Global Specialty Ingredients

PRODUCT LIST

Issued On 01/01/2014

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GLOBAL SPECIALTY INGREDIENTS (M) SDN BHD (832177-M)
Lot No 202, Jalan Sungai Pinang 5/7, Pulau Indah Industrial Park Phase 2A,
42920 Port Klang, Selangor Darul Ehsan, Malaysia
Tel: 006 03 3101 3500 Fax: 006 03 3101 4500
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Product List Summary

Product Category	Products \ Brand Name
Emulsifier	GLYCEROL MONOSTEARATE (GMS-SE) (Self Emulsifying).
Emulsifier	DISTILLED MONOGLYCERIDES (DMG).
Emulsifier	GLYCEROL MONOOLEATE (GMO).
Emulsifier	SORBITAN TRI STEARATE (STS).
Emulsifier	POLYGLYCEROL ESTERS OF FATTY ACID (PGE)
Emulsifier	POLYGLYCEROL POLYRICINOLEATE (PGPR).
Emulsifier	SODIUM STEAROYL LACTYLATE (SSL) & SODIUM AND CALCIUM STEAROYL LACTYLATE (SSL/CSL)
Emulsifier	ACETIC ACID ESTERS OF MONO AND DIGLYCERIDES (ACETEM) & LACTIC ACID ESTERS OF MONO AND DIGLYCERIDES (LACTEM).
Emulsifier	CITRIC ACID ESTERS OF MONO AND DIGLYCERIDES (CITREM)
Emulsifier	DI-ACETYLTARTARIC ESTERS OF MONOGLYCERIDES (DATEM).
Emulsifier	PROPYLENE GLYCOL MONOESTER (PGME) & PROPYLENE GLYCOL MONOSTEARATES (PGMS).
Emulsifier	POLYOXYETHYLENE SORBITAN MONOLAURATE (Polysorbate 20).
Emulsifier	POLYOXYETHYLENE SORBITAN MONOOLEATE (Polysorbate 80).
Emulsifier	POLYOXYETHYLENE SORBITAN MONOPALMITATE (Polysorbate 40).
Emulsifier	POLYOXYETHYLENE SORBITAN MONOSTEARATE (Polysorbate 60).
Emulsifier	SUCROSE ESTERS OF FATTY ACIDS (SFAE).

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Product Name: **GLYCEROL MONOSTEARATE (GMS-SE) (Self Emulsifying).**

Product Statement:

GLYCEROL MONOSTEARATE (GMS-SE) (Self Emulsifying) commonly known as **GMS**, is an organic molecule used as an emulsifier. GMS is a colorless, odorless, and sweet-tasting flaky powder that is hygroscopic. It is a glycerol ester of stearic acid.

GLYCEROL MONOSTEARATE (GMS-SE) performs a number of different functions and provides capabilities that are unique among emulsifiers.

Benefits:

GLYCEROL MONOSTEARATE is excellent for:-

- Aerating properties, volume and texture improvement and anti-staling in cakes and breads,
- Improves and overrun and dryness in frozen desserts and ice-creams;
- Improves stability and texture in icing and fillings,
- Improves overrun and texture in whipped toppings
- Used in baking preparations to add "body" to the food
- It is responsible for giving ice cream and whipped cream its smooth texture
- Used as a emulsifiers in coffee whiteners,
- Used as a thickening, emulsifying, anti-caking, and preservative agent;
- Used as an emulsifying agent for oils, waxes, and solvents;
- Used as a protective coating for hygroscopic powders;
- Used as a solidifier and control release agent in pharmaceuticals;
- Used as a resin lubricant.
- Used in cosmetics and hair care products.

Application:

GLYCEROL MONOSTEARATE is suitable to use in food and cosmetics industry.

For food industry: Used as an Emulsifier for foods like biscuits, breads or prepared mixes and anti-aging Agent; Used as an Emulsifier for margarine, shortening and peanut butters; Used as an Emulsifier for and stabilizer of creaming powder and dispersant agent for powder soup.

For Cosmetics Industry: Used as an Emulsifier and opacifier, emollients and bodyfying agents; also used in vanishing creams, cleansing creams, emollient creams, fairness creams, moisturizing and sunscreen lotions; also used as viscosity building agent for surfactant and textile auxiliaries.

Dosage:

The dosage level for **GLYCEROL MONOSTEARATE** is varied from 0.5 – 10.0%.

Certifications:

GLYCEROL MONOSTEARATE (GMS-SE) is being certifies for following standards and Certifications: - Halal Certificate, Kosher Certificate & ISO 9001:2008 Certificate.

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Product Name: DISTILLED MONOGLYCERIDES (DMG).

