reduction in the use of traditional sugars without compromising taste.

### Applicable Industries:

1.Functional Foods: Incorporate Food Grade Fructooligosaccharides into nutrition bars, granola, and other health-focused snacks to offer sweetness and digestive health benefits.

2.Beverage Industry: Enhance the sweetness and functionality of beverages, including juices, smoothies, and functional drinks, by incorporating FOS.

3.Dairy Products: Improve the texture and sweetness of yogurt, ice cream, and milk-based products with the inclusion of Fructooligosaccharides.

4.Bakery: Formulate healthier baked goods, such as cookies, cakes, and bread, by using FOS to provide sweetness and improve texture.

5.Nutraceuticals and Dietary Supplements: Create high-quality supplements that support digestive health with the inclusion of FOS, catering to the growing demand for gut-friendly products.

## Galactooligosaccharides(GOS)

### Product Description:

Galactooligosaccharides (GOS) are a group of naturally occurring carbohydrates composed of short chains of galactose molecules. Recognized for their prebiotic properties, GOS serves as a selectively fermentable substrate for beneficial gut bacteria, particularly bifidobacteria, promoting their growth and activity in the colon. GOS is naturally present in certain foods like legumes and human breast milk. As a prebiotic, GOS contributes to the development of a healthy gut microbiota, supporting digestive health and potentially enhancing the body's natural defenses. Due to their positive impact on gut flora and the potential health benefits associated with prebiotics, GOS is often used as an ingredient in functional foods, dietary supplements, and infant formulas. It is valued for its ability to provide health-promoting effects while also serving as a mild sweetener in various applications.

### Other Names:

GOS

### Functionalities:

1.Prebiotic Support: Galactooligosaccharides serve as effective prebiotics, fostering the growth of beneficial gut bacteria and supporting a healthy digestive system.

2.Immune System Boost: GOS has been associated with immune system modulation, contributing to overall well-being and health.

3.Low-Calorie Sweetener: As a low-calorie sweetener, GOS provides sweetness without the excess calories, making it an ideal choice for those seeking healthier alternatives.

4.Texture Enhancement: GOS enhances the texture and mouthfeel of various food products, including dairy, baked goods, and confectionery, providing a delightful sensory experience.

5.Lactose Intolerance Support: GOS can be beneficial for individuals with lactose intolerance, as it aids in the digestion of lactose and improves overall digestive comfort.

### Applicable Industries:

1.Dairy Products: Improve the texture and sweetness of yogurt, milk beverages, and ice cream with the inclusion of Food Grade Galactooligosaccharides.

2.Bakery: Formulate healthier baked goods, such as cookies, cakes, and bread, by incorporating GOS to provide sweetness and enhance texture.

3.Confectionery: Elevate the sweetness and mouthfeel of chocolates, candies, and gummies with the health benefits of Galactooligosaccharides.

4.Functional Foods: Add GOS to nutrition bars, granola, and other health-focused snacks to offer sweetness and digestive health benefits.

5.Beverage Industry: Enhance the sweetness and functionality of beverages, including smoothies, shakes, and functional drinks, by incorporating GOS.

## xylo-oligosaccharides(XOS)

### Product Description:

Xylo-oligosaccharides (XOS) are a class of prebiotic fibers derived from the enzymatic hydrolysis of xylan, a hemicellulose present in plant cell walls. Comprising short chains of xylose molecules, XOS are resistant to digestion in the upper gastrointestinal tract and reach the colon intact, where they serve as a substrate for beneficial gut bacteria. Recognized for their prebiotic properties, XOS selectively stimulate the growth and activity of probiotics, particularly bifidobacteria. Found naturally in certain fruits, vegetables, and plant-based materials, XOS is increasingly utilized as an ingredient in functional foods and dietary supplements. Its prebiotic effects contribute to the maintenance of a balanced gut microbiota, supporting digestive health and potentially conferring additional health benefits. XOS is valued for its ability to enhance the fiber content of products while offering a mild sweetness, making it suitable for a variety of applications in the food and beverage industry.

### Other Names:

XOS

### Functionalities:

1.Prebiotic Powerhouse: Xylo-Oligosaccharides act as potent prebiotics, promoting the growth of beneficial bacteria in the gut, supporting digestive health, and contributing to a balanced microbiome.

2.Low-Calorie Sweetener: With a naturally sweet taste and low caloric content, XOS provides an excellent alternative to traditional sugars, catering to health-conscious consumers seeking reduced-calorie options.

3.Blood Sugar Management: XOS has a low glycemic index, making it a suitable choice for individuals managing blood sugar levels.

4.Texture Enhancement: Xylo-Oligosaccharides enhance the texture and mouthfeel of various food products, including beverages, dairy, and baked goods, providing a pleasant and indulgent experience.

5.Dental Health Support: Some studies suggest that XOS may contribute to dental health by promoting the growth of beneficial oral bacteria and inhibiting harmful bacteria.

### Applicable Industries:

1.Beverage Industry: Enhance the sweetness and functionality of beverages, including juices, smoothies, and functional drinks, by incorporating Food Grade Xylo-Oligosaccharides.

2.Dairy Products: Improve the texture and sweetness of yogurt, milk beverages, and ice cream with the inclusion of XOS.

3.Bakery: Formulate healthier baked goods, such as cookies, cakes, and bread, by using Xylo-Oligosaccharides to provide sweetness and improve texture.

4.Functional Foods: Add XOS to nutrition bars, granola, and other health-focused snacks to offer sweetness and digestive health benefits.

5.Confectionery: Elevate the sweetness and mouthfeel of chocolates, candies, and gummies with the health benefits of Xylo-Oligosaccharides.

# ****Sweetener****

## Erythritol

### Product Description:

Erythritol is a natural sugar alcohol that has gained popularity as a low-calorie sweetener and sugar substitute. Produced through the fermentation of glucose by certain yeasts, erythritol possesses a sweetness similar to sugar but with virtually no calories and a minimal impact on blood sugar levels. As a polyol, it is well-tolerated by individuals with diabetes and does not contribute to tooth decay. Erythritol is commonly used in the food and beverage industry as a sugar alternative, providing a sweet taste without the caloric content. Its cooling effect, similar to mint, is an additional characteristic that makes it suitable for various applications, including sugar-free candies, beverages, and baked goods. Erythritol's growing popularity is attributed to its natural origin, low calorie count, and favorable taste profile, making it a prominent choice for those seeking reduced-calorie and sugar-free options.

### Other Names:

/

### Functionalities:

1.Zero-Calorie Sweetener: Erythritol offers the sweetness of sugar without the calories, making it an excellent choice for individuals looking to reduce calorie intake while enjoying sweetened products.

2.Dental Health Support: Erythritol does not contribute to tooth decay, making it tooth-friendly and suitable for dental health-conscious consumers.

3.Low Glycemic Index: With a low glycemic index, Erythritol has minimal impact on blood sugar levels, making it a suitable option for those monitoring their blood sugar.

4.Texture Enhancement: Erythritol enhances the texture and mouthfeel of various food products, including beverages, baked goods, and confectionery, providing a pleasant sensory experience.

5.Sugar Alcohol: As a sugar alcohol, Erythritol is well-tolerated by most individuals and is less likely to cause digestive discomfort compared to some other sugar alcohols.

### Applicable Industries:

1.Bakery: Formulate sugar-free or reduced-sugar baked goods, such as cookies, cakes, and pastries, with Erythritol to provide sweetness without the extra calories.