Product Statement:

DISTILLED MONOGLYCERIDES (DMG) is high potency food emulsifiers contains a minimum of 90% monoglycerides, for outstanding results in a broad range of products.

DISTILLED MONOGLYCERIDES produced from a reaction of various selected fats and oils with glycerol followed by molecular distillation. Variations are obtained through the type of triglycerides and the concentration of monoglyceride.

DISTILLED MONOGLYCERIDES performs a number of different functions and provides capabilities that are unique among emulsifiers.

Benefits:

DISTILLED MONOGLYCERIDES (DMG) is excellent for:-

- Efficient processing
- Improved product quality with Shelf life extension
- Fat reduction
- Emulsification in margarine and spreads
- Starch-complexing in pastas and cereals
- Aeration in whipped toppings
- Lubrication in extruded food
- De-foaming in puddings/jams
- Oil stabilization in peanut butter
- Aerating properties, volume and texture improvement and anti-staling in cakes and bakery products,
- Emulsifiers in coffee whiteners,
- Improves and overrun and dryness in frozen desserts and ice-creams;
- Improves stability and texture in icing and fillings,
- Improves overrun and texture in whipped toppings.

Application:

DISTILLED MONOGLYCERIDES (DMG) is suitable to use in food and cosmetics industry.

For food industry: Used as an Emulsifier for foods like biscuits, breads or prepared mixes and anti-aging Agent; Used as an Emulsifier for margarine, shortening and peanut butters; Used as an Emulsifier for and stabilizer of creaming powder and dispersant agent for powder soup.

For Cosmetics Industry: Used as an Emulsifier and opacifier, emollients and bodyfying agents; also used in vanishing creams, cleansing creams, emollient creams, fairness creams, moisturizing and sunscreen lotions; also used as viscosity building agent for surfactant and textile auxiliaries.

Dosage:

The dosage level for **DISTILLED MONOGLYCERIDES (DMG)** is varied from 0.5 – 10.0%.

Certifications:

DISTILLED MONOGLYCERIDES (DMG) is being certifies for following standards and Certifications: - Halal Certificate, Kosher Certificate & ISO 9001:2008 Certificate.

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Product Name: GLYCEROL MONOOLEATE (GMO).

Product Statement:

GLYCEROL MONOOLEATE (GMO) is a nonionic surfactant of oil soluble, dispersible type, and having low foaming power.
GLYCEROL MONOOLEATE (GMO) has wide applications in agriculture, textile, PVC & food industries.
GLYCEROL MONOOLEATE (GMO) is used as an emulsifier, Mold release agent, Pigment dispersant, Rust preventer, lubricant Fibre de-lustering agent in Manufacturing PVC bottles, films, foils and etc.

Benefits:

The benefits of using **GLYCEROL MONOOLEATE (GMO)** is to:-

- Used as a Water-in-oil emulsifier with a high degree of water absorbency, good resistance to temperature fluctuations for soft creams.
- Used in bath oil as emollient and spreading agent, in make-up as pigment dispersant and in vanishing and moisturizing cream to impart slip.
- GMO is also used as a lubricant and antistatic aid in processing PVC films & frequently used as a rust preventive additive for compounded oils.
- GMO also can be used as synthetic ester lubricant, especially in machines of food industries where contact with petroleum products is not permissible.
- In textile industry, GMO finds applications in the preparations of neutral emulsions of Lubricating oils or finishing waxes.
- It is also used as a dispersing agent for pigments and as a fibre de-lustering agent & as a lubricant component in synthetic fibre spin finishes.
- In PVC, GMO imparts good lubricating action for both rigid as well as the plasticized PVC compounds. Compatibility with PVC resulted in no adverse effect on transparency. Heat stability is also improved.
- It is also used as a vehicle for Agricultural insecticides and anti-icing or an anti-freezing fuel additive.

Application:

GLYCEROL MONOOLEATE (GMO) has wide applications in agriculture, textile, PVC & food industries.

Dosage:

The dosage level for **GLYCEROL MONOOLEATE (GMO)** is varied from 0.5 – 3.0%.

Certifications:

GLYCEROL MONOOLEATE (GMO) is being certifies for following standards and Certifications: - Halal Certificate, Kosher Certificate & ISO 9001:2008 Certificate.

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Product Name: SORBITAN TRI STEARATE (STS).

Product Statement:

SORBITAN TRI STEARATE (STS) is a nonionic, lipophilic (Oil loving) surfactant. It is variously used as a dispersing agent, emulsifier, and stabilizer, in food and in aerosol sprays.

SORBITAN TRI STEARATE (STS) also used for preparing water in oil emulsions. It is used an emulsifier for cosmetic, emulsifier and dispersant for pigments and lubricants.

SORBITAN TRI STEARATE (STS) is a mixture of the partial esters of sorbitol and its anhydrides with stearic acid. It is produced by the esterification of sorbitol with commercial stearic acid derived from food fats and oils and consists of approximately 95% of a mixture of the esters of sorbitol and its mono- and di anhydrides.

Benefits:

The advantages of **SORBITAN TRI STEARATE (STS)** is:-

- Acts as anti-crystilliser in cooking oil.
- Acts as anti-bloom agent in confectionary fats.
- Acts as anti-bloom agent in chocolate.
- Acts as anti-sandiness agent in margarine and spread based on hydrogenated sunflower oil
- Used as an emulsifier for the preparation of water/oil emulsions,
- anti-foaming agent,
- Used in conjunction with polysorbates in oil toppings, cake mixes, and margarine applied to buns.
- Used for prevention of fat bloom in chocolates
- Used as a carriers and solvents for colours.

Application:

SORBITAN TRI STEARATE (STS) is used in fine bakery toppings and coatings, fat emulsions, milk and cream analogues, beverage whiteners, liquid tea, fruit and herbal infusion concentrates, edible ices, desserts, sugar confectionary, cocoa-based confectionary, chocolate, emulsified sauces, dietary food supplements, yeast for baking, chewing gum, dietetic foods for special medical purposes, and dietetic formulas for weight control.

Dosage:

The dosage level of **SORBITAN TRI STEARATE (STS)** is varied from 0.5% to 3.0%.

Certifications:

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Product Name: POLYGLYCEROL ESTERS OF FATTY ACID (PGE)

Product Statement:

POLYGLYCEROL ESTERS OF FATTY ACID (PGE) kind of hydrophilic emulsifier and it can produce strong emulsification effect for oils and fats. **POLYGLYCEROL ESTERS OF FATTY ACID (PGE**) is also an emulsifier with multiple functionalities which can be used in various food systems.

Benefits:

Few of the **POLYGLYCEROL ESTERS OF FATTY ACID (PGE)**'s advantages are:-

- It is Can be used as an Aerating agent, crystal modifier, starch-complexion agent, dough conditioner, humectant, de-foaming agent and anti-spattering agent in multiple food systems.
- It can be used for Stabilizing cake gels in whipping active form, when present in cake gels, it's secures a stable and efficient whipping performance, provides a stable density of the cake batter and provides a stable foam which is resistant to mechanical treatment.
- It can be used in margarine, butter, shortening oil and oyster sauce as emulsifier and crystal modifying additive to prevent oil-water separation and prolong the preservation period.
- It can be used in food baking to make oils and fats dispersed more homogeneously in dough to get higher aeration and produce larger volume of product, fine and supple feeling in mouth.
- In cakes it improves batter performance, crumb structure and cake volume.
- For Non-Dairy Icing and toppings it acts excellent aerating agent improves and stabilizes foam resulting soft and creamy textures, increased volume and shelf life.
- In plastics it is used as an anti-fogging and antistatic agent.

Application:

This functional ingredient is suitable to use in Cake, Cake gel, P margarine, butter, shortening oil and oyster sauce, Non-Dairy Icing and toppings, ie, Muffins, cookies and bread are among the bakery products that can be improved by using this functional ingredient.

Dosage:

The dosage level for **POLYGLYCEROL ESTERS OF FATTY ACID (PGE)** is varied from 0.5% to 2.0% for all the application except for Cake gel application. The dosage level **of POLYGLYCEROL ESTERS OF FATTY ACID (PGE)** for the cake gel products are varied from 5% – 20% based on the individual formulation.

Certifications:

POLYGLYCEROL ESTERS OF FATTY ACID (PGE) is certifies for following standards and Certifications: - Halal Certificate, Kosher Certificate & ISO 9001:2008 Certificate.

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Product Name: POLYGLYCEROL POLYRICINOLEATE (PGPR).

Product Statement:

POLYGLYCEROL POLYRICINOLEATE (PGPR) is a food grade emulsifier that can be used to modify the rheological characteristics of chocolate-based coatings. It can also be used as an emulsifier in both high fat and low fat spreads and in salad dressings or as a crystal inhibitor and anti-clouding agent in fractionated vegetable oils.

POLYGLYCEROL POLYRICINOLEATE (PGPR) used in chocolate, where it is acts as a viscosity reducer in chocolate which helps minimizing the usage of an expensive cocoa butter helping directly to reduce the cost of final product. It is used in manufacturing pan release / greasing oil which is widely used in bakeries to ensure non-sticky properties of the product to the pans on which the products are baked.