2.Confectionery: Create sugar-free or low-sugar chocolates, candies, and gummies with the sweetness and texture enhancement of Food Grade Erythritol.

3.Beverage Industry: Enhance the sweetness and palatability of beverages, including diet sodas, flavored waters, and sugar-free drinks, by incorporating Erythritol.

4.Dietary Supplements: Formulate sugar-free or low-calorie dietary supplements, such as vitamins or protein powders, using Erythritol as a sweetening agent.

5.Health-Conscious Snacks: Incorporate Erythritol into health-focused snacks, nutrition bars, and granola, providing a sweet taste without added sugars.

## Allulose

### Product Description:

Allulose, a low-calorie sweetener, has garnered attention for its ability to mimic the taste and texture of sugar while providing minimal calories. Classified as a rare sugar, it occurs naturally in small quantities in certain fruits and foods. Allulose is unique in that it is not metabolized by the body in the same way as traditional sugars, contributing negligible calories and having little to no impact on blood glucose levels. Known for its clean, sugar-like taste without the associated caloric load, allulose is increasingly used in the food industry as a sugar substitute in various products, including beverages, baked goods, and confectionery. Its properties make it suitable for individuals managing their calorie intake or those with diabetes, and its versatility as a sweetener continues to make it a popular choice in formulating reduced-sugar and low-calorie food options.

### Other Names:

D-psicose

### Functionalities:

1.Low-Calorie Sweetener: Allulose provides the sweetness of traditional sugars with only a fraction of the calories, making it an excellent option for individuals aiming to reduce calorie intake.

2.Low Glycemic Index: With a low glycemic index, Allulose has minimal impact on blood sugar levels, making it suitable for those monitoring their blood sugar.

3.Dental Health Support: Allulose does not contribute to tooth decay, promoting dental health and making it an attractive option for oral care-conscious consumers.

4.Texture Enhancement: Allulose enhances the texture and mouthfeel of various food products, including baked goods, frozen desserts, and beverages, providing a satisfying sensory experience.

5.Sugar Replacement: Allulose can be used as a one-to-one sugar replacement in many recipes, allowing for the creation of low-calorie and sugar-reduced versions of favorite treats.

### Applicable Industries:

1.Bakery: Formulate sugar-reduced or low-calorie baked goods, such as cakes, cookies, and muffins, with the natural sweetness of Allulose.

2.Frozen Desserts: Create indulgent and lower-calorie ice creams, sorbets, and frozen treats using Allulose to achieve sweetness without the added sugars.

3.Beverage Industry: Enhance the sweetness of beverages, including sodas, teas, and flavored waters, by incorporating Food Grade Allulose.

4.Confectionery: Craft sugar-free or reduced-sugar chocolates, candies, and gummies with the delightful sweetness and texture enhancement of Allulose.

5.Health-Conscious Snacks: Incorporate Allulose into nutrition bars, granola, and other health-focused snacks, providing a satisfying sweetness without compromising on health goals.

## Xylitol

### Product Description:

Xylitol is a sugar alcohol derived from birch wood, corn cobs, or other plant materials. Known for its natural sweetness and crystalline structure, xylitol has gained popularity as a sugar substitute due to its lower calorie content and oral health benefits. Unlike traditional sugars, xylitol does not metabolize into acids in the mouth, making it a tooth-friendly sweetener that helps prevent cavities and promotes dental health. It has a similar sweetness to sucrose but with fewer calories, making it a common ingredient in sugar-free and reduced-calorie products such as chewing gum, candies, and baked goods. Additionally, xylitol has a low glycemic index, making it suitable for individuals managing their blood sugar levels. With its versatility, pleasant taste, and dental benefits, xylitol continues to be a popular choice for those seeking healthier sugar alternatives.

### Other Names:

Xylite

### Functionalities:

1.Low-Calorie Sweetener: Xylitol offers a sweet taste with approximately 40% fewer calories than traditional sugars, making it a favorable choice for those watching their calorie intake.

2.Dental Health Support: Xylitol has been shown to promote dental health by inhibiting the growth of harmful bacteria in the mouth, reducing the risk of tooth decay and cavities.

3.Low Glycemic Index: With a low glycemic index, Xylitol has minimal impact on blood sugar levels, making it suitable for individuals managing their blood sugar.

4.Texture Enhancement: Xylitol enhances the texture and mouthfeel of various food products, including baked goods, confectionery, and beverages, providing a pleasing sensory experience.

5.Sugar Replacement: Xylitol can be used as a one-to-one sugar replacement in many recipes, allowing for the creation of sugar-free or reduced-sugar versions of favorite treats.

### Applicable Industries:

1.Bakery: Formulate sugar-free or low-calorie baked goods, such as cookies, cakes, and muffins, with the natural sweetness of Xylitol.

2.Confectionery: Craft sugar-free or reduced-sugar chocolates, candies, and chewing gum with the delightful sweetness and dental health benefits of Xylitol.

3.Beverage Industry: Enhance the sweetness and palatability of beverages, including sugar-free drinks, iced teas, and flavored waters, by incorporating Food Grade Xylitol.

4.Dietary Supplements: Formulate health-conscious supplements, such as vitamins or protein powders, with Xylitol as a sweetening agent.

5.Health-Conscious Snacks: Incorporate Xylitol into nutrition bars, granola, and other health-focused snacks to offer sweetness without compromising on health goals.

## D-Xylose

### Product Description:

D-Xylose is a naturally occurring sugar, classified as a pentose, and is commonly found in plant fibers such as those from wood and corncobs. Unlike other sugars, D-xylose is not as sweet and is not readily absorbed in the human digestive system, which makes it a valuable component in various applications. It is often used in the food industry, particularly in sugar-free and low-calorie products, providing sweetness without the caloric impact of traditional sugars. Additionally, D-xylose has applications in the pharmaceutical and research fields, serving as a substrate for fermentation processes and being a precursor in the synthesis of certain medications. Its unique properties and versatility make D-xylose a valuable ingredient in diverse industries and contribute to its role in various scientific and industrial processes.

### Other Names:

Xylopyranose

### Functionalities:

1.Low-Calorie Sweetener: D-Xylose provides sweetness with lower caloric content compared to traditional sugars, making it an excellent choice for calorie-conscious consumers.

2.Blood Sugar Management: With a low glycemic index, D-Xylose has minimal impact on blood sugar levels, offering a suitable option for those monitoring their glucose intake.

3.Dental Health Support: D-Xylose does not contribute to tooth decay, promoting dental health and making it a tooth-friendly alternative to regular sugars.

4.Texture Enhancement: D-Xylose enhances the texture and mouthfeel of various food products, including baked goods, confectionery, and beverages, providing a satisfying sensory experience.

5.Sugar Replacement: D-Xylose can be used as a sugar replacement in recipes, allowing for the creation of lower-calorie versions of favorite treats without compromising sweetness.

### Applicable Industries:

1.Bakery: Formulate reduced-sugar or low-calorie baked goods, such as cakes, cookies, and pastries, with the natural sweetness of D-Xylose.

2.Confectionery: Craft sugar-reduced or low-sugar chocolates, candies, and gummies with the delightful sweetness and dental health benefits of D-Xylose.

3.Beverage Industry: Enhance the sweetness and palatability of beverages, including iced teas, juices, and flavored waters, by incorporating Food Grade D-Xylose.

4.Dietary Supplements: Formulate health-conscious supplements, such as vitamins or protein powders, with D-Xylose as a sweetening agent.

5.Health-Conscious Snacks: Incorporate D-Xylose into nutrition bars, granola, and other health-focused snacks to offer sweetness without compromising on health goals.

## Aspartame

### Product Description:

Aspartame is a low-calorie artificial sweetener widely used as a sugar substitute in various food and beverage products. Composed of aspartic acid and phenylalanine, both naturally occurring amino acids, aspartame provides sweetness without the calories associated with traditional sugars. It is approximately 200 times sweeter than sucrose, making it an efficient sweetening agent, and is commonly utilized in sugar-free or reduced-calorie products such as diet sodas, sugar-free gum, and light desserts. While aspartame has faced occasional scrutiny and controversy, extensive scientific research supports its safety for consumption by the general population, except for individuals with phenylketonuria (PKU), a rare genetic disorder. Aspartame's ability to deliver sweetness without contributing to caloric intake has positioned it as a popular choice for those seeking alternatives to sugar in their dietary preferences.

### Other Names:

APM

### Functionalities:

1.Low-Calorie Sweetener: Aspartame is approximately 200 times sweeter than sucrose (table sugar), allowing for a significant reduction in the caloric content of products while maintaining sweetness.

2.Sugar Replacement: Aspartame can be used as a sugar substitute in various recipes, enabling the creation of sugar-free or reduced-sugar versions of beverages, desserts, and other food products.

3.Stability in Heat: Aspartame maintains its sweetness even at high temperatures, making it suitable for use in baked goods and other applications where heat stability is crucial.

4.Dietary Control: Aspartame is safe for individuals with diabetes as it does not raise blood sugar levels. It is also tooth-friendly and does not contribute to tooth decay.

5.Enhanced Flavor: Aspartame enhances and intensifies the overall flavor profile of food and beverages, contributing to a satisfying taste experience.

### Applicable Industries:

1.Beverage Industry: Aspartame is widely used in the production of diet sodas, sugar-free beverages, and powdered drink mixes.

2.Confectionery: Incorporate Aspartame into sugar-free or reduced-sugar candies, chewing gum, and other confectionery products to maintain sweetness without the calories.

3.Desserts and Baked Goods: Formulate sugar-free or low-calorie desserts, cakes, cookies, and other baked goods with Aspartame for a sweet indulgence without added sugars.

4.Dietary Supplements: Aspartame is commonly used in the formulation of sugar-free or low-calorie dietary supplements, such as vitamins, protein powders, and meal replacements.

5.Pharmaceuticals: Aspartame is utilized in certain pharmaceutical products, such as chewable tablets or syrups, to provide a sweet taste without the need for added sugars.

## Dextrose Monohydrate

### Product Description:

Dextrose monohydrate, a form of glucose derived from starches, is a common and versatile carbohydrate widely used in the food and pharmaceutical industries. Recognized for its quick and easily digestible energy source, dextrose monohydrate is often employed as a sweetener, a fermentable sugar in baking and brewing processes, and as a stabilizing and bulking agent in various food formulations. It is the crystalline form of dextrose, which is glucose produced through the hydrolysis of starch. In pharmaceutical applications, dextrose monohydrate serves as an excipient in the production of tablets and a source of energy in intravenous fluids. Its multifaceted properties and broad applicability make dextrose monohydrate a fundamental ingredient in the formulation of diverse products across several industries.

### Other Names:

Glucose

D-Glucose monohydrate

### Functionalities:

1.Quick Energy Source: Dextrose Monohydrate is rapidly absorbed by the body, providing a quick and easily accessible source of energy. This makes it ideal for use in sports drinks and energy-boosting formulations.

2.Sweetening Agent: Dextrose adds a natural sweetness to a wide range of products, from beverages and candies to baked goods, contributing to an appealing taste profile.

3.Browning Reaction in Baking: In baking, Dextrose contributes to the Maillard browning reaction, resulting in desirable color, flavor, and texture in bread, pastries, and other baked goods.

4.Osmotic Agent: Dextrose is commonly used as an osmotic agent in food preservation, helping to inhibit the growth of spoilage microorganisms and extend the shelf life of certain products.

5.Binder in Meat Products: In meat processing, Dextrose acts as a binder, enhancing the texture and juiciness of processed meats such as sausages and ham.

### Applicable Industries:

1.Food and Beverage: Dextrose Monohydrate is widely used in the food and beverage industry for sweetening various products, including soft drinks, candies, and baked goods.

2.Sports Nutrition: Formulate energy drinks, gels, and bars with Dextrose to provide a quick and efficient source of energy for athletes and fitness enthusiasts.

3.Bakery: Enhance the texture, color, and sweetness of baked goods, including bread, cakes, and pastries, with the inclusion of Dextrose.

4.Confectionery: Add Dextrose to candies, chocolates, and gummies to improve sweetness and mouthfeel.

5.Meat Processing: Use Dextrose as a binder in processed meats to improve texture and moisture retention.

## Anhydrous Glucose

### Product Description:

Anhydrous glucose refers to glucose in its pure, crystalline form without water content. This crystalline glucose is derived from the hydrolysis of starch and is widely used in the food and pharmaceutical industries. Its versatility stems from its role as a sweetener, bulking agent, and fermentable sugar in various applications. Anhydrous glucose is a key ingredient in confectionery, baked goods, and beverages, contributing sweetness while enhancing texture and stability. In the pharmaceutical sector, it finds application as an excipient in the production of tablets and as a source of rapidly absorbable energy in medical formulations. Renowned for its high solubility and neutral taste, anhydrous glucose remains a crucial component in the formulation of diverse products where precise control of sugar content and functionality is essential.

### Other Names:

glucose anhydrous

simply anhydrous dextrose

### Functionalities:

1.Quick and Sustained Energy: Anhydrous Glucose serves as a rapid and easily digestible source of energy, making it ideal for sports nutrition products, energy drinks, and supplements.

2.Sweetening Agent: With its natural sweetness, Anhydrous Glucose enhances the overall taste profile of a variety of food and beverage products, including confectionery, jams, and baked goods.

3.Texture Enhancement: Anhydrous Glucose is used in the food industry to improve the texture, mouthfeel, and consistency of products like ice cream, candies, and certain baked goods.

4.Browning Reaction in Baking: Similar to Dextrose Monohydrate, Anhydrous Glucose contributes to the Maillard browning reaction in baking, resulting in appealing color and flavor development.

5.Preservative: Anhydrous Glucose acts as a humectant, preventing crystallization in certain products and contributing to the extended shelf life of items like confectionery and frostings.

### Applicable Industries:

1.Food and Beverage: Anhydrous Glucose finds applications in a wide range of food and beverage products, including sweets, jams, sauces, and beverages, for its sweetening and textural properties.

2.Sports Nutrition: Formulate energy bars, gels, and drinks with Anhydrous Glucose to provide a rapid and sustained source of energy for athletes and individuals with active lifestyles.

3.Confectionery: Enhance the sweetness, texture, and shelf stability of candies, chocolates, and gummies by incorporating Anhydrous Glucose into formulations.

4.Bakery: Improve the texture and sweetness of baked goods, such as cookies, cakes, and pastries, with the inclusion of Anhydrous Glucose.

5.Pharmaceuticals: Anhydrous Glucose is used in certain pharmaceutical formulations as a source of energy, especially in oral rehydration solutions.