Benefits:

POLYGLYCEROL POLYRICINOLEATE (PGPR) is used for:-

- Crystal inhibitor and anti-clouding agent in vegetable oils
- Reduced yield stress
- Replacement of cocoa butter,
- Maintaining optimum flow properties during production
- Fat reduction
- Improved flow properties
- Improved tin release properties
- Emulsion stability Improved mouthfeel and spreadability
- Low-fat spreads
- Viscosity reducer in chocolate industry
- Used in manufacturing pan release / greasing oil
- Used as water-in-oil emulsifier for production of Low fat spread emulsions.
- Has a strong emulsifying effect and increases the viscosity in emulsions, contributing additionally to the emulsion stability and production safety
- Reduces the surface tension between the water and the fat phase
- Ensures a stable and homogeneous emulsion in the margarine with a low fat content

Application:

This **POLYGLYCEROL POLYRICINOLEATE (PGPR)** is suitable to use in Palm oil industry, cocoa industry, bakery products, Confectionery fillings, chocolate industry.

Dosage:

The dosage level for **POLYGLYCEROL POLYRICINOLEATE (PGPR)** is varied from 0.5% to 1.0%.

Certifications:

POLYGLYCEROL POLYRICINOLEATE (PGPR) is certifies for following standards and Certifications: - Halal Certificate, Kosher Certificate & ISO 9001:2008 Certificate.

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Product Name: **SODIUM STEAROYL LACTYLATE (SSL) & SODIUM AND CALCIUM STEAROYL LACTYLATE (SSL/CSL)**

Product Statement:

SODIUM STEAROYL LACTYLATE (SSL), SODIUM AND CALCIUM STEAROYL LACTYLATE (SSL/CSL) are an emulsifier with a very high hydrophilic-lipophilic balance (HLB) and is therefore an excellent emulsifier for fat-in-water emulsions. **SODIUM STEAROYL LACTYLATE (SSL),** due to presence of sodium, it is easily dissolved in water, making the emulsifier with the highest proportion of hydrophilic tendency in the molecule structure compared to lipophilic.

Benefits:

SODIUM STEAROYL LACTYLATE (SSL), SODIUM AND CALCIUM STEAROYL LACTYLATE (SSL/CSL) is widely used for:-

- Stronger dough, Shelf life extension and Increased Bread softness
- Improved aeration and foam stability of Desserts
- Stable fat emulsions and foams for cream products
- Improved mixing tolerance – by reacting with gluten proteins
- Increased bread volume – by strengthening the gluten network highest volume effect in bread systems with fat
- Improved crumb texture – finer structure because of interacting with gluten proteins
- Anti-staling effect – by interacting with the starch and delaying the starch retro gradation
- Most effective and commonly used dough strengthener
- It also functions as a humectant.
- It is most widely used in bread as it has high capacity for water adsorption, give more volume to dough resulting extra loafs which adds profit to bakers. .
- Due its efficiency as an excellent emulsifier, it is possible to use less of it than other similar additives; for example, it can be used in quantities only a tenth as large as soya-based emulsifiers.

Application:

SODIUM STEAROYL LACTYLATE (SSL) & SODIUM AND CALCIUM STEAROYL LACTYLATE (SSL/CSL) are used in widespread application in baked goods, liqueurs, cereals, chewing gum, desserts, and powdered beverage mixes.

Dosage:

The dosage level for **SODIUM STEAROYL LACTYLATE (SSL) & SODIUM AND CALCIUM STEAROYL LACTYLATE (SSL/CSL)** is varied from 0.3% to 1.0%.

Certifications:

SODIUM STEAROYL LACTYLATE (SSL) & SODIUM AND CALCIUM STEAROYL LACTYLATE (SSL/CSL) are certified for following standards and Certifications:
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Product Name:

ACETIC ACID ESTERS OF MONO AND DIGLYCERIDES (ACETEM). LACTIC ACID ESTERS OF MONO AND DIGLYCERIDES (LACTEM).

Product Statement:

ACETIC ACID ESTERS OF MONO AND DIGLYCERIDES (ACETEM) is normally obtained by esterification of acetic acid and mono and di-glycerides. However, **LACTIC ACID ESTERS OF MONO AND DIGLYCERIDES (LACTEM)** were obtained by esterification of lactic acid and mono and di-glycerides. The distribution of principal components depends on the proportion of lactic acid, fatty acids and glycerol.