## Mannose

### Product Description:

Mannose is a naturally occurring monosaccharide, classified as a hexose, and is found in various fruits, especially cranberries, as well as some plants and human cells. It is a stereoisomer of glucose and exhibits unique properties that contribute to its significance in health and nutrition. Mannose has gained attention for its potential benefits, including its role in supporting urinary tract health, where it may interfere with the adhesion of certain bacteria to the urinary tract lining. As a nutritional supplement, mannose is available in different forms, such as D-mannose, and is commonly used to support urinary tract function. Its low glycemic index and potential health benefits make mannose a subject of ongoing research and a sought-after ingredient in dietary supplements aimed at promoting overall well-being.

### Other Names:

D-Mannose

Seminose

Carubinose

### Functionalities:

1.Natural Sweetness: Mannose is a naturally occurring sugar with a sweet taste, providing an alternative sweetening option for products aiming to reduce or eliminate the use of traditional sugars.

2.Urinary Tract Health: D-Mannose is known for its potential benefits in supporting urinary tract health. It is often used as a supplement to promote a healthy urinary environment.

3.Low-Calorie Sweetener: Mannose provides sweetness with a lower caloric content compared to traditional sugars, making it a favorable choice for those seeking reduced-calorie alternatives.

4.Sugar Replacement: Mannose can be used as a sugar substitute in various applications, including beverages, dietary supplements, and health-focused products, to impart sweetness without the drawbacks of regular sugars.

5.Prebiotic Support: Some studies suggest that Mannose may act as a prebiotic, promoting the growth of beneficial bacteria in the gut and contributing to a healthy microbiome.

### Applicable Industries:

1.Dietary Supplements: Incorporate Mannose into dietary supplements, particularly those focused on urinary tract health and overall well-being.

2.Functional Foods: Add Mannose to health-focused products, including nutrition bars, shakes, and snacks, to provide natural sweetness and potential prebiotic benefits.

3.Beverage Industry: Enhance the sweetness of beverages, including juices, teas, and functional drinks, by incorporating Food Grade Mannose.

4.Pharmaceuticals: Utilize Mannose as an ingredient in pharmaceutical formulations, particularly those designed to support urinary tract health.

5.Nutraceuticals: Include Mannose in nutraceutical products aimed at promoting digestive health and providing a natural source of sweetness.

## Mannitol

### Product Description:

Mannitol is a sugar alcohol derived from mannose and is commonly used in the food and pharmaceutical industries for its unique properties. Recognized for its sweet taste and low calorie content, mannitol serves as a sugar substitute and a bulking agent in various sugar-free and reduced-calorie products, including candies, chewing gum, and dietary supplements. With its ability to provide sweetness without impacting blood sugar levels, mannitol is often favored by individuals managing their sugar intake or those with diabetes. Beyond its use in the food industry, mannitol has pharmaceutical applications, where it serves as an excipient in drug formulations, contributing to the stability and solubility of medications. Additionally, mannitol is known for its osmotic diuretic properties and is sometimes used in medical settings to induce diuresis. Its versatility and multiple applications make mannitol a valuable ingredient in a range of consumer and healthcare products.

### Other Names:

Mannite

### Functionalities:

1.Low-Calorie Sweetener: Mannitol provides a sweet taste with approximately 60-70% the sweetness of sucrose (table sugar) and significantly fewer calories, making it a valuable option for those seeking reduced-calorie alternatives.

2.Sugar Replacement: As a sugar alcohol, Mannitol serves as a sugar substitute in various products, including confectionery, baked goods, and chewing gum. It imparts sweetness without causing spikes in blood sugar levels.

3.Texture Enhancement: Mannitol contributes to the texture and mouthfeel of food products, providing a cooling sensation. It is often used in sugar-free candies, mints, and chewing gum for its ability to impart a pleasant crunch and smooth texture.

4.Stabilizing Agent: Mannitol is known for its stability and moisture-retaining properties. It is used in pharmaceuticals, confectionery coatings, and certain processed foods to prevent crystallization and maintain product quality.

5.Dental Health Support: Mannitol does not contribute to tooth decay, and it has been used in oral care products like sugar-free gum to support dental health.

### Applicable Industries:

1.Confectionery: Mannitol is a key ingredient in the production of sugar-free candies, mints, and chewing gum, providing sweetness and contributing to desirable textures.

2.Pharmaceuticals: Mannitol is commonly used in pharmaceutical formulations as a stabilizer, binder, and filler in tablets, and as an excipient in oral solutions and suspensions.

3.Baked Goods: Formulate sugar-free or reduced-sugar baked goods, such as cookies, pastries, and cakes, with Mannitol to impart sweetness and enhance texture.

4.Beverage Industry: Explore the use of Mannitol in sugar-free beverages, providing sweetness without the calories and contributing to a pleasing mouthfeel.

5.Nutraceuticals: Incorporate Mannitol into nutraceutical products and dietary supplements for its sugar-free and stabilizing properties.

## Pure Crystalline Fructose (PCF)

### Product Description:

Pure crystalline fructose is a natural sweetener and simple sugar found abundantly in fruits, vegetables, and honey. Extracted and refined into its crystalline form, pure crystalline fructose is prized for its intense sweetness, approximately 1.7 times sweeter than sucrose, the standard table sugar. This characteristic allows for its use in smaller quantities, contributing fewer calories while maintaining the desired level of sweetness in food and beverage products. Often utilized in the food industry as a sweetening agent, pure crystalline fructose is incorporated into a variety of products, including baked goods, cereals, and beverages. Its high solubility, clean taste, and ability to enhance flavors make it a popular choice for manufacturers aiming to reduce overall sugar content while maintaining product palatability. Additionally, its low glycemic index makes it an attractive option for individuals seeking alternatives to traditional sugars, particularly those with diabetes or those focused on managing their blood sugar levels.

### Other Names:

PCF

### Functionalities:

1.Intense Sweetness: Pure Crystalline Fructose is approximately 1.5 times sweeter than sucrose (table sugar), allowing for the achievement of desired sweetness levels with lower usage, which can be beneficial for calorie reduction in formulations.

2.Texture Enhancement: Crystalline Fructose is known for its ability to enhance the texture and mouthfeel of various food and beverage products. It is often used to create smooth and creamy textures in frozen desserts, dairy products, and beverages.

3.Humectant Properties: Crystalline Fructose exhibits humectant properties, helping products retain moisture and preventing them from drying out. This is particularly valuable in certain baked goods and confectionery.

4.Browning Reaction in Baking: Pure Crystalline Fructose contributes to the Maillard browning reaction in baking, enhancing the color and flavor of baked goods.

5.Low Glycemic Index: Crystalline Fructose has a lower glycemic index compared to sucrose, making it a suitable option for individuals seeking alternatives that have a lesser impact on blood sugar levels.

### Applicable Industries:

1.Beverage Industry: Crystalline Fructose is widely used in the production of beverages, including carbonated drinks, sports drinks, and fruit-flavored beverages, for its intense sweetness and solubility.

2.Dairy Products: Enhance the sweetness and texture of dairy products such as yogurt, ice cream, and flavored milk with the inclusion of Pure Crystalline Fructose.

3.Bakery: Improve the texture and sweetness of baked goods, including cakes, muffins, and pastries, by incorporating Crystalline Fructose.

4.Confectionery: Use Crystalline Fructose in the production of candies, chocolates, and gummies to achieve a smooth texture and intense sweetness.

5.Processed Foods: Incorporate Pure Crystalline Fructose in various processed foods, including salad dressings, sauces, and jams, for sweetness and texture enhancement.

## Trehalose

### Product Description:

Trehalose is a naturally occurring disaccharide composed of two glucose molecules linked together. Widely found in various organisms, including bacteria, yeast, fungi, and certain plants, trehalose has gained attention for its unique properties and applications in the food and pharmaceutical industries. Notable for its stability and resistance to high temperatures, trehalose serves as a valuable ingredient in food preservation, maintaining the quality of products by preventing deterioration and dehydration. In the pharmaceutical realm, trehalose is employed as a stabilizing agent for proteins, enzymes, and vaccines due to its ability to protect against denaturation and aggregation. With its mild sweetness and versatility, trehalose is used in a range of products, including baked goods, confectionery, and freeze-dried foods, contributing to improved texture, flavor, and overall product stability.

### Other Names:

Mycose

Tremalose

### Functionalities:

1.Multi-Functional Sweetener: Trehalose is a disaccharide composed of two glucose molecules, providing sweetness without the intense flavor of sucrose. This makes it a versatile sweetener suitable for various applications.

2.Texture Preservation: Trehalose has remarkable properties in preserving the texture and moisture of products, particularly in applications such as baked goods, chocolates, and certain confectionery items.

3.Stabilizing Agent: Trehalose is known for its stabilizing effects on proteins and lipids, making it a valuable ingredient in the formulation of certain pharmaceuticals, vaccines, and proteins, helping to maintain their structural integrity.

4.Heat Resistance: Trehalose exhibits heat resistance, making it suitable for use in products that undergo baking or cooking processes, contributing to the retention of quality and texture.

5.Low Hygroscopicity: Trehalose has low hygroscopicity, meaning it absorbs minimal moisture. This property is beneficial in preventing the formation of ice crystals in frozen desserts, maintaining a smooth texture.

### Applicable Industries:

1.Bakery: Incorporate Trehalose into baked goods such as bread, cakes, and cookies to enhance texture, preserve moisture, and provide a subtle sweetness.

2.Confectionery: Use Trehalose in the production of chocolates, candies, and gummies to maintain texture, prevent crystallization, and impart sweetness.

3.Frozen Desserts: Improve the quality of ice creams, sorbets, and frozen desserts by adding Trehalose to achieve a smoother texture and minimize ice crystal formation.

4.Beverage Industry: Enhance the sweetness and mouthfeel of beverages, including smoothies and flavored drinks, with the inclusion of Trehalose.

5.Pharmaceuticals: Utilize Trehalose as a stabilizing agent in the pharmaceutical industry for the formulation of vaccines, proteins, and certain medications, ensuring their structural integrity and effectiveness.

# ****Dietary fiber****

## Polydextrose

### Product Description:

Polydextrose is a versatile and low-calorie carbohydrate polymer commonly used in the food industry as a functional ingredient. Composed of randomly bonded glucose units and sorbitol, polydextrose has gained popularity for its ability to mimic the texture and mouthfeel of sugar while providing a minimal impact on blood sugar levels. It is frequently employed as a bulking agent, texturizer, and stabilizer in various food products, including baked goods, dairy items, and beverages. Notably, polydextrose functions as a soluble fiber, contributing to digestive health and offering potential benefits for weight management. Its versatility and favorable nutritional profile make polydextrose a valuable tool for food manufacturers seeking to enhance the health attributes of their products without compromising on taste and texture.

### Other Names:

Polydextrose polymer

### Functionalities:

1.Fiber Enrichment: Polydextrose is a soluble fiber that supports digestive health by promoting regular bowel movements and providing prebiotic benefits to the gut microbiota.

2.Low-Calorie Sweetener: Polydextrose contributes minimal calories to products while providing a mild sweetness, making it an ideal choice for those seeking reduced-calorie and sugar-reduced alternatives.

3.Texture Enhancement: Polydextrose improves the texture and mouthfeel of a variety of food products, including baked goods, dairy products, and frozen desserts, imparting a smooth and creamy consistency.

4.Bulking Agent: Polydextrose acts as a bulking agent in formulations, helping to provide volume and structure to products without adding excessive calories or sugars.

5.Stabilizer: In certain applications, Polydextrose serves as a stabilizing agent, contributing to the shelf stability of products such as dressings, sauces, and confectionery.

### Applicable Industries:

1.Bakery: Enhance the texture and fiber content of baked goods, including bread, cakes, and muffins, with the inclusion of Polydextrose.

2.Dairy and Frozen Desserts: Improve the creaminess and fiber content of ice creams, yogurts, and other frozen desserts by incorporating Polydextrose.

3.Beverage Industry: Add Polydextrose to beverages, including shakes and smoothies, for its soluble fiber content and mild sweetness.

4.Confectionery: Formulate sugar-reduced or sugar-free candies, chocolates, and gummies with Polydextrose, providing texture and fiber enrichment.

5.Health and Wellness Products: Include Polydextrose in health-focused products, such as nutrition bars and dietary supplements, to boost fiber content and support digestive health.

6.Processed Foods: Utilize Polydextrose as a functional ingredient in a variety of processed foods, including dressings, sauces, and soups, for its bulking and stabilizing properties.

## resistant dextrin

### Product Description:

Resistant dextrin, also known as digestion-resistant maltodextrin, is a soluble dietary fiber derived from starch. Produced through a controlled enzymatic process, resistant dextrin is characterized by its resistance to digestion in the small intestine, reaching the colon where it serves as a substrate for beneficial gut bacteria. With a neutral taste and excellent solubility, it is commonly used in the food industry as a functional ingredient. Resistant dextrin offers several health benefits, including supporting digestive health by promoting the growth of probiotic bacteria, aiding in weight management due to its low-calorie content, and contributing to blood sugar control. As a versatile dietary fiber, resistant dextrin has found applications in a variety of food products, including beverages, baked goods, and nutritional supplements, providing manufacturers with a tool to enhance the nutritional profile of their offerings.

### Other Names:

/

### Functionalities:

1.Dietary Fiber Enrichment: Resistant Dextrin is a soluble fiber that contributes to the daily recommended intake of dietary fiber, supporting digestive health and regular bowel movements.

2.Blood Sugar Management: With its low glycemic index, Resistant Dextrin helps manage blood sugar levels, making it a suitable choice for individuals focused on glycemic control.

3.Prebiotic Support: Resistant Dextrin serves as a prebiotic, promoting the growth of beneficial bacteria in the gut, which contributes to a healthy and balanced microbiome.

4.Texture Enhancement: Resistant Dextrin enhances the texture and mouthfeel of various food and beverage products, including shakes, bars, and baked goods, providing a smooth and creamy consistency.

5.Low-Calorie Bulking Agent: Resistant Dextrin acts as a bulking agent in formulations, providing volume and structure to products without adding a significant amount of calories.

### Applicable Industries:

1.Nutritional Supplements: Enhance the fiber content of nutritional shakes, bars, and supplements by incorporating Resistant Dextrin, providing both nutritional and digestive health benefits.

2.Bakery: Improve the texture and fiber content of baked goods, such as bread, muffins, and cookies, with the inclusion of Resistant Dextrin.

3.Beverage Industry: Add Resistant Dextrin to beverages, including smoothies and shakes, for its soluble fiber content and texture-enhancing properties.