Benefits:

ACETIC ACID ESTERS OF MONO AND DIGLYCERIDES (ACETEM) is having superior properties in following areas:-

- Improving coating properties food industries
- Improving lubricating properties in food industries
- Improving stability and anti-dusting applications
- Able to stabilize the alpha – fat crystal form of fats
- Synergistic components in the recipes of whipped toppings and shortenings.
- Also acting as an excellent aerating and foam stabilizing agent.
- Emulsifiers in cosmetic preparations
- Plasticizing and slipping agent for waxes on paper products, PVC and other plastic products

LACTIC ACID ESTERS OF MONO AND DIGLYCERIDES (LACTEM) is having superior properties in following areas:-

- Able to stabilize the alpha – fat crystal form of fats
- Synergistic components in the recipes of whipped toppings and shortenings.
- Also acting as an excellent aerating and foam stabilizing agent.
- Improve texture and volume

Application:

ACETIC ACID ESTERS OF MONO AND DIGLYCERIDES (ACETEM) is suitable to use in topping powders, topping concentrates, chewing gum base, coating cakes, cosmetics products, waxes, paper products, PVC and plastic products.

LACTIC ACID ESTERS OF MONO AND DIGLYCERIDES (LACTEM) suitable to use in topping powders, non-dairy creams, and dairy and recombined creams, fine baked goods, shortening and chocolate compounds.

Dosage:

The dosage levels for **ACETIC ACID ESTERS OF MONO AND DIGLYCERIDES (ACETEM)** and **LACTIC ACID ESTERS OF MONO AND DIGLYCERIDES (LACTEM)** are varied from 0.5 % - 3.0 %.

Certifications:

ACETIC ACID ESTERS OF MONO AND DIGLYCERIDES (ACETEM) and **LACTIC ACID ESTERS OF MONO AND DIGLYCERIDES (LACTEM)** are certified for following standards and Certifications: - Halal Certificate, Kosher Certificate & ISO 9001:2008 Certificate.

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Product Name: CITRIC ACID ESTERS OF MONO AND DIGLYCERIDES (CITREM)

Product Statement:

CITRIC ACID ESTERS OF MONO AND DIGLYCERIDES (CITREM) is specially developed to reduce both yield value and plastic viscosity in chocolate and compound products. **CITRIC ACID ESTERS OF MONO AND DIGLYCERIDES (CITREM)** is an excellent non-GMO alternative to lecithin**. CITRIC ACID ESTERS OF MONO AND DIGLYCERIDES (CITREM)** is based on non-hydrogenated palm oil, is no allergenic. The physical form is liquid which makes it easy to handle and dose at ambient temperature. The unique production process of **CITRIC ACID ESTERS OF MONO AND DIGLYCERIDES (CITREM)** has been designed in such a way that the product adds no taste to the finished product.

Benefits:

The benefits of CITRIC ACID ESTERS OF MONO AND DIGLYCERIDES (CITREM) are:-

- Improves flow properties by reducing both yield value and plastic viscosity
- Provides cost savings
- Reduces the number of ingredients
- Allows for new imaginative product development
- Saves costs by enabling fat content to be reduced by 2-4% compared to chocolate containing only lecithin
- Fat content cannot be reduced further if PGPR is already used in the chocolate
- CITREM has a strong effect on the yield value - an effect much stronger than the effect of lecithin.
- CITREM shows no increase in yield value at higher dosages which opens up for additional fat reductions.
- Reduces the surface tension between water and the fat phase
- Facilitates and stabilizes the water-in-oil and oil-in water emulsion during emulsification and processing.
- Ensures a homogeneous and stable emulsion in the finished product
- Imparts a fine and stable anti-spattering effect in frying margarine.

Application:

This functional ingredient is suitable to use in Chocolate bars, Biscuit/cereal/cookie bars, Chocolate spread, chocolate fillings, Hollow chocolate shapes, frying margarine.

Dosage:

The dosage levels for **CITRIC ACID ESTERS OF MONO AND DIGLYCERIDES (CITREM)** are varied from 0.5 % - 3.0 %.

Certifications:

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Product Name: DI-ACETYLTARTARIC ESTERS OF MONOGLYCERIDES (DATEM).

Product Statement:

DI-ACETYLTARTARIC ESTERS OF MONOGLYCERIDES (DATEM) is an emulsifier primarily used in baking. It is used to strengthen the dough by building a strong gluten network. It is used in crusty breads, such as rye bread with a springy, chewy texture, as well as biscuits, coffee whiteners, salsa con queso, ice cream, and salad dressings.

DI-ACETYLTARTARIC ESTERS OF MONOGLYCERIDES (DATEM) interact with the hydrophobic parts of the gluten, helping the proteins unfold and form cross-linked structures. It is composed of mixed esters of glycerin in which one or more of the hydroxyl groups of glycerin has been esterified by diacetyl tartaric acid and by fatty acids.