4.Health-Conscious Snacks: Incorporate Resistant Dextrin into health-focused snacks, such as granola bars and energy bites, to boost fiber content and provide digestive support.

5.Dietary Products: Formulate sugar-free or reduced-sugar dietary products, such as meal replacements and fiber supplements, with Resistant Dextrin for its functional and health-promoting properties.

6.Functional Foods: Utilize Resistant Dextrin in various functional foods, including cereals, yogurts, and dressings, to enhance nutritional value and support digestive wellness.

# Flavor enhancer

## Monosodium glutamate

### Product Description:

Monosodium glutamate (MSG) is a widely used food additive known for its umami flavor-enhancing properties. Composed of sodium and the amino acid glutamic acid, MSG is a crystalline powder that imparts a savory taste to food, enhancing the overall flavor profile. Commonly utilized in Asian and international cuisines, MSG serves as a versatile seasoning to elevate the taste of various dishes. Despite misconceptions about its safety, numerous scientific studies have affirmed MSG's general recognition as safe (GRAS) status, emphasizing its role as a flavor enhancer without causing adverse health effects when consumed within recommended levels. MSG continues to be a staple in the culinary world, contributing to the rich and savory character of a diverse array of foods.

### Other Names:

MSG

Aginomoto

### Functionalities:

1.Flavor Enhancer: Monosodium Glutamate is renowned for its ability to enhance the savory and umami flavors in a wide range of dishes, intensifying and balancing the taste profile.

2.Taste Amplification: MSG does not impart its own distinct flavor but rather enhances the natural taste of food, allowing other flavors to be more pronounced and creating a more satisfying culinary experience.

3.Balancing Sweetness and Saltiness: MSG is often used to balance sweetness and saltiness in certain recipes, ensuring a harmonious and well-rounded flavor profile.

4.Reduced Sodium Content: By enhancing the perception of saltiness, MSG can be used to reduce the overall sodium content in food formulations without compromising taste.

### Applicable Industries:

1.Food Service and Restaurants: MSG is a common ingredient in the food service industry, utilized in various cuisines to elevate the overall flavor of dishes.

2.Processed Foods: Incorporate Monosodium Glutamate into processed foods, including soups, sauces, snacks, and ready-made meals, to enhance taste and provide a more robust flavor profile.

3.Snack Foods: Add MSG to snack products, such as chips and popcorn, to intensify savory flavors and improve overall taste satisfaction.

4.Canned and Packaged Goods: Utilize MSG in the production of canned goods, sauces, and packaged meals to enhance flavor and appeal to consumer taste preferences.

5.Asian Cuisine: MSG is commonly used in Asian cuisine, where it is appreciated for its ability to amplify umami flavors in dishes such as soups, stir-fries, and sauces.

6.Fast Food Industry: Incorporate MSG into fast-food recipes to enhance the taste and overall enjoyment of items like burgers, fries, and fried chicken.

## Acidulants

## citric acid monohydrate

### Product Description:

Citric acid monohydrate is a crystalline form of citric acid that contains one molecule of water. Widely used across various industries, citric acid monohydrate is prized for its acidity, chelating properties, and versatile applications. As a natural organic acid found in citrus fruits, it serves as a key ingredient in the food and beverage industry, contributing a sour or tangy taste to numerous products. Beyond its culinary uses, citric acid monohydrate finds applications in the pharmaceutical, cosmetic, and cleaning product industries, where it serves as a chelating agent, pH regulator, and stabilizing agent. With its multifunctional properties, citric acid monohydrate continues to be a valuable and ubiquitous component in a diverse range of consumer and industrial products.

### Other Names:

/

### Functionalities:

1.Acidulant: Citric Acid Monohydrate serves as a highly effective acidulant, adding a sour or tangy taste to various food and beverage products.

2.pH Regulator: Used to control the pH level in food and beverages, Citric Acid Monohydrate ensures proper acidity, stability, and preservation.

3.Flavor Enhancer: Beyond providing acidity, citric acid enhances and brightens the overall flavor profile of a range of products, contributing to a more balanced taste.

4.Gelling Agent: In combination with certain ingredients, citric acid can function as a gelling agent, aiding in the formation and stabilization of gels in products like jams and jellies.

5.Preservative: Citric Acid Monohydrate acts as a natural preservative, helping to extend the shelf life of certain products by inhibiting the growth of spoilage microorganisms.

### Applicable Industries:

1.Beverage Industry: Utilize Citric Acid Monohydrate in the production of beverages, including sodas, fruit juices, and energy drinks, to impart acidity and enhance overall flavor.

2.Bakery: Add citric acid to baked goods, such as cakes, pastries, and cookies, to provide acidity and balance sweetness.

3.Confectionery: Incorporate Citric Acid Monohydrate into candies, gummies, and sour treats to enhance tartness and create a more enjoyable flavor experience.

4.Preserves and Jams: Use citric acid as a gelling agent and preservative in the production of jams, jellies, and fruit preserves to achieve the desired texture and extend shelf life.

5.Dairy Products: Enhance the flavor profile of dairy products, including yogurt and ice cream, by incorporating Citric Acid Monohydrate for a subtle tanginess.

6.Sauces and Dressings: Include citric acid in the formulation of sauces, dressings, and condiments to provide acidity and improve overall taste.

## Citric Acid Anhydrous

### Product Description:

Citric acid anhydrous is a food-grade compound derived from citrus fruits, predominantly lemons and limes. Recognized for its versatile applications in the food and beverage industry, citric acid anhydrous is a crystalline powder with a sour taste. It serves as a natural acidulant, pH regulator, and preservative, contributing to the tartness and preservation of numerous food products. Beyond its use in the culinary world, citric acid anhydrous finds applications in various industries, including cosmetics, pharmaceuticals, and cleaning products, due to its chelating and antioxidant properties. Its wide-ranging functionality, natural origin, and safety make it a ubiquitous ingredient, enhancing flavors, extending shelf life, and serving diverse purposes in both consumable and non-consumable products.

### Other Names:

/

### ****Functionalities:****

1.Natural Acidulant:

Citric Acid Anhydrous imparts a tangy flavor to food and beverages, making it a popular choice as a natural acidulant in the food industry.

2.pH Regulator:

It acts as a pH regulator, helping to maintain the desired acidity levels in various formulations. This functionality is crucial in achieving the right balance and taste in many processed foods and beverages.

3.Preservative:

Citric Acid Anhydrous serves as a preservative, contributing to the preservation of certain foods and preventing the growth of microorganisms. This is particularly important in the production of jams, jellies, and canned goods.

4.Antioxidant Synergist:

It enhances the effectiveness of antioxidants, contributing to the preservation of the color and freshness of certain fruits and vegetables.

### ****Applicable Industries:****

1.Food and Beverage:

Citric Acid Anhydrous is a staple in the food and beverage industry, used in beverages, jams, jellies, confectionery, and various processed foods.

2.Pharmaceuticals:

Pharmaceutical formulations may utilize citric acid anhydrous as an excipient in tablet formulations and effervescent preparations.

3.Cosmetics and Personal Care:

It can be found in cosmetics and personal care products, particularly in products like bath fizzers and certain skin care formulations.

4.Cleaning Products:

Citric Acid Anhydrous is used in cleaning products for its chelating properties, helping to remove mineral deposits and improve the effectiveness of certain detergents.

5.Nutraceuticals:

It may be used in the production of certain nutraceuticals and dietary supplements.

# ****Industrial chemicals****

## monoethanolamine（MEA）

### Product Description:

Monoethanolamine (MEA) is a versatile chemical compound with a wide range of applications in various industries. It is a clear, viscous liquid with both amine and alcohol functional groups, making it a valuable ingredient in diverse industrial processes.

In the gas and oil industry, MEA is extensively used for its unique properties. It serves as an effective absorbent for acidic gases like carbon dioxide (CO2) and hydrogen sulfide (H2S) in natural gas processing and refining. This property makes it valuable in the purification and sweetening of gases.

MEA is also utilized as a corrosion inhibitor, helping to protect metal surfaces from degradation in certain applications. Its surfactant properties make it suitable for enhancing wetting and dispersing characteristics, making it useful in detergents and cleaning formulations.

As a chemical intermediate, MEA plays a crucial role in the synthesis of various compounds, including herbicides, pharmaceuticals, and textile auxiliaries. Additionally, it serves as a pH regulator in different processes due to its amine nature.

The applications of monoethanolamine extend to sectors such as personal care products, where it is used in certain cosmetics and shampoos, and in the textile industry for formulating textile auxiliaries.

Overall, monoethanolamine's multifunctional properties contribute to its significance across diverse industries, making it a versatile and valuable compound in numerous industrial processes.

### Other Names:

MEA

### Functionalities:

1.Alkanolamine: Monoethanolamine belongs to the family of alkanolamines, which are characterized by the presence of both alcohol and amine functional groups. This unique structure imparts a range of functionalities.

2.Absorption of Gases: MEA is commonly used in gas treatment processes, particularly in the absorption of acidic gases such as carbon dioxide (CO2) and hydrogen sulfide (H2S) in various industries. This makes it valuable in natural gas purification and sweetening processes.

3.Corrosion Inhibition: In certain applications, MEA is employed as a corrosion inhibitor, helping to protect metal surfaces from degradation and extending the lifespan of equipment.

4.Surfactant: Monoethanolamine acts as a surfactant, enhancing the wetting and dispersing properties of liquids. This makes it useful in applications such as detergents and cleaning formulations.

5.Chemical Intermediate: MEA serves as a crucial intermediate in the production of various chemicals, including herbicides, pharmaceuticals, and textile auxiliaries.

6.pH Regulation: Due to its amine nature, MEA can be used to adjust and regulate pH levels in different processes and formulations.

### Applicable Industries:

1.Gas and Oil Industry: Monoethanolamine is extensively utilized in natural gas processing and oil refining for the removal of acidic impurities, contributing to the purification of gases and liquids.

2.Chemical Manufacturing: MEA serves as a key intermediate in the production of various chemicals, including chelating agents, corrosion inhibitors, and pharmaceuticals.

3.Textile Industry: In the textile sector, MEA is employed in the formulation of textile auxiliaries and softeners, contributing to the processing of fabrics.

4.Personal Care Products: MEA is used in certain personal care products such as shampoos and cosmetics as a pH regulator and stabilizer.

5.Cleaning Products: Due to its surfactant properties, MEA is incorporated into cleaning formulations, contributing to improved wetting and cleaning efficiency.

6.Metalworking: Monoethanolamine is employed as a corrosion inhibitor in metalworking fluids to protect metal surfaces from degradation.

7.Pharmaceuticals: MEA serves as a chemical intermediate in the production of pharmaceuticals and certain medical compounds.

## Industrial Xanthan Gum

### Product Description:

Industrial Xanthan Gum is a polysaccharide with unique rheological properties, derived through the fermentation of sugars by the bacterium Xanthomonas campestris. This versatile ingredient has gained widespread usage across diverse industries due to its exceptional thickening, stabilizing, and gelling capabilities.

In industrial processes, Xanthan Gum's versatility shines. It is used in sectors such as oil and gas, where it aids in viscosity control of drilling fluids, and in the production of household and industrial cleaners, where it contributes to the stability of formulations.

The success of Industrial Xanthan Gum lies in its ability to function effectively across a spectrum of industries, offering solutions for texture, stability, and viscosity control. As a natural and efficient additive, Industrial Xanthan Gum continues to play a vital role in shaping the formulation landscape, contributing to the quality and performance of a wide array of consumer and industrial products.

### Other Names:

Goma Xantana, Xanthan

### Functionalities:

1.Thickening Agent: Industrial Xanthan Gum is renowned for its exceptional thickening properties. It can efficiently increase the viscosity of liquids, providing stability to suspensions and preventing settling of solid particles.

2.Stabilizer: As a stabilizing agent, Xanthan Gum helps maintain the uniform dispersion of ingredients in formulations, preventing phase separation and ensuring product integrity over time.

3.Emulsifier: Xanthan Gum contributes to the stabilization of emulsions, improving the homogeneity of mixtures containing both oil and water. This property is particularly valuable in the production of salad dressings, sauces, and cosmetic formulations.

4.Water Retention: With its water-retaining capacity, Xanthan Gum helps products retain moisture, enhancing the overall texture and preventing undesirable changes, such as drying or syneresis.

5.Suspension Agent: Xanthan Gum is effective in suspending solid particles in liquids, preventing settling and maintaining a consistent distribution. This property is valuable in industries such as paints, coatings, and drilling fluids.

6.Viscosity Modifier: Xanthan Gum can be used to control the viscosity of formulations, offering a high degree of shear-thinning behavior. This is particularly useful in applications where easy pumping, pouring, or spreading is required.

### Applicable Industries:

1.Oil and Gas: Xanthan Gum is used in the oil and gas industry as a key component in drilling fluids. Its ability to suspend solids and maintain viscosity under various conditions makes it valuable in drilling operations.

2.Paints and Coatings: Industrial Xanthan Gum is applied in the formulation of paints and coatings to improve their rheological properties, ensuring easy application and a uniform finish.

3.Mining: In mining operations, Xanthan Gum is used in ore flotation processes and as a stabilizer in backfill slurries.

4.Textile Industry: Xanthan Gum is employed in the textile industry for its thickening properties, aiding in the printing and finishing processes.

## Industrial Citric acid

### Product Description:

Industrial citric acid is a versatile organic acid widely employed in numerous industries for its multifunctional properties. Derived from natural sources such as citrus fruits, industrial citric acid is recognized for its acidity, chelating abilities, and its applications as a pH regulator and preservative.

Industrial citric acid plays a crucial role in the pharmaceutical industry, where it serves as a pH regulator in medications and enhances the taste of certain formulations. It is a common ingredient in cosmetic and personal care products, contributing to stability and pH balance.

Moreover, industrial citric acid finds applications in cleaning products as a chelating agent, aiding in the removal of mineral deposits. In the textile industry, it is utilized in dyeing processes.

With its diverse functionalities, industrial citric acid is an integral component in a wide range of industrial processes, contributing to the quality, stability of various products across different sectors.

### Other Names:

/

### Functionalities:

1.Chelating Agent: Citric Acid serves as an effective chelating agent, binding with metal ions and helping to prevent oxidation and discoloration in products. It is commonly used in the formulation of detergents and cleaning products.

2.pH Regulator: With its ability to adjust acidity, Citric Acid acts as a pH regulator in many industrial processes, ensuring optimal conditions for reactions and stability.

### Applicable Industries:

Cleaning and Detergents: Citric Acid's chelating properties make it a valuable component in cleaning products, such as dishwashing detergents and descaling agents for appliances.