Benefits:

The benefits of **DI-ACETYLTARTARIC ESTERS OF MONOGLYCERIDES (DATEM)** is:-

- **DATEM'**s main function is as a softener.
- Used for all kinds of yeast-raised bread as a dough conditioner.
- Suitable for strengthening the gluten network, enabling the gluten to retain the carbon dioxide produced during fermentation.
- **DATEM** due to the ratio of hydrophilic to lipophilic groups 1:1, equally soluble in fat and dispersible in water.
- **DATEM** is a surfactant with excellent protein complexing properties in yeast raised dough systems.
- Increases the bread volume and improves crumb texture by strengthening the gluten network and by improved gas retention.
- Highest volume effect in bread systems without fat.
- Improves stability and machinability of the dough by excellent protein complexing properties.
- Batter shock and proofing tolerance by increasing the elasticity and extensibility of the gluten.
- Easier and finer dispersion of the shortening throughout the dough because of the emulsifiers' hydrophilic and lipophilic structure.
- Unlike other commercially used dough emulsifiers, DATEM does not form starch complexes.

Application:

This functional ingredient is suitable to use in bakery products particularly yeast-leavened products, white bread, rolls rusks, and in flour mixes. Other applications are in Beverage whiteners, cream products, chewing gum, emulsified sauces, and canned coffee or tea.

Dosage:

The dosage levels for **DI-ACETYLTARTARIC ESTERS OF MONOGLYCERIDES (DATEM)** are varied from 0.5% to 1.0%.

Certifications:

DI-ACETYLTARTARIC ESTERS OF MONOGLYCERIDES (DATEM) is certifies for following standards and Certifications: - Halal Certificate, Kosher Certificate & ISO 9001:2008 Certificate**.**

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Product Name: **PROPYLENE GLYCOL MONOESTER (PGME). PROPYLENE GLYCOL MONOSTEARATES (PGMS).**

Product Statement:

PROPYLENE GLYCOL MONOESTER (PGME) and PROPYLENE GLYCOL MONOSTEARATES (PGMS) are lipophilic, oil soluble emulsifiers with specific crystalline properties.

The specific crystalline properties of **PROPYLENE GLYCOL MONOESTER (PGME) and PROPYLENE GLYCOL MONOSTEARATES (PGMS)** and its ability to stabilize the meta-stable Alpha crystal form of this material are beneficial in many aerated, such as non-dairy deserts, whipping creams, powdered toppings and cake emulsifiers.

PROPYLENE GLYCOL MONOESTER (PGME) and PROPYLENE GLYCOL MONOSTEARATES (PGMS)'s Alpha crystalline properties also enhances the functional effects of the other emulsifiers leading to interaction with water and forming gel structure at low temperature.

Benefits:

PROPYLENE GLYCOL MONOESTER (PGME) and PROPYLENE GLYCOL MONOSTEARATES (PGMS) provide the following advantages:

- Give stability of the shortening over time
- Improves the whipping properties
- Improves volume in baked sponge cake and layer cake system
- Increase cake volume and uniform cake structure
- Aerated bakery products and cake mixes
- Excellent aerating and foam stabilizing properties in whipped toppings
- Effective aerating agent in fine bakery goods and cake shortening when used in combination with distilled mono-glycerides
- Improved cake batter performance, crumb structure and cake volume,
- Improved whipping properties and plasticity
- Reduced spattering
- Increased overrun and foam stiffness
- Shorter whipping time

Application:

This functional ingredient is suitable to use in bakery products, margarines, deserts, toppings and non-dairy whipping creams. Cake, sponge cakes, fat-

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free cakes are among the bakery products that can be improved by using this functional ingredient.

Dosage:

The dosage levels for **PROPYLENE GLYCOL MONOESTER (PGME) and PROPYLENE GLYCOL MONOSTEARATES (PGMS)** is varied from 0.5% to 1.0%.

Certifications:

PROPYLENE GLYCOL MONOESTER (PGME) and **PROPYLENE GLYCOL MONOSTEARATES (PGMS)** is certifies for following standards and Certifications: - Halal Certificate, Kosher Certificate & ISO 9001:2008 Certificate.

Product Name: POLYOXYETHYLENE SORBITAN MONOLAURATE (Polysorbate 20).

Product Statement:

POLYOXYETHYLENE SORBITAN MONOLAURATE (Polysorbate 20) is a **POLYSORBATE** surfactant whose stability and relative non-toxicity allows it to be used as a detergent and emulsifier in a number of domestic, scientific, and pharmacological applications.
It is a polyoxyethylene derivative of sorbitan monolaurate, and is distinguished from the other members in the polysorbate range by the length of the polyoxyethylene chain and the fatty acid ester moiety.