Textile Industry: Citric Acid is utilized in the dyeing and printing processes in the textile industry as a chelating agent and pH regulator.

Water Treatment: Citric Acid is employed in water treatment processes to control pH and prevent the precipitation of certain minerals.

## sodium tartrate

### Product Description:

Sodium tartrate, also known as Rochelle salt, is a chemical compound with versatile applications across various industries. This salt is derived from tartaric acid and is recognized for its unique properties. Sodium tartrate is commonly used as a sequestrant, a buffering agent, and a stabilizing agent in different industrial processes.

In the food and beverage industry, sodium tartrate is utilized for its ability to stabilize and control the acidity of certain products. It is also employed in the pharmaceutical industry as a buffering agent, contributing to the stability of medications. Sodium tartrate finds applications in the textile industry, where it is used as a complexing agent in dyeing processes.

Furthermore, sodium tartrate plays a role in cleaning products, acting as a chelating agent to bind metal ions and prevent discoloration. In the laboratory and research settings, sodium tartrate may be used as a reference material.

Overall, sodium tartrate's multifunctional properties make it an important ingredient in various industrial processes, contributing to the stability, quality, and performance of diverse products.

### Other Names:

Rochelle salt

### Functionalities:

1.Sequestrant: Sodium Tartrate acts as a sequestrant, effectively binding with metal ions. This property is particularly useful in preventing the discoloration of certain food products and in metal cleaning applications.

2.Buffering Agent: In some formulations, Sodium Tartrate is utilized as a buffering agent, helping to maintain a stable pH and preventing rapid changes in acidity.

3.Emulsifying Agent: Sodium Tartrate can function as an emulsifying agent in certain applications, contributing to the stabilization of emulsions and improving the texture of products.

4.Complexing Agent: Due to its ability to form complexes with metal ions, Sodium Tartrate is employed in various industrial processes, such as electroplating and photography.

### Applicable Industries:

1.Metal Cleaning: In metal cleaning processes, Sodium Tartrate is employed as a complexing agent to remove metal oxides and scales, aiding in the cleaning of metal surfaces.

2.Photography: Sodium Tartrate is used in some photographic processes as a complexing agent and as a component in certain developers.

3.Textile Industry: In the textile industry, Sodium Tartrate can be utilized in dyeing processes as a complexing agent and to improve color fastness.

4.Electroplating: Due to its complexing properties, Sodium Tartrate is used in electroplating baths to control metal deposition and improve the quality of plated surfaces.

5.Research and Laboratories: Sodium Tartrate is employed in various laboratory applications and research settings, often serving as a standard reference material.

## Tetrakis(hydroxymethyl)phosphonium sulfate(THPS)

### Product Description:

Tetrakis(hydroxymethyl)phosphonium sulfate, commonly known as THPS, is a versatile chemical compound recognized for its effectiveness as a biocide and flame retardant. Derived from phosphorus chemistry, THPS is widely used in various industrial applications. In microbial control, particularly in industries like oil and gas, water treatment, and pulp and paper processing, THPS serves as a potent biocide, effectively inhibiting the growth of bacteria, fungi, and algae. Additionally, THPS exhibits flame-retardant properties, making it valuable in enhancing fire resistance in textiles, wood products, and other materials. THPS plays a crucial role in industries where both microbial control and fire safety are critical considerations.

### Other Names:

THPS

### Functionalities:

1.Biocide: Tetrakis(hydroxymethyl)phosphonium sulfate serves as a potent biocide, effectively controlling the growth of bacteria, fungi, and algae in various industrial systems, including water treatment, oil and gas production, and pulp and paper processing.

2.Flame Retardant: THPS is recognized for its flame-retardant properties. It is used in certain applications to enhance the fire resistance of materials, making it valuable in industries where fire safety is a priority.

3.Corrosion Inhibitor: In addition to its biocidal properties, THPS can act as a corrosion inhibitor, helping to protect metal surfaces from degradation in systems where microbial-induced corrosion is a concern.

4.Scale Inhibitor: THPS is employed as a scale inhibitor in various industrial processes, helping to prevent the formation of scale deposits in pipelines and equipment.

5.Pulp and Paper Industry: THPS is used in the pulp and paper industry for microbial control in paper mills and to prevent microbial-induced issues in paper production processes.

### Applicable Industries:

1.Oil and Gas Industry: Tetrakis(hydroxymethyl)phosphonium sulfate is widely used in the oil and gas industry for microbial control in oil reservoirs, pipelines, and water injection systems. It helps prevent microbial-induced corrosion and biofouling.

2.Water Treatment: THPS is applied in water treatment processes to control microbial growth, particularly in cooling water systems, industrial water, and process water.

3.Pulp and Paper Industry: In the pulp and paper industry, THPS is utilized for microbial control in paper mills and to address microbial-related issues in paper production.

4.Textile Industry: THPS can be used as a flame retardant in the textile industry to enhance the fire resistance of fabrics and materials.

5.Fire Protection Systems: Due to its flame-retardant properties, THPS is employed in certain fire protection systems to improve the fire resistance of materials and structures.

6.Metalworking: THPS serves as a corrosion inhibitor and scale inhibitor in metalworking fluids to protect metal surfaces from corrosion and scale formation.

## Tetrakis(hydroxymethyl)phosphonium chloride(thpc)

### Product Description:

Tetrakis(hydroxymethyl)phosphonium chloride, commonly known as THPC, is a chemical compound recognized for its flame-retardant properties and diverse industrial applications. Produced through a synthesis process, THPC has found prominence as an effective additive in textiles, wood treatments, and various materials where enhancing fire resistance is crucial. It imparts flame-retardant characteristics without significantly altering the physical properties of the treated materials. THPC is a valuable solution in industries prioritizing fire safety, making it an essential component in the production of flame-resistant textiles, wood products, and other materials where reducing the risk of fire is a paramount concern.

### Other Names:

THPC

### Functionalities:

1.Flame Retardant: Tetrakis(hydroxymethyl)phosphonium chloride is primarily recognized for its flame-retardant properties. It is used as an additive in various materials and formulations to enhance fire resistance, making it valuable in industries where fire safety is a priority.

2.Textile Finishing: THPC is commonly used in the textile industry as a flame retardant for fabrics and garments. It imparts fire resistance to textiles without significantly affecting their physical properties.

3.Wood Treatment: THPC is applied in wood treatment formulations to impart flame-retardant characteristics to wood products, such as plywood and timber, improving their fire safety.

4.Paper Industry: In the paper industry, THPC is utilized for flame retardancy in paper products. It is often incorporated into coatings and treatments to enhance the fire resistance of paper.

### Applicable Industries:

1.Textile Industry: Tetrakis(hydroxymethyl)phosphonium chloride is widely used in the textile industry for flame-retardant finishing of fabrics and garments. It provides a crucial layer of fire protection without compromising the textile's comfort or appearance.

2.Wood and Timber Industry: THPC finds applications in the wood and timber industry, where it is used to treat wood products, such as plywood and timber, providing flame-retardant properties and improving fire safety.

3.Paper and Pulp Industry: In the paper and pulp industry, THPC is employed to enhance the fire resistance of paper products. It is used in coatings and treatments for applications where fire safety is a concern.

4.Construction Materials: THPC can be incorporated into various construction materials, such as coatings, paints, and sealants, to improve their flame-retardant characteristics.

5.Adhesives and Sealants: In adhesive and sealant formulations, THPC may be used to enhance the fire resistance of the final products.