Benefits:

POLYSORBATE 20 is used:-

- As a wetting agent in flavored mouth drops such as Ice Drops,
- Helping to provide the spreading feeling of the other ingredients like SD alcohol and mint flavor.
- Preparing water in oil emulsions,
- Used as an emulsifier for pharmaceutical s and cosmetics, synthetic resin lubricants,
- Used in variety of industries leather chemicals, textile auxiliaries, PVC resin, cosmetic industry,
- Stabilizer for emulsion and suspensions
- Emulsifier for lubricants and synthetic resin,
- Emulsifier for dispersant for colour materials,
- Anti-fogging agent for synthetic resin films,
- Defoaming agent
- Emulsifier for silicone resin

Application:

This functional ingredient is suitable to use in pharmaceutical, cosmetics, leather, textile, PVC resin, Silicone resin industries.

Dosage:

The dosage levels for **POLYOXYETHYLENE SORBITAN MONOLAURATE (Polysorbate 20)** are from 0.5% - 10.0%.

Certifications:

POLYOXYETHYLENE SORBITAN MONOLAURATE (Polysorbate 20) is certifies for following standards and Certifications: - Halal Certificate, Kosher Certificate & ISO 9001:2008 Certificate.

Product Name:

POLYOXYETHYLENE SORBITAN MONOOLEATE (Polysorbate 80).

Product Statement:

POLYOXYETHYLENE SORBITAN MONOOLEATE (POLYSORBATE 80) is a nonionic surfactant and emulsifier derived from polyethoxylated sorbitan and oleic acid, and is often used in foods.
It is a polyoxyethylene derivative of sorbitan monooleate, and is distinguished from the other members in the polysorbate range by the length of the polyoxyethylene chain and the fatty acid ester moiety.
POLYSORBATE 80 is a viscous, water-soluble yellow liquid.

Benefits:

POLYSORBATE 80 is used as:-

- Emulsifier in foods, particularly in ice cream to make the ice cream smoother and easier to handle, as well as increasing its resistance to melting,
- Providing a firmer texture that holds its shape as the ice cream melts.
- Dough conditioner in yeast-raised baked goods,
- Foaming agent in beverage mixes,
- Bloom retardant in chocolate and sugar coatings,
- Aerating agent, volume and texture improvement in cakes,
- Emulsifiers in coffee whiteners, dressings and sauces,
- Improves overrun and dryness in frozen desserts,
- Improves stability and texture in icings and fillings,
- Emulsifier and improves extrudability in pet foods, flavor solubilizer in pickles,
- Improves overrun and texture in whipped topping
- Can be used for preventing milk proteins from completely coating the fat droplets to allows them to join together in chains and nets, which hold air in the mixture, and

Application:

This functional ingredient is suitable to use in bakery products, Ice cream, beverage, frozen desserts, chocolate, cake, dressings and sauces manufacturing.

Dosage:

The dosage levels for **POLYOXYETHYLENE SORBITAN MONOOLEATE (Polysorbate 80)** are from 0.5% - 10.0%.

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Certifications:

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Product Name:

POLYOXYETHYLENE SORBITAN MONOPALMITATE (Polysorbate 40).

Product Statement:

POLYOXYETHYLENE SORBITAN MONOPALMITATE (Polysorbate 40) is a nonionic lipophilic (oil loving) surfactant and emulsifier derived from polyethoxylated sorbitan and palmitic acid.
It is a polyoxyethylene derivative of sorbitan monopalmitate, and is distinguished from the other members in the polysorbate range by the length of the polyoxyethylene chain and the fatty acid ester moiety.

Benefits:

POLYOXYETHYLENE SORBITAN MONOPALMITATE (POLYSORBATE 40) is used for:-

- Preparing water in oil emulsions,
- Used as an emulsifier for pharmaceutical s and cosmetics, synthetic resin lubricants,
- Stabilizer for colour materials,
- Stabilizer for emulsion polymerizations,
- Emulsifier for adjuvant of agrochemicals,
- Emulsifier for water based metal process cutting oils
- Surface coating type antistatic agents.

Application:

This functional ingredient is suitable to use in food, cosmetics, emulsions, polymer emulsion, agrochemicals, metal processing and coating industry.

Dosage:

The dosage levels for **POLYOXYETHYLENE SORBITAN MONOPALMITATE (Polysorbate 40)** are from 0.5% - 10.0%.

Certifications:

POLYOXYETHYLENE SORBITAN MONOPALMITATE (Polysorbate 40) is certifies for following standards and Certifications: - Halal Certificate, Kosher Certificate & ISO 9001:2008 Certificate.

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Product Name: **POLYOXYETHYLENE SORBITAN MONOSTEARATE (Polysorbate 60).**

Product Statement:

POLYOXYETHYLENE SORBITAN MONOSTEARATE (Polysorbate 60) is a nonionic, lipophilic (oil loving) surfactant and emulsifier derived from polyethoxylated sorbitan and stearic acid.
It is a polyoxyethylene derivative of sorbitan monopalmitate, and is distinguished from the other members in the polysorbate range by the length of the polyoxyethylene chain and the fatty acid ester moiety.

Benefits:

POLYOXYETHYLENE SORBITAN MONOSTEARATE (Polysorbate 60) is used as:-

- Dough conditioner in yeast-raised baked goods,
- Foaming agent in beverage mixes,
- Bloom retardant in chocolate and sugar coatings,
- Aerating agent, volume and texture improvement in cakes,
- Emulsifiers in coffee whiteners, whipped cream, dressings and sauces,
- Improves overrun and dryness in frozen desserts,
- Improves stability and texture in icings and fillings,
- Preparing water in oil emulsions,
- Used as an emulsifier for pharmaceutical s and cosmetics, synthetic resin internal lubricants,
- Emulsifiers and dispersant for pigments,
- Emulsifiers for food grade silicone emulsions, silicone antifoam emulsions ,
- Rehydration aid in the production of active dry yeast.
- Effective food emulsifier for improving problem of “Over run”.

Application:

This functional ingredient is suitable to use in bakery products, Ice cream, beverage, frozen desserts, chocolate, cake, dressings, sauces,silicone emulsions, silicone antifoam emulsion, Lotions, creams, hair loss treatments, skin cleansers, makeup products requiring emulsification.

Dosage:

The dosage levels for **POLYOXYETHYLENE SORBITAN MONOSTEARATE (Polysorbate 60)** are from 0.5% - 10.0%.

Certifications:

POLYOXYETHYLENE SORBITAN MONOSTEARATE (Polysorbate 60) is certifies for following standards and Certifications: - Halal Certificate, Kosher Certificate & ISO 9001:2008 Certificate.

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Product Name: SUCROSE ESTERS OF FATTY ACIDS (SFAE).

Product Statement:

SUCROSE ESTERS OF FATTY ACIDS (SFAE) are non-ionic compounds synthesized by esterification of fatty acids or natural glycerides with sucrose. Type of fatty acids reacted with hydroxyl groups on sucrose are influencing the properties of individual sucrose esters. Higher substitution esters like hexa, hepta and octa are used as fat replacers, the lower substitution esters like mono, di and tri-esters used as oil-in-water as well as water-in-oil emulsifiers, this offers advantages over other commercially available emulsifiers. This also makes Sucrose Ester to have a wide range (1 to 18) of hydrophilic-lipophilic balance (HLB).

Benefits:

General

- High grade emulsifiers
- Wide HLB spectrum
- Neutral in taste, odour and colour
- Soluble in (cold) water
- Natural, renewable raw material
- GM-free, Trans fat free
- Suitable for vegetarians

Confectionery

- Quick and homogenous fat dispersion
- A reduction of pulling, kneading or drying time
- Shorter storage time to complete graining or drying
- Standardization of the product quality
- A whiter, smoother and dim candy appearance
- Less susceptible to damages and deformation
- Reduced occurrence of water separation, oiling or bloom
- Maintaining a soft and fine texture during storage

Bakery

- increased dough mixing tolerance;
- high volume;
- fine and soft crumb structure;
- extended shelf life;
- Improved freeze-thaw stability.

Dairy & Desserts

- Emulsification and stabilization of fat globules
- Stabilization of proteins
- Quick and high overrun
- Fine air cell structure
- Improved flavor profile

Emulsions

- small oil droplets, thus stable emulsion
- suitable alternative to egg yolk or dairy proteins

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- cold emulsification is possible
- prevents browning of (cream) sauce
- stops lump and skin formation in cream sauce

Application:

SUCROSE ESTERS is suitable to use in bakery products, fat emulsions for bakery industry, beverage whiteners, dairy based beverages, edible ices, deserts, sugar confectionery, chewing gum, sauces, soups and Food supplements.

Dosage:

The dosage levels for **SUCROSE ESTERS** are from 0.5% - 2.0%.

Certifications:

SUCROSE ESTERS having certified for following standards and Certifications:
- Halal Cert and Kosher Cert.

